ODISHA ELECTRICITY REGULATORY COMMISSION
PLOT NO. 4, CHUNOKOLI, SHAILASHREE VIHAR,
BHUBANESWAR – 751021
Tel. No. (0674) 2721048/ 2721049 (PBX),
Fax : (0674) 2721053/2721057
E-mail : orierc@gmail.com
Website : www.orierc.org
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PUBLIC NOTICE
Case No. 51 of 2022

Hearing of Application for approval of Capital Investment Plan for the FY 2022-23 (Supplementary) in the licensed area of its operation in compliance to the directions of the Commission in the vesting order dated 26.05.2020 passed in Case No.11 of 2020 as well as the OERC (Terms and Conditions for determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2014.

M/s. TP Central Odisha Distribution Ltd. (**TPCODL)** has filed an application before this Commission for approval of Supplementary Capital Investment Plan for the FY 2022-23 in the licensed area of its operation in compliance to the directions of the Commission. The Commission has registered it as **Case No.51 of 2022** and has decided to dispose of this case through a public hearing. The petition along with all Annexures submitted by M/s. TPCODL in this regard is available in OERC website (www.orierc.org) and also in TPCODL's website www.tpcentralodisha.com. The persons/ organizations those who are interested to participate in the above proceeding may file their objections/suggestions, if any, on the present petition of M/s. TPCODL by **30.09.2022** with a copy to the petitioner. M/s. TPCODL is directed to file its rejoinder to the objections/suggestions of the Respondents by **17.10.2022** with a copy to the Respondents.

By Order of the Commission

Dated: .09.2022

Sd/-
S E C R E T A R Y

BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION,
BIDYUT NIYAMAK BHAWAN.
PLOT No-4, CHUNOKOLI, SHAILASHREE VIHAR, BHUBANESWAR-751021

Case No:_____/2022

IN THE MATTER OF: Application for approval of Capital Investment Plan for the FY 2022-23 (Supplementary) in the Licensed Area of TP Central Odisha Distribution Ltd.

And

IN THE MATTER OF: TP Central Odisha Distribution Ltd. (Formerly CESU), Corporate Office, Power House, Unit 8, Bhubaneswar- 751 012 represented by its Chief – Regulatory & Government Affairs.

.... Petitioner

IN THE MATTER OF: M/s GRIDCO Ltd, M/s OPTCL Ltd, Department of Energy, Govt. of Odisha and All Concerned Stakeholders.

.... Respondents

Affidavit

8 SEP 2022

I, Puneet Munjal, aged about 58 son of late Jagdish Lal Munjal residing at Bhubaneswar do hereby solemnly affirm and say as follows:

1. I am the Chief-Regulatory & Government Affairs of TP Central Odisha Distribution Ltd., the Petitioner in the above matter and I am duly authorized to swear this affidavit on its behalf.
2. The statements made in the submission -File No- TPCODL/Regulatory/2022/ 125/ 6876 herein shown to me are based on information provided to me and I believe them to be true.

Bhubaneswar.
Dated: 08.09.2022

Chief-Regulatory & Government Affairs

IDENTIFIED BY ME
ADVOCATE, BBSR

JAGYNESWAR ACHARYA NOTARY, GOVT. OF INDIA BBSR, DIST- KHURDA, ODISHA REGD. NO. 7791/2009 MOB: 8455885397 GOVERNMENT OF INDIA

Jagyneswar Acharya
Notary, Govt. Of India
Odisha, BBSR, Dist-Khurda
Regd. No.-7791/2009
Mob:- 9861006174

TPCODL

September 08, 2022
File No TPCODL/Regulatory /2022/125/6876

Secretary
Odisha Electricity Regulatory Commission
Bidyut Niyamak Bhawan
Plot No 4, Chunokoli
Shailashree Vihar
Bhubaneshwar 751021

Dear Sir

Sub: Petition for Approval of additional Capital Investment Plan for FY 2022-23

We are through this letter submitting a petition to the Hon'ble Commission for approval of additional Capital Investment Plan for the FY 2022-23. We request you to kindly approve the same.

We trust our submissions are in order

Yours faithfully

(Puneet Munjal)
Chief – Regulatory and Government Affairs

BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION,
BIDYUT NIYAMAK BHAWAN.
PLOT No-4, CHUNOKOLI, SHAILASHREE VIHAR, BHUBANESWAR-751021

Case No:_____/2022

IN THE MATTER OF: Application for approval of Additional Capital Investment Plan for the FY 2022-23 in the Licensed Area of TP Central Odisha Distribution Ltd.

And

IN THE MATTER OF: TP Central Odisha Distribution Ltd. (Formerly CESU), Corporate Office, Power House, Unit 8, Bhubaneswar- 751 012 represented by its Chief – Regulatory & Government Affairs.

.... Applicant

IN THE MATTER OF: M/s GRIDCO Ltd, M/s OPTCL Ltd, Department of Energy, Govt. of Odisha and All Concerned Stakeholders.

.... Respondents

Background for Submission of the Petition

In compliance with the directives stipulated in the Vesting Order dated 26.05.2020 as well as the Odisha Electricity Regulatory Commission (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations 2014 , TPCODL since its commencement of operation has been submitting its Capital Investment plan every year for the approval of the Hon'ble Commission.

The Capital Investment plan for FY 2022-23 was submitted by TPCODL on 25th January 2022 which was registered as Case 14 /2022 . The Hon'ble Commission in its order dated 19.07.2022 approved total Capex of Rs.243.31 Cr.

While we are thankful to the Hon'ble Commission for approving the Capex for FY 2022-23, we wish to submit that there is an exorbitantly high load growth observed this summer and some of the lines and Power Transformers are going to be overloaded in Summer'23. In order to maintain the reliability and cater to this high load growth, certain network strengthening proposals are required to be executed before Summer' 23 for which an in-principle approval is requested for Supplementary Capex. We wish to bring it to the kind notice of the Hon'ble Commission that these proposals are critical to avoid any load shedding on account of overloading during the ensuing summer of 2023. Further it is to submit that in some pockets, low voltage is observed and to mitigate the low voltage issues in these area, we

require construction of PSS for which approval is required now so that procurement and construction of these PSS can be started immediately and commissioning is completed before summer'24.

In view of this, TPCODL, through this submission, is requesting for additional capex approval of Rs. 137.25 Cr under the heads of 'Reliability' and 'Load Growth' for the activities as mentioned below.

Sr No	Major Category	Activity	Capex Requirement (Rs. Cr)	Remark
1	Load Growth	11kV Feeder Overloading Mitigation	46.74	Details in Annexure-1
2	Load Growth	33kV Feeder Overloading Mitigation	22.71	Details in Annexure-2
3	Load Growth	Augmentation of 33/11 kV Power Transformers for mitigating the issues of Overloading	23.94	Details in Annexure-3
4	Reliability	Construction of 2 nos of 33/11KV PSS to mitigate low voltage issues	43.86	Details in Annexure-4
5	**Total**		**137.25**	

The detailed rationale of these activities along with cost estimate are provided in Annexure-1 to Annexure-4 as attached to this submission.

Prayers

TPCODL prays that the Hon'ble Commission may kindly pleased to;

1. Approve the Additional Capex of Rs. 137.25 Cr.
2. Permit making additional submission required in this matter
3. Grant any other relief as deemed fit & proper in the facts and circumstances of the case.

ANNEXURE-1

11kV Network Reliability Analysis

11kV network of all circles is studied for overloading using peak load data in the summer period of FY:2022-23 and studied for AS IS network and for load growth is subsequent years down the line considering load growth. Mitigation proposals are undertaken in order to mitigate the overloading of 11kV feeders.

I. Summary of proposal details :

Sl. No.	Division	Proposal Details	Mitigation Type	Costing in Cr
1	BCDD-II	Refurbishment of 11kV Bharatpur Feeder for mitigation of Overload	Overloading	0.99
2	BCDD-II	Refurbishment of 11kV K-2 Feeder for mitigation of Overload	Overloading	0.33
3	BCDD-II	Bifurcation of 11kV Shree Vihar Feeder for mitigation of Overload	Overloading	5.64
4	BCDD-II	Refurbishment of 11kV Cs Pur-1 Housing Board Feeder for mitigation of Overload	Overloading	0.8
5	BCDD-II	Refurbishment of 11kV Cs Pur-2 Industry Feeder for mitigation of Overload	Overloading	1.18
6	BCDD-II	Refurbishment of 11kV Cs Pur-2 BDA-2 Feeder for mitigation of Overload	Overloading	0.21
7	BCDD-II	Bifurcation of 11kV Panchasakha Nagar Feeder for mitigation of Overload	Overloading	0.73
8	BCDD-II	Refurbishment of 11kV New Industry Feeder for mitigation of Overload	Overloading	0.62
9	BCDD-II	Refurbishment of 11kV Polymer Complex Feeder for mitigation of Overload	Overloading	0.68
10	BCDD-II	Refurbishment of 11kV Sikharchandi Feeder for mitigation of Overload	Overloading	0.29
11	BCDD-II	Bifurcation of 11kV K-5 Feeder for mitigation of Overload	Overloading	1.47
12	BCDD-II	Bifurcation of 11kV KIIT Feeder for mitigation of Overload	Overloading	5.21
13	BCDD-II	Bifurcation of 11kV kalarahanga Feeder for mitigation of Overload	Overloading	3.58
14	BCDD-II	Bifurcation of 11kV Patia Feeder for mitigation of Overload	Overloading	5.13
15	BCDD-II	Bifurcation of 11kV Kolathia Feeder for mitigation of Overload	Overloading	1.99
16	BCDD-II	Refurbishment of 11kV IRC-3 Feeder for mitigation of Overload	Overloading	0.21
17	BCDD-II	Refurbishment of 11kV No-2, Sriram Bazar Feeder for mitigation of Overload	Overloading	0.93
18	BCDD-II	Swapping of 11kV NALCO feeder from PTR-1 to PTR-3 to mitigate PTR overloading issue	Overloading	0.3
19	BED	Mitigation of Overloading issue of 11kV Laxmisagar Feeder	Overload Mitigation	4.66
20	BED	Mitigation of Overloading issue of 11kV Jharapada Feeder	Overload Mitigation	3.85
21	BED	Mitigation of Overloading issue of 11kV PAHAL Feeder	Overload Mitigation	0.23
22	BED	Mitigation of Overloading issue of 11kV BADAGADA Feeder	Overload and N-1 Mitigation	1.83
23	BED	Mitigation of Overloading issue of 11kV WATER WORKS Feeder	Overload Mitigation	2.2
24	BED	Mitigation of Overloading issue of 11kV BADAGADA LINGRAJ Feeder	Overload Mitigation	0.72

Sl. No.	Division	Proposal Details	Mitigation Type	Costing in Cr
25	BED	Mitigation of Overloading issue of 11kV MANCHESWAR Feeder No.3	Overload and N-1 Mitigation	0.22
26	BED	Mitigation of Overloading issue of 11kV MANCHESWAR Feeder No.2	Overload Mitigation	0.66
27	CED	Refurbishment of 11kV OTM feeder and Manguli feeder for Mitigation of Overloading of Manguli feeder	Overloading	1
28	CDD-II	Bifurcation of existing 11kV Old Industry Feeder emanating from 33/11kV Jagatpur PSS by constructing 1 no. of new feeder from 33/11kV Jagatpur PSS through RMU.	Overloading	1.08
			TOTAL	**46.74**

1. Refurbishment of 11kV Bharatpur Feeder for mitigation of Feeder Overloading

Proposal: Augmentation of existing 11kV Bharatpur Feeder emanating from 33/11kV Bharatpur PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & UG Cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km.

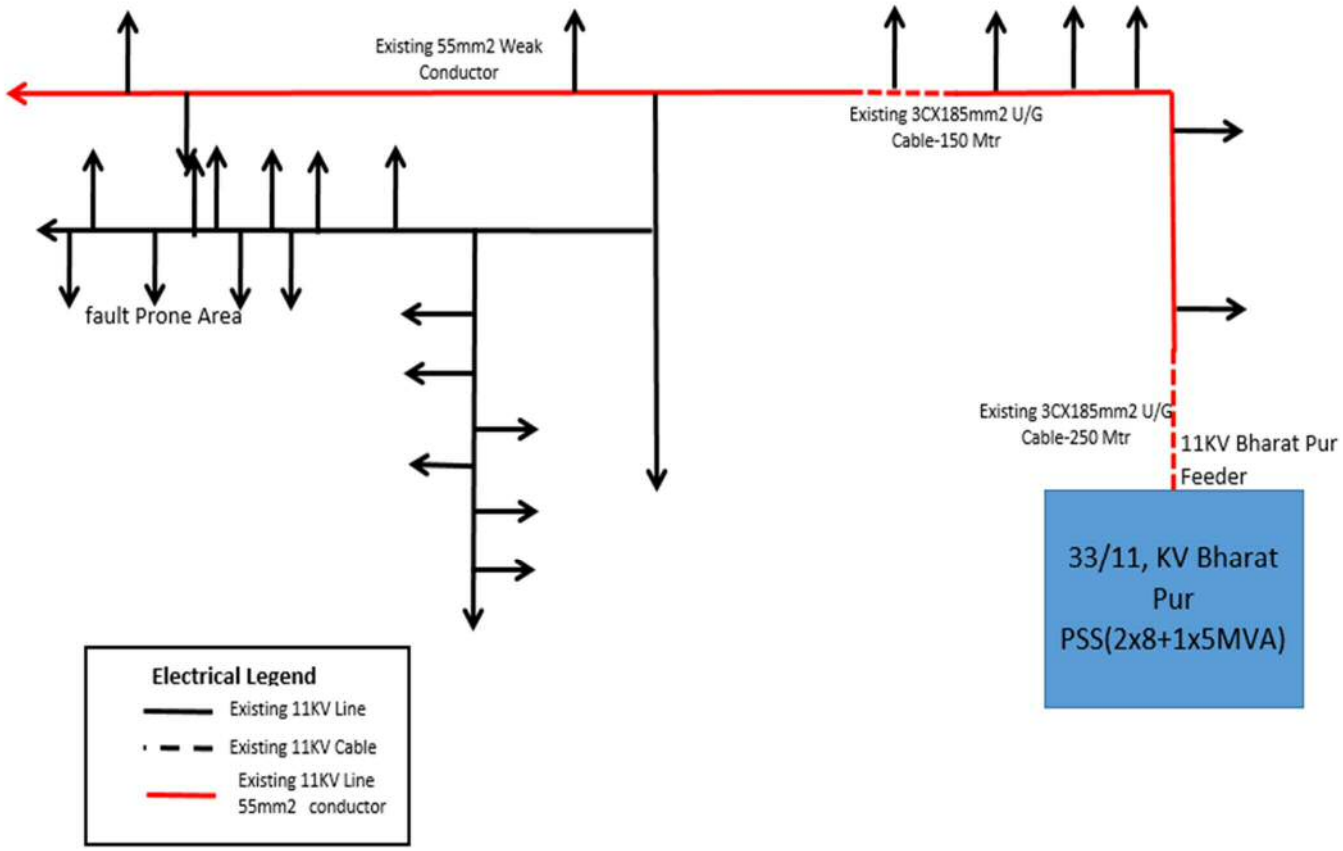
Objective: To mitigate the overloading issue of 11kV Bharatpur feeder.

Existing Scenario:

- At present, 11kV Bharatpur feeder is emanating from 33/11kV Bharatpur PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 37.24km and the peak load is 3.6MVA.
- In the existing scenario, conductor size of 11kV Bharatpur feeder is 55sqmm & the feeder is 102.69% loaded, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding urban consumers, several breakdown on 11kV feeder is encountered which hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
Bharatpur	3.54	3.60	102.69	Over load & low voltage	5.33	150.5	Overload

Existing SLD (Summer'21):

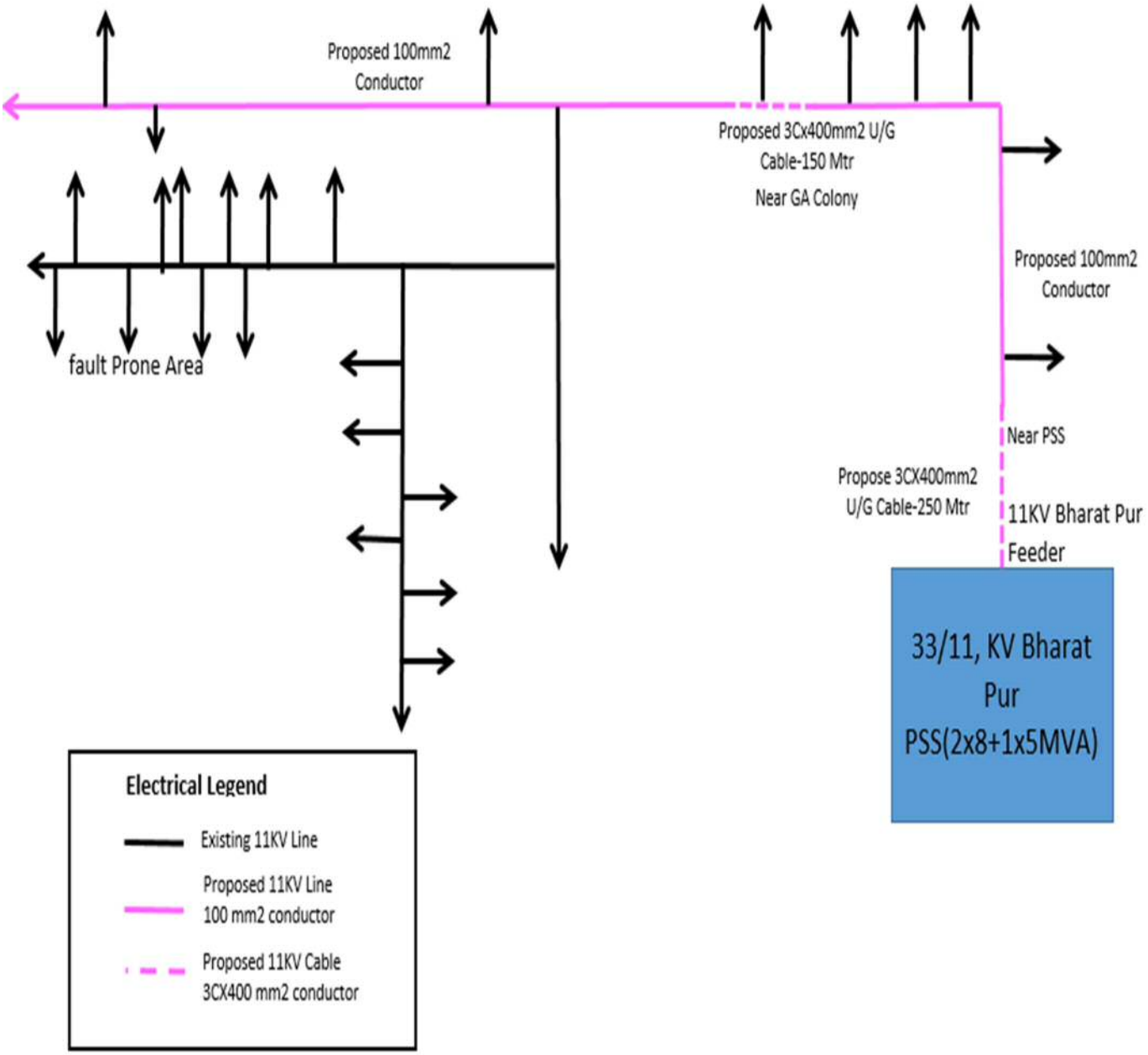


Proposed Scenario:

- Augmentation of 7.1km Existing 55sqmm old conductor with 100sqmm AAAC conductor & UG cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km (From Bharatpur PSS to Institute of Mathematics DSS).

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
Bharatpur	5.18	3.60	69.5	OK	4.3	83.4	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 7.1km Existing 55sqmm old conductor with 100sqmm AAAC conductor & UG Cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km (From Bharatpur PSS to Institute of Mathematics DSS).

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	KHANDAGIRI
	Name of the Section : -	Bharat Pur
	Name of the Work :-	Part- A Augmentation of Conductor for 11kv Bharatpur Ring feeder From 55sqmm to 100sqmm of length-7.1km with 36 nos. Interposing poles. Part- B Laying of UG cable 3Cx400sqmm of length-0.4km in HDD Method (From Bharatpur PSS to Institute of Mathematics DSS).
	Scope of work:-	Part- A Augmentation of Conductor for 11kv Bharatpur Ring feeder From 55 mm2 to 100 mm2 of length-7.1 Km with 36 no. Interposing poles. Part- B Laying of UG cable 3Cx400mm2 of length-0.4 Km in

		HDD Method (From Bharat Pur PSS to Institute of Mathematics DSS).	
	Names of Schemes: -	TPCODL CAPEX Scheme	

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A Augmentation of conductor for 11kV Bharatpur Ring feeder from 55sqmm to 100sqmm of length 7.1km with 36 nos. Interposing poles	₹ 47,24,269.94
2	Part- B Laying of UG cable 3Cx400sqmm of length 0.4km in HDD Method (from Bharatpur PSS to Institute of Mathematics DSS)	₹ 52,01,036.09
3	**Total Amount**	**₹ 99,25,306.03**
4	**Total Amount (In Cr.)**	**0.99**

Part- A Augmentation of Conductor for 11kV Bharatpur Ring feeder From 55sqmm to 100sqmm of length-7.1 km with 36 nos. Interposing poles

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	2

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**
	Civil & Services				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
				Total CESS @ 1% of (N)	3,863.65
P				**Gross Total Material +Services (N+O) for DP With AB Switch**	**4,59,774.48**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)	7.1			
	MATERIALS FOR 11 KV Pin Points With WPB				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	36	9,54,610.20
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	36	34,408.80
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	36	6,372.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	36	3,398.40
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	10.83	958.67
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	108.00	10,195.20
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	43.33	3,834.67
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	108	25,488.00
9	Earthing of Support (Coil Type)	No.	195.88	36	7,051.68
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	9.43	834.73
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	52.20	4,804.49
12	100 mm2 AAAC	K.M.	64,900.00	21.94	14,23,841.10
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	36.0	9,345.60
15	Yellow Colour Paint for Background	Ltr	259.60	72.0	18,691.20
A				**Total Cost of materials**	**25,03,834.74**
B				Stock, Storage & Insurance i.e 3% of A	75,115.04
C				**Sub Total (A+B)**	**25,78,949.78**

D				Contigency @ 3% of C	77,368.49
E				Tools & Plants @ 2% of C	51,579.00
F				Transportation @ 7.5% of C	1,93,421.23
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	49,162.43
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,59,570.13
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**31,10,051.05**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	16.20	1,05,300.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	4.05	26,325.00
3	Dismantling of 34/55sqmm AAAC	KM	6,300.00	21.94	1,38,215.70
K				**Total Civil & Services**	**2,69,840.70**
L				**Total Material+Services (I+K)**	**33,79,891.75**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	2,02,793.51
N				**Sub Total (L+M)**	**35,82,685.26**
O				Total GST @ 18% of (N)	6,44,883.35
O1				Total CESS @ 1% of (N)	35,826.85
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**42,63,395.46**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	2,02,793.51
				Total (6% supervision charges)	**2,24,663.23**
	Gross Total Summary				
2				Gross Total Material +Services (N+O) for DP With AB Switch	4,59,774.48
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	42,63,395.46
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**47,24,269.94**

Part- B Laying of UG cable 3Cx400mm2 of length-0.4 Km in HDD Method (From Bharatpur PSS to Institute of Mathematics DSS)

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***0.4***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.80	17,70,000.00	14,16,000.00
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
	Sub Total (Supply Portion) (in Rs.)				**15,47,253.76**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0.8	28,00,000.00	22,40,000.00

	Sub Total (Erection Portion) (in Rs.)				**22,55,206.40**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
2	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
3	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	13	1,012.00	13,156.00
	Sub Total (Civil Portion) (in Rs.)				**1,06,813.60**
A	**Sub Total (Supply Portion)**				**15,47,253.76**
B	Stock, Storage & Insurance @ 3 % of A				46,417.61
C	**Sub Total (A+B)**				**15,93,671.37**
D	Contingency @ 3 % of C				47,810.14
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				1,19,525.35
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**17,61,006.87**
I	Sub Total (Erection Portion + Civil Portion)				23,62,020.00
J	**Total Cost (H+I)**				**41,23,026.87**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				2,47,381.61
L	**Total Estimated Capital Cost i.e. (J+K)**				43,70,408.48
M	GST @ 18% of L				7,86,673.53
M1	CESS @ 1% of L				43,704.08
N	**Grand Total (L+M)**				**52,00,786.09**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				0
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**52,01,036.09**

Benefit:

- To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

2. Refurbishment of 11kV K-2 Feeder for mitigation of Overloading

Proposal: Augmentation of existing 11kV K-2 Feeder emanating from 33/11kV Bharatpur PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km.

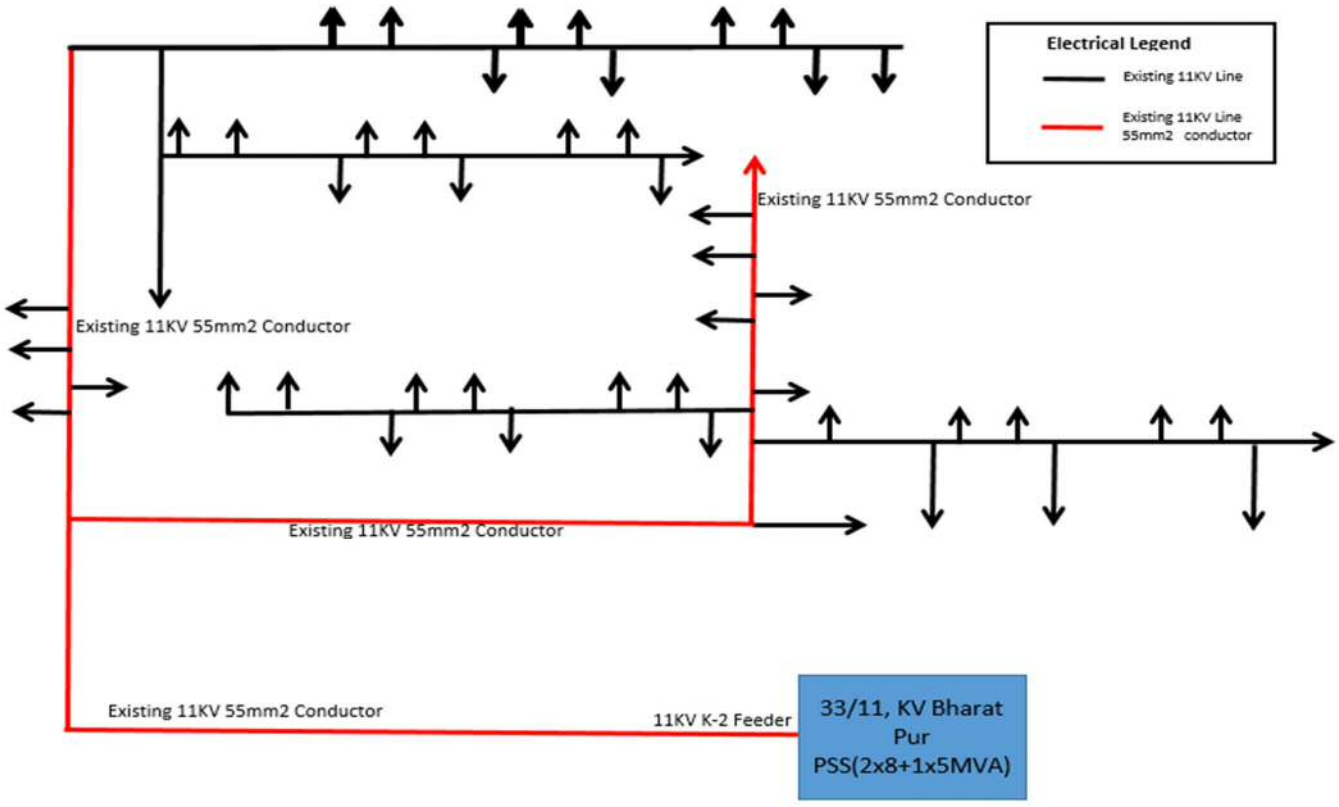
Objective: To mitigate the overloading issue of 11kV K-2 feeder.

Existing Scenario:

- At present, 11kV K-2 feeder is emanating from 33/11kV Bharatpur PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 25.14km and the peak load is 4.1MVA.
- In the existing scenario, conductor size of 11kV K-2 feeder is 55sqmm & the feeder is loaded up to 115.82% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several breakdown on 11kV feeder is contributing to hamper the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
K-2	3.54	4.10	115.82	Overload	6.11	172.6	Overload

Existing SLD (Summer'21):

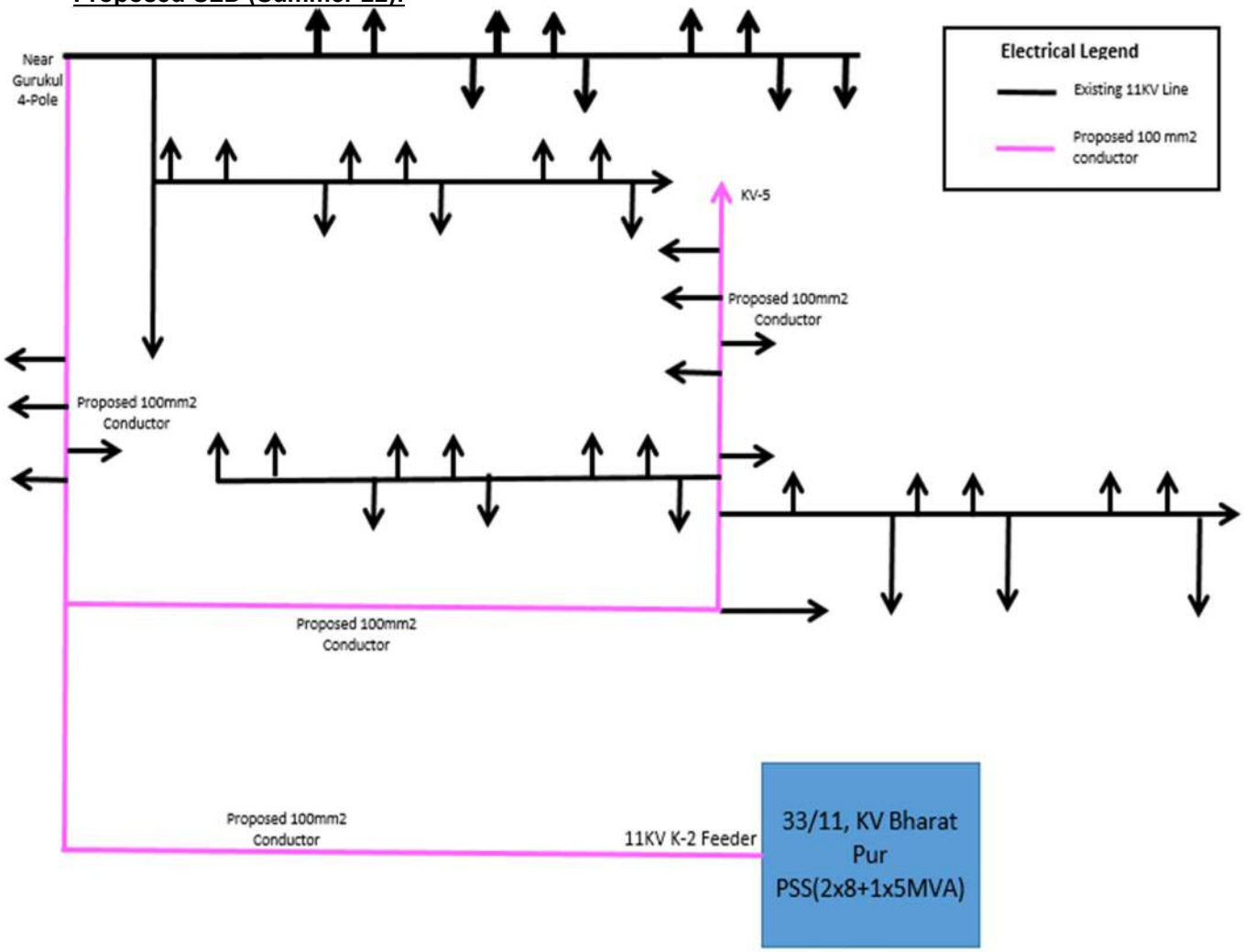


Proposed Scenario:

- Augmentation of 4.8km existing 55sqmm old conductor with 100sqmm AAAC conductor. (From Bharatpur PSS to SUM 4Pole structure).

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
K-2	5.18	4.10	79.1	OK	4.9	95.0	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 4.8km Existing 55sqmm old Conductor with 100sqmm AAAC conductor. (From Bharatpur PSS to SUM 4Pole structure).

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	KHANDAGIRI
	Name of the Section : -	Bharatpur
	Name of the Work :-	Part- A Augmentation of Conductor for 11kv K2 feeder From 55 mm2 to 100 mm2 of length-4.8 Km with 24 no. Interposing poles
	Scope of work:-	Part- A Augmentation of Conductor for 11kV K2 feeder From 55sqmm to 100sqmm of length-4.8 Km with 24nos. Interposing poles
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount	
1	Part- A Augmentation of Conductor for 11kv K2 feeder From 55 mm2 to 100 mm2 of length-4.8 Km with 24 no. Interposing poles	₹	33,26,053.52
2	**Total Amount**	**₹**	**33,26,053.52**
3	**Total Amount (In Cr.)**		**0.33**

Part- A Augmentation of Conductor for 11kv K2 feeder From 55 mm2 to 100 mm2 of length-4.8 Km with 24 no. Interposing poles

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	2

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
O1				Total CESS @ 1% of (N)	3,863.65
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**4,59,774.48**
11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		4.8			

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	24	6,36,406.80
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	24	22,939.20
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	24	4,248.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	24	2,265.60
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	7.22	639.11
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	72.00	6,796.80
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	28.89	2,556.45
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	72	16,992.00
9	Earthing of Support (Coil Type)	No.	195.88	24	4,701.12
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	6.29	556.49
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	34.80	3,202.99
12	100 mm2 AAAC	K.M.	64,900.00	14.83	9,62,596.80
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	24.0	6,230.40
15	Yellow Colour Paint for Background	Ltr	259.60	48.0	12,460.80

A				**Total Cost of materials**	**16,82,592.56**
B				Stock, Storage & Insurance i.e 3% of A	50,477.78
C				**Sub Total (A+B)**	**17,33,070.33**
D				Contigency @ 3% of C	51,992.11
E				Tools & Plants @ 2% of C	34,661.41
F				Transportation @ 7.5% of C	1,29,980.28
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	32,774.95
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,07,757.13
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**20,90,236.21**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	10.80	70,200.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.70	17,550.00
3	Dismantling of 55sqmm AAAC	KM	6,300.00	14.83	93,441.60
K				**Total Civil & Services**	**1,81,191.60**
L				**Total Material+Services (I+K)**	**22,71,427.81**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,36,285.67
N				**Sub Total (L+M)**	**24,07,713.48**
O				Total GST @ 18% of (N)	4,33,388.43
O1				Total CESS @ 1% of (N)	24,077.13
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**28,65,179.04**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,36,285.67
				Total (6% supervision charges)	**1,58,155.39**
	Gross Total Summary				
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	4,59,774.48
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	28,65,179.04
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**33,26,053.52**

Benefit:

- To maintain reliable of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

3. Bifurcation of 11KV Shree Vihar Feeder for mitigation of Overload & Low Voltage issue

Proposal: Bifurcation of existing 11kV Shree Vihar Feeder emanating from 33/11kV Cs Pur-1 PSS by constructing 1 no. new feeder from 33/11kV Infocity PSS.

Objective: To mitigation the overloading & low voltage issue of the 11kV feeder.

Existing Scenario:

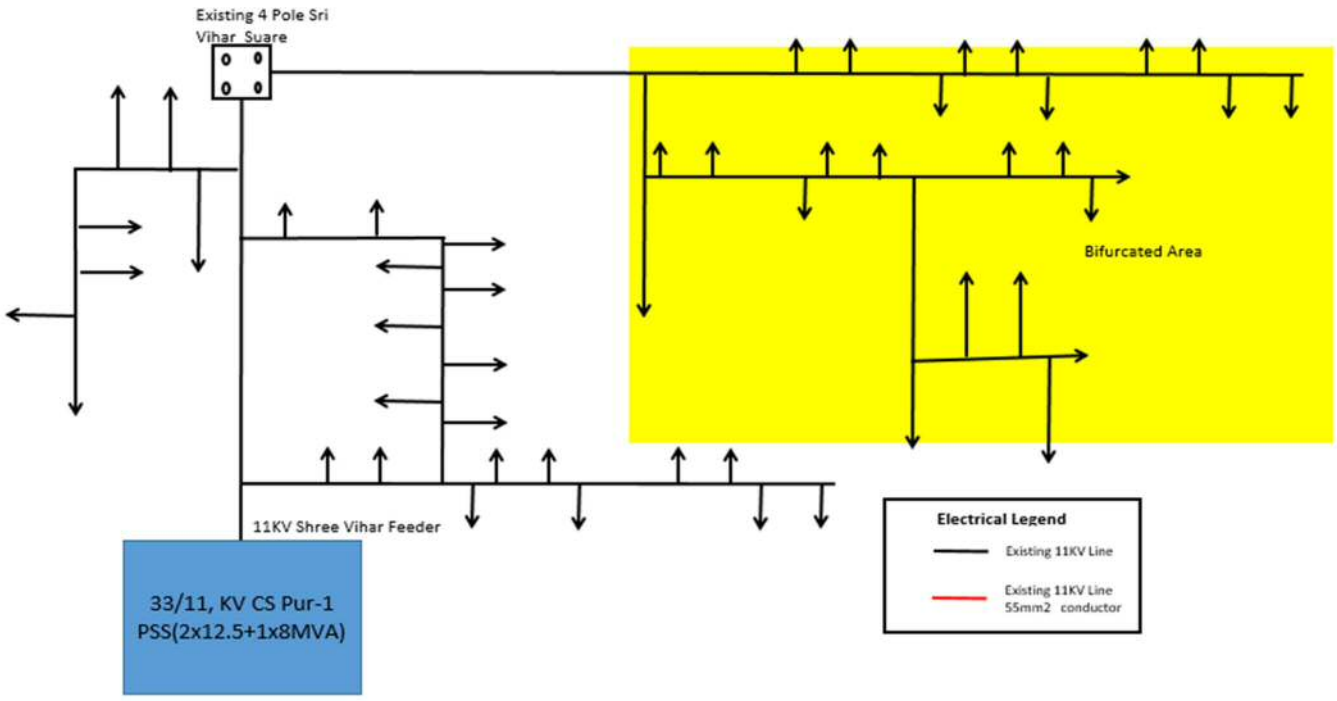
- At present, 11kV Shree Vihar feeder is emanating from 33/11kV CS Pur-1 PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 18.3km and the peak load is 4.1MVA.
- In the existing scenario, conductor size of 11kV Shree Vihar feeder in the trunk line where overloading is encountered is 80sqmm & the feeder is loaded 115.3%.
- This feeder is mainly feeding Urban consumers, several breakdown on 11kV feeder due to overloading of feeder hampers the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder is proposed for improving reliability. Linking line is proposed for mitigation of N-1 issue.

EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
Sri Vihar	4.51	5.20	115.3	OVERLOAD	7.8	172.4	OVERLOAD

Proposal: Construction of New Feeder from 33/11kV Infocity PSS of length-6.5km by laying 3Cx400sqmm U/G Cable for Feeder Bifurcation. Installation of 4nos. of 11kV 4 way RMU for N-1 connectivity feeder bifurcation. Construction of 11kV O/H line of length-0.5 km for mitigating N-1 issue for improving reliablity.

Objective: To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigating N-1 contingency issue.

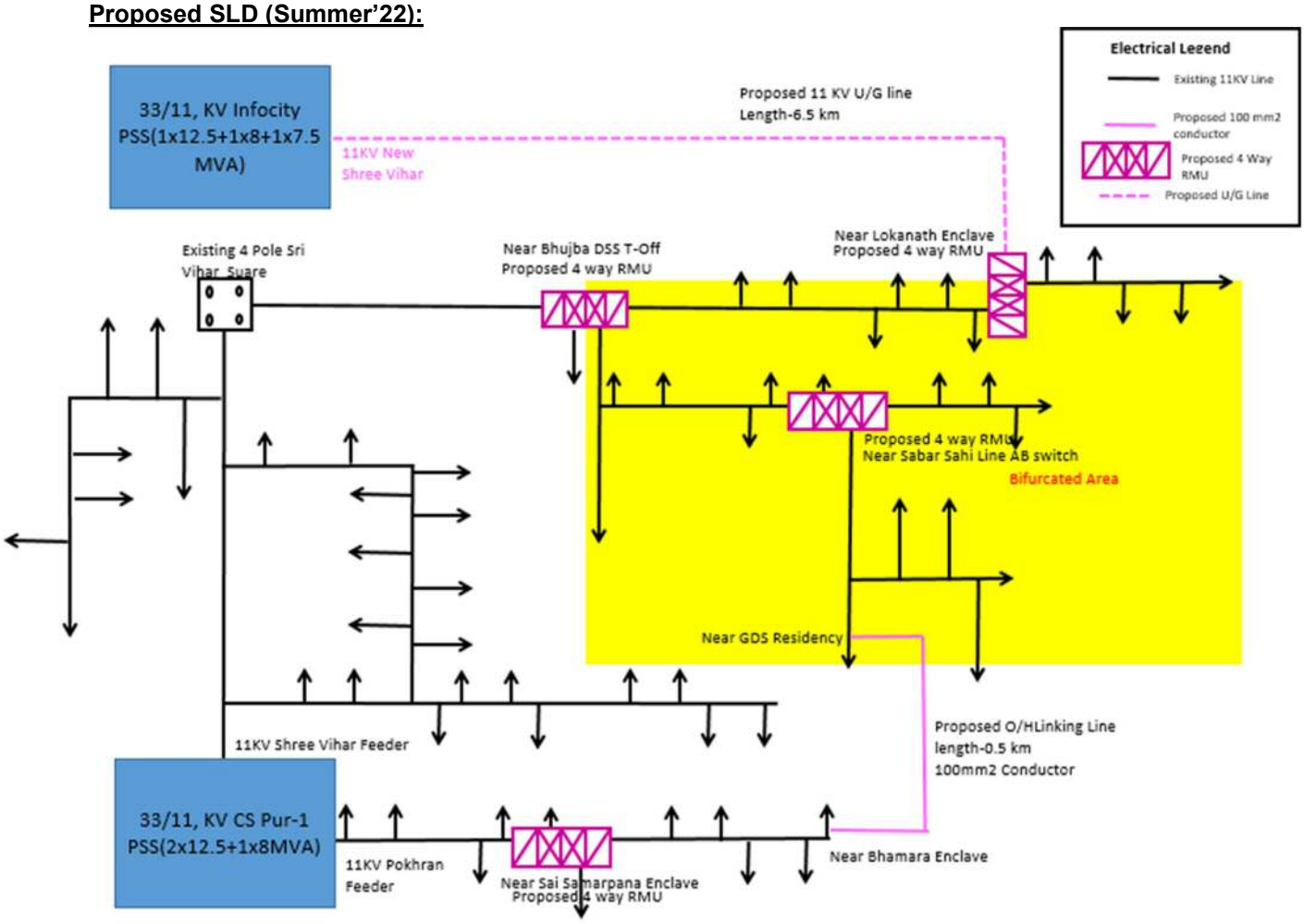
Existing SLD (Summer'21):



Proposed Scenario:

- Construction of New 11kV Feeder from 33/11kV Infocity PSS of length 6.5km by laying 3Cx400sqmm U/G Cable from Infocity PSS to Lokanath Enclave DSS.
- Installation of 4no. of 11kV 4 way RMU for N-1 connectivity feeder bifurcation.
- Construction of 11kV O/H Line of length 0.5km for mitigating N-1 issue for improving reliablity from GDS Residency of Shree Vihar feeder to Bhamara enclave of Pokharan feeder.

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5km by using in 3Cx400sqmm U/G Cable from Infocity PSS to Lokanath Enclave DSS.
- Installation of 4nos. 11kV 4 way RMU for N-1 connectivity feeder bifurcation.
- Construction of 11kV O/H line of length-0.5 km for mitigating N-1 issue for improving reliablity from GDS Residency of Shree Vihar feeder to Bhamara enclave of Pokharan feeder.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	Periphery
	Name of the Section : -	CS Pur-1
	Name of the Work :-	Part A- Construction of U/G Cable - 6.5 km without spare (from Infocity PSS to Lokanath Enclave DSS) Part- B :-Interlinking line on Srivihar feeder of 100sqmm of length-0.5km
	Scope of work:-	Part A- Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to Lokanath Enclave DSS)

		Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.5 Km	
	Names of Schemes: -	TPCODL CAPEX Scheme	

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount	
1	Part- A :Construction of U/G Cable - 6.5 Km (from Infocity PSS to Lokanath Enclave DSS)	₹	5,54,48,765.54
2	Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.5 Km	₹	9,54,098.38
3	**Total Amount**	**₹**	**5,64,02,863.92**
4	**Total Amount (In Cr.)**		**5.64**

Part- A :Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to Lokanath Enclave DSS)

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***1.3***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***5.2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.50	17,70,000.00	1,15,05,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	25	29,874.06	7,46,851.50
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	16	11,306.76	1,80,908.16
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	1.30	6,94,910.00	9,03,383.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***4***		
c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	4	5,57,710.00	22,30,840.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	52.80	88.50	4,672.80
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	8	1,239.00	9,912.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	6.5	56,515.00	3,67,347.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	6.5	77,990.00	5,06,935.00

4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13	6,766.00	87,958.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	8	7,535.00	60,280.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4	4,35,542.00	17,42,168.00
	Sub Total (Supply Portion) (in Rs.)				**1,84,11,882.84**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	1.30	94,500.00	1,22,850.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	25	2,400.00	60,000.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	16	1,900.80	30,412.80
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	5.2	28,00,000.00	1,45,60,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	1.30	1,04,114.67	1,35,349.07
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	4	15,000.00	60,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.5	27,296.35	1,77,426.28
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	6.5	1,22,488.27	7,96,173.76
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13.0	612.54	7,963.02
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	8.0	1,225.07	9,800.56
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4.0	6,124.36	24,497.44
	Sub Total (Erection Portion) (in Rs.)				**1,59,92,076.12**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	910	700.00	6,37,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	390	1,720.00	6,70,800.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	780	171.55	1,33,809.00

1.3	Filling with fine river sand after laying of cable inside the trench	Cum	520	2,500.00	13,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	780	202.00	1,57,560.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	1.3	26,43,670.63	34,36,771.82
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	4	23,145.30	92,581.20
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	80	3,600.00	2,88,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	8	2,407.00	19,256.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	217	1,012.00	2,19,604.00
	Sub Total (Civil Portion) (in Rs.)				**70,02,210.82**
A	**Sub Total (Supply Portion)**				**1,84,11,882.84**
B	Stock, Storage & Insurance @ 3 % of A				5,52,356.49
C	**Sub Total (A+B)**				**1,89,64,239.33**
D	Contingency @ 3 % of C				5,68,927.18
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				300.45
F	Transportation @ 7.5% of C				14,22,317.95
G	Erection Charges @ 10% of earthing items				1,502.23
H	**Total (C+D+E+F+G)**				**2,09,57,287.14**
I	Sub Total (Erection Portion + Civil Portion)				2,29,94,286.94
J	**Total Cost (H+I)**				**4,39,51,574.08**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				26,37,094.44
L	**Total Estimated Capital Cost i.e. (J+K)**				4,65,88,668.52
M	GST @ 18% of L				83,85,960.33
M1	CESS @ 1% of L				4,65,886.69
N	**Grand Total (L+M)**				**5,54,40,515.54**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				8000
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**5,54,48,765.54**

Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.5 Km					
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor					
No. of Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0004)		1			
MATERIALS FOR 11 KV Cut Point with 180 Degree Angle					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95

2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2)	KG	88.50	22.944	2,030.54
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	5.2864	467.85
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	5.85072	517.79
5	Danger Plate, 1 no's.	No.	94.40	1	94.40
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support (Coil Type)	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	3.55	326.74
16	Black Paint	Ltr	259.60	0.5	129.80
17	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**46,673.09**
B				Stock, Storage & Insurance i.e 3% of A	1,400.19
C				**Sub Total (A+B)**	**48,073.28**
D				Contigency @ 3% of C	1,442.20
E				Tools & Plants @ 2% of C	961.47
F				Transportation @ 7.5% of C	3,605.50
G				Erection Charges @ 5% on Trf/Breaker/Joist	1,365.62
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	2,076.08
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**57,524.14**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu. mtr	6,500.00	0.45	2,925.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu. mtr	6,500.00	0.11	731.25
K				**Total Civil & Services**	**3,656.25**
L				**Total (J+K)**	**61,180.39**
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				3,670.82
N				**Sub Total (L+M)**	**64,851.22**
O				Total GST @ 18% of (N)	11,673.22
O1				Total CESS @ 1% of (N)	648.51
P	**Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle**				**77,172.95**
	No. of Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0005)		1		

MATERIALS FOR 11 KV Cut Point with 90 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required =(4x9.56x1.2)	KG	88.50	45.888	4,061.09
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	10.5728	935.69
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required =(4x9.56x0.306)	KG	88.50	11.70144	1,035.58

5	Danger Plate, 1 no's.	No.	94.40	1	94.40
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support (Coil Type)	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
16	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
17	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
18	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
19	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	K.g.	92.04	7.433	684.13
20	Black Paint	Ltr	259.60	0.5	129.80
21	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**55,592.66**
B				Stock, Storage & Insurance i.e 3% of A	1,667.78
C				**Sub Total (A+B)**	**57,260.44**
D				Contigency @ 3% of C	1,717.81
E				Tools & Plants @ 2% of C	1,145.21
F				Transportation @ 7.5% of C	4,294.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	1,365.62
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	2,423.56
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**68,207.17**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu. mtr	6,500.00	0.5	2,925.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu. mtr	6,500.00	0.1	731.25
K				**Total Civil & Services**	**8,156.25**
L				**Total (J+K)**	**76,363.42**
M				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	4,581.81
N				**Sub Total (L+M)**	**80,945.23**
O				Total GST @ 18% of (N)	14,570.14
O1				Total CESS @ 1% of (N)	809.45
P				**Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle**	**96,324.82**
11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		0.5			

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	12	3,18,203.40
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	12	11,469.60

3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	12	2,124.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	12	1,132.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	3.61	319.56
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	36.00	3,398.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	14.44	1,278.22
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	36	8,496.00
9	Earthing of Support (Coil Type)	No.	195.88	12	2,350.56
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.14	278.24
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	17.40	1,601.50
12	100 mm2 AAAC	K.M.	64,900.00	1.55	1,00,270.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	12.0	3,115.20
15	Yellow Colour Paint for Background	Ltr	259.60	24.0	6,230.40
A				**Total Cost of materials**	**4,60,268.38**
B				Stock, Storage & Insurance i.e 3% of A	13,808.05
C				**Sub Total (A+B)**	**4,74,076.43**
D				Contigency @ 3% of C	14,222.29
E				Tools & Plants @ 2% of C	9,481.53
F				Transportation @ 7.5% of C	35,555.73
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	16,387.48
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	14,632.69
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**5,64,356.15**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu. mtr	6,500.00	5.40	35,100.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu. mtr	6,500.00	1.35	8,775.00
3	Dismantling of 34/55sqmm AAAC	KM	6,300.00	1.55	9,733.50
K				**Total Civil & Services**	**53,608.50**
L				**Total Material+Services (I+K)**	**6,17,964.65**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	37,077.88
N				**Sub Total (L+M)**	**6,55,042.53**
O				Total GST @ 18% of (N)	1,17,907.66
O1				Total CESS @ 1% of (N)	6,550.43
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**7,79,500.61**
	6% Supervision Charges Summary				
1				Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	-
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	-
3				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	3,670.82
4				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	4,581.81
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	37,077.88
				Total (6% supervision charges)	**45,330.51**
	Gross Total Summary				
1				Gross Total Material +Services (N+O+O1) for DP Without AB Switch	-
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	-
3				Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle	77,172.95
4				Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	96,324.82
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	7,79,500.61
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00

U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	9,54,098.38

Benefit:

1) To maintain reliable power supply to Urban consumers by mitigating Overload & N-1 Issue.
2) Mitigation the overloading issue with load growth of 5 years.
3) Faulty part of feeder can be isolated through proposed RMU to provide reliable power supply.

4. Refurbishment of 11kV Housing board Feeder for mitigation of Overloading

Proposal: Augmentation of existing 11kV Housing board Feeder emanating from 33/11kV CS Pur-1 PSS from 55sqmmlower size conductor to 100sqmm AAAC conductor & construction of 0.7km new linking line for mitigation of N-1 redundancy.

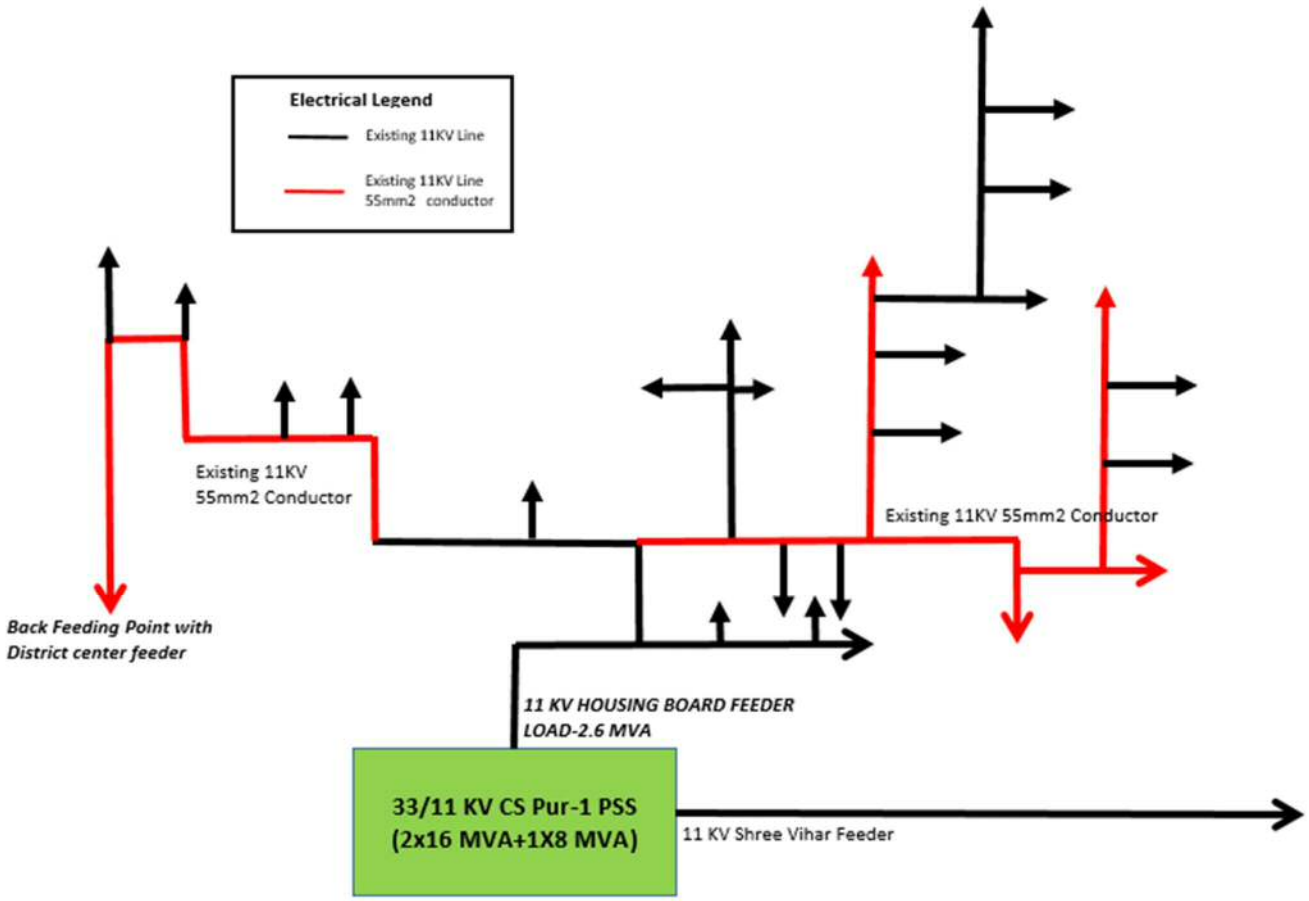
Objective: To mitigate the overloading issue of 11kV Housing Board feeder.

Existing Scenario:

- At present, 11kV Housing Board feeder is emanating from 33/11kV CS Pur-1 PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 6km and the peak load is 4.3MVA.
- In the existing scenario, conductors size of 11kV Housing Board feeder where overloading is encountered is 80sqmm & the feeder is loaded up to 95.3% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11kV feeder is hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability. Construction of linking line is proposed for mitigation of N-1 issue.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
CS PUR-1 HB	4.51	4.30	95.3	OVERLOAD	6.43	142.6	OVERLOAD

Existing SLD (Summer'21):

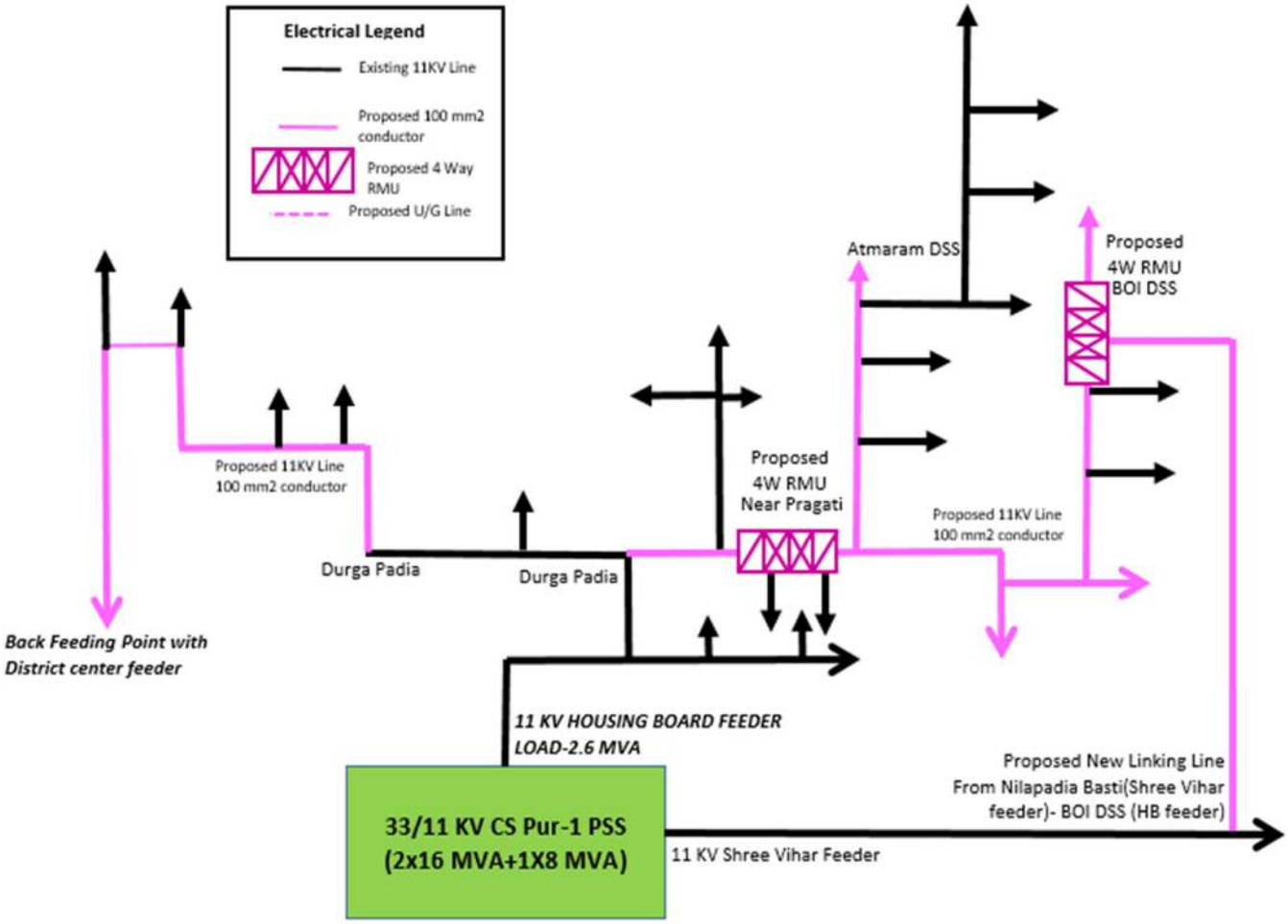


Proposed Scenario:

- Augmentation of 2.8km existing 55sqmm old conductor with 100sqmm AAAC conductor. (From Durga padia to DC back feeding & from Durga padia to Atmaram DSS).
- Installation of 2 nos. of RMU for backfeeding & feeder bifurcation purpose.

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
CS PUR-1 HB	5.18	4.30	83.0	OK	5.2	99.6	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 2.8km existing 55sqmm old conductor with 100sqmm AAAC conductor. (From Durga padia to DC back feeding & from Durga padia to Atmaram DSS).
- Installation of 2 nos. of RMU for backfeeding & feeder bifurcation purpose.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**BCDD-II**	
	Name of the Sub-Division : -	Periphery	
	Name of the Section : -	Cs Pur-1	
	Name of the Work :-	Part- A :Installation of 3 no. 4Way RMU at different location on CS pur HB feeder with associated cables on CS pur HB feeder Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.7 km (From Nilapadia Basti of 11kV Sri Vihar Feeder with Bank of India DSS) Part-C:- Conductor Augmentation - 2.8km	
	Scope of work:-	Part- A :Installation of 3 no. 4Way RMU at different location on CS pur HB feeder with associated cables on CS pur HB feeder Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.7 Km (From Nilapadia Basti of 11KV sri vihar Feeder with Bank of India DSS) PART-C- Augmentation of Conductor of CS pur HB feeder from 55/ 34 mm2 to 100 mm2 of length-2.8 Km (From DurgaPadia to DC Back feeding & from Durga padia to Atmaram DSS)	
	Names of Schemes: -	TPCODL CAPEX Scheme	
ABSTRACT OF ESTIMATE			
Sl. No.	**Description**		**Amount**

1	Part- A :Installation of 3 no. 4Way RMU at different location on CS pur HB feeder with associated cables on CS pur HB feeder	₹ 48,77,553.77
2	Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.7 Km (From Nilapadia Basti of 11KV sri vihar Feeder with Bank of India DSS)	₹ 12,58,836.91
3	PART-C- Augmentation of Conductor of CS pur HB feeder from 55/ 34 mm2 to 100 mm2 of length-2.8 Km (From DurgaPadia to DC Back feeding & from Durga padia to Atmaram DSS)	₹ 19,02,341.68
4	**Total Amount**	**₹ 80,38,732.36**
5	**Total Amount (In Cr.)**	**0.80**

Part- A :Installation of 3 no. 4Way RMU at different location on CS pur HB feeder with associated cables

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.20	17,70,000.00	3,54,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set		29,874.06	-
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.00	6,94,910.00	-
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	0.2	56,515.00	11,303.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	0.2	77,990.00	15,598.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0	6,766.00	-
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**26,26,545.24**

Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.20	94,500.00	18,900.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	2,400.00	-
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.00	1,04,114.67	-
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	0.2	27,296.35	5,459.27
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	0.2	1,22,488.27	24,497.65
3.3	Erection of SIraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0.0	612.54	-
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**1,26,418.72**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	140	700.00	98,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	60	1,720.00	1,03,200.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	120	171.55	20,586.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	80	2,500.00	2,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	120	202.00	24,240.00

1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km		26,43,670.63	-
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	7	1,012.00	7,084.00
	Sub Total (Civil Portion) (in Rs.)				**7,46,686.20**
A	**Sub Total (Supply Portion)**				**26,26,545.24**
B	Stock, Storage & Insurance @ 3 % of A				78,796.36
C	**Sub Total (A+B)**				**27,05,341.60**
D	Contingency @ 3 % of C				81,160.25
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				2,02,900.62
G	Erection Charges @ 10% of earthing items				751.12
H	**Total (C+D+E+F+G)**				**29,90,303.81**
I	Sub Total (Erection Portion + Civil Portion)				8,73,104.92
J	**Total Cost (H+I)**				**38,63,408.73**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				2,31,804.52
L	**Total Estimated Capital Cost i.e. (J+K)**				40,95,213.25
M	GST @ 18% of L				7,37,138.39
M1	CESS @ 1% of L				40,952.13
N	**Grand Total (L+M)**				**48,73,303.77**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**48,77,553.77**

Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.7 Km
(From Nilapadia Basti of 11KV sri vihar Feeder with Bank of India DSS)

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0004)	1

MATERIALS FOR 11 KV Cut Point with 180 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2)	KG	88.50	22.944	2,030.54

3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	5.2864	467.85
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	5.85072	517.79
5	Danger Plate, 1 no's.	No.	94.40	1	94.40
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support (Coil Type)	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	3.55	326.74
16	Black Paint	Ltr	259.60	0.5	129.80
17	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**46,673.09**
B				Stock, Storage & Insurance i.e 3% of A	1,400.19
C				**Sub Total (A+B)**	**48,073.28**
D				Contigency @ 3% of C	1,442.20
E				Tools & Plants @ 2% of C	961.47
F				Transportation @ 7.5% of C	3,605.50
G				Erection Charges @ 5% on Trf/Breaker/Joist	1,365.62
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	2,076.08
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**57,524.14**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.45	2,925.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.11	731.25
K				**Total Civil & Services**	**3,656.25**
L				**Total (J+K)**	**61,180.39**
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				3,670.82
N				**Sub Total (L+M)**	**64,851.22**
O				Total GST @ 18% of (N)	11,673.22
O1				Total CESS @ 1% of (N)	648.51
P	**Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle**				**77,172.95**
	No. of Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0005)		1		

MATERIALS FOR 11 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required =(4x9.56x1.2)	KG	88.50	45.888	4,061.09
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	10.5728	935.69
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required =(4x9.56x0.306)	KG	88.50	11.70144	1,035.58
5	Danger Plate, 1 no's.	No.	94.40	1	94.40
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20

8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support (Coil Type)	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
16	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
17	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
18	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
19	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	K.g.	92.04	7.433	684.13
20	Black Paint	Ltr	259.60	0.5	129.80
21	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**55,592.66**
B				Stock, Storage & Insurance i.e 3% of A	1,667.78
C				**Sub Total (A+B)**	**57,260.44**
D				Contigency @ 3% of C	1,717.81
E				Tools & Plants @ 2% of C	1,145.21
F				Transportation @ 7.5% of C	4,294.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	1,365.62
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	2,423.56
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**68,207.17**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.5	2,925.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.1	731.25
K				**Total Civil & Services**	**8,156.25**
L				**Total (J+K)**	**76,363.42**
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)				4,581.81
N				**Sub Total (L+M)**	**80,945.23**
O				Total GST @ 18% of (N)	14,570.14
O1				Total CESS @ 1% of (N)	809.45
P	**Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle**				**96,324.82**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		0.7		

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	17	4,50,788.15
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	17	16,248.60
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	17	3,009.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	17	1,604.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	5.12	452.70
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	51.00	4,814.40

7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	20.46	1,810.82
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	51	12,036.00
9	Earthing of Support (Coil Type)	No.	195.88	17	3,329.96
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	4.45	394.18
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	24.65	2,268.79
12	100 mm2 AAAC	K.M.	64,900.00	2.16	1,40,378.70
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	17.0	4,413.20
15	Yellow Colour Paint for Background	Ltr	259.60	34.0	8,826.40
A				**Total Cost of materials**	**6,50,375.70**
B				Stock, Storage & Insurance i.e 3% of A	19,511.27
C				**Sub Total (A+B)**	**6,69,886.97**
D				Contigency @ 3% of C	20,096.61
E				Tools & Plants @ 2% of C	13,397.74
F				Transportation @ 7.5% of C	50,241.52
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	23,215.59
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	20,557.52
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**7,97,395.94**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	7.65	49,725.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.91	12,431.25
K				**Total Civil & Services**	**62,156.25**
L				**Total Material+Services (I+K)**	**8,59,552.19**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	51,573.13
N				**Sub Total (L+M)**	**9,11,125.33**
O				Total GST @ 18% of (N)	1,64,002.56
O1				Total CESS @ 1% of (N)	9,111.25
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**10,84,239.14**
	6% Supervision Charges Summary				
1				Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	-
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	-
3				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	3,670.82
4				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	4,581.81
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	51,573.13
				Total (6% supervision charges)	**59,825.76**
	Gross Total Summary				
1				Gross Total Material +Services (N+O+O1) for DP Without AB Switch	-
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	-
3				Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle	77,172.95
4				Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	96,324.82
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	10,84,239.14
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**12,58,836.91**

PART-C- Augmentation of Conductor of CS pur HB feeder from 55/ 34 mm2 to 100 mm2 of length-2.8 Km (From DurgaPadia to DC Back feeding & from Durga padia to Atmaram DSS)	
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor	
No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**

Civil & Services					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***

1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P	**Gross Total Material +Services (N+O+O1) for DP With AB Switch**				**2,29,887.24**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		2.8		
	MATERIALS FOR 11 KV Pin Points With WPB				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	14	3,71,237.30
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	14	13,381.20
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	14	2,478.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	14	1,321.60
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.21	372.82
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	42.00	3,964.80
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	16.85	1,491.26
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	42	9,912.00
9	Earthing of Support (Coil Type)	No.	195.88	14	2,742.32
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.67	324.62
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	20.30	1,868.41
12	100 mm2 AAAC	K.M.	64,900.00	8.65	5,61,514.80
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	14.0	3,634.40
15	Yellow Colour Paint for Background	Ltr	259.60	28.0	7,268.80
A				**Total Cost of materials**	**9,81,512.33**
B				Stock, Storage & Insurance i.e 3% of A	29,445.37
C				**Sub Total (A+B)**	**10,10,957.70**
D				Contigency @ 3% of C	30,328.73
E				Tools & Plants @ 2% of C	20,219.15
F				Transportation @ 7.5% of C	75,821.83
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	19,118.72
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	62,858.33
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**12,19,304.46**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	6.30	40,950.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.58	10,237.50
3	Dismantling of 55sqmm AAAC	KM	6,300.00	8.65	54,507.60

K	**Total Civil & Services**	**1,05,695.10**
L	**Total Material+Services (I+K)**	**13,24,999.56**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	79,499.97
N	**Sub Total (L+M)**	**14,04,499.53**
O	Total GST @ 18% of (N)	2,52,809.92
O1	Total CESS @ 1% of (N)	14,045.00
P	**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**16,71,354.44**
6% Supervision Charges Summary		
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	79,499.97
	Total (6% supervision charges)	**90,434.83**
Gross Total Summary		
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	16,71,354.44
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**19,02,341.68**

Benefit:

- To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

5. Refurbishment of 11kV CS Pur-2 Industry Feeder for mitigation of Overloading

Proposal: Augmentation of existing 11kV Industry Feeder emanating from 33/11kV CS Pur-2 PSS from 80sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable from 3Cx185sqmm to 3Cx400sqmm of length-0.6km.

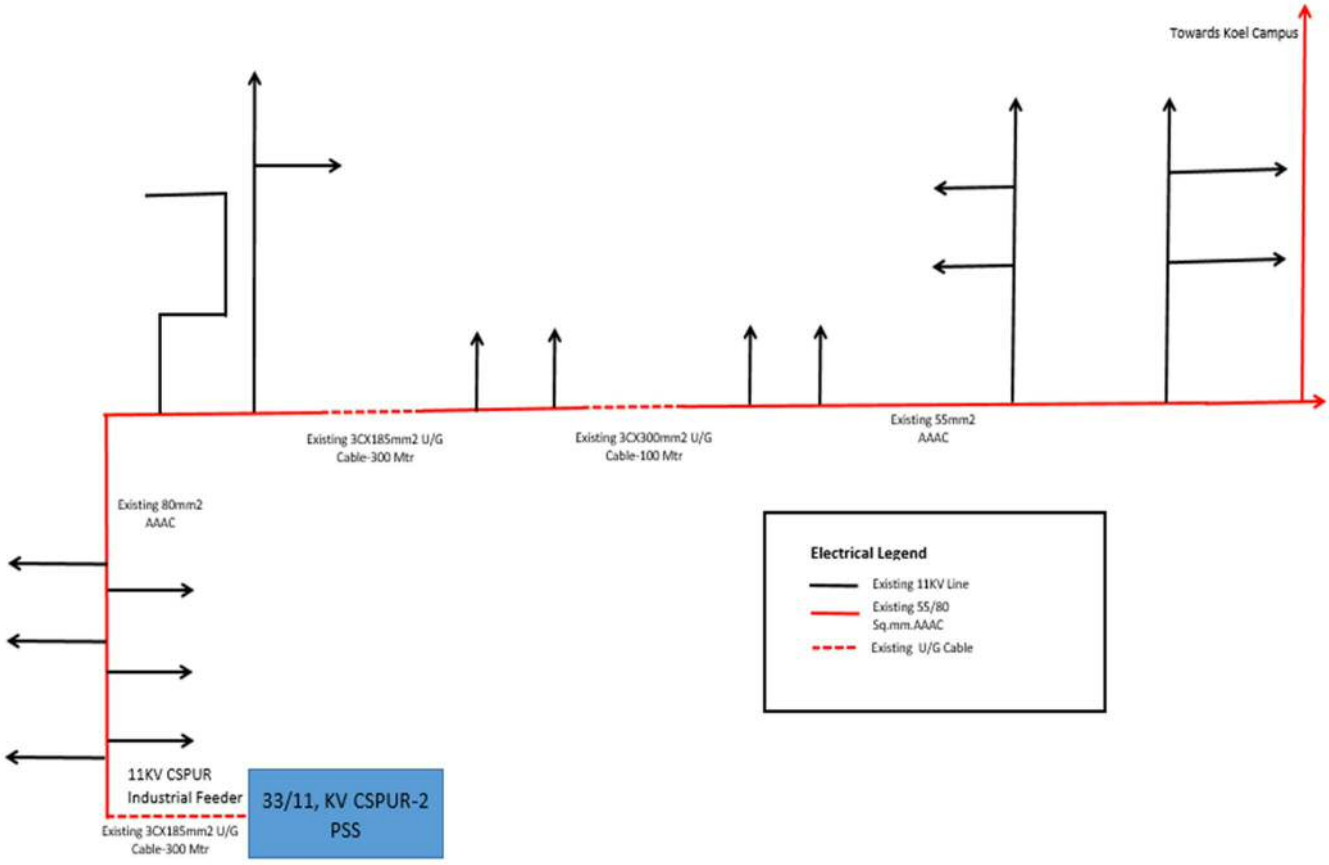
Objective: To mitigate the overloading issue of CS Pur-2 11kV Industry feeder.

Existing Scenario:

- At present, 11kV CS Pur-2 Industry feeder is emanating from 33/11kV CS Pur-2 PSS. Only Urban & Industrial consumers are connected from this feeder. Total length of this feeder is 7.5km and the peak load is 4.2MVA.
- In the existing scenario, conductor size of 11kV CS Pur-2 Industry feeder is 80sqmm & the feeder is loaded up to 93.13% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban & Industrial consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
CS Pur-2 Industry	4.51	4.20	93.13	Overload	6.20	137.5	Overload

Existing SLD (Summer'21):

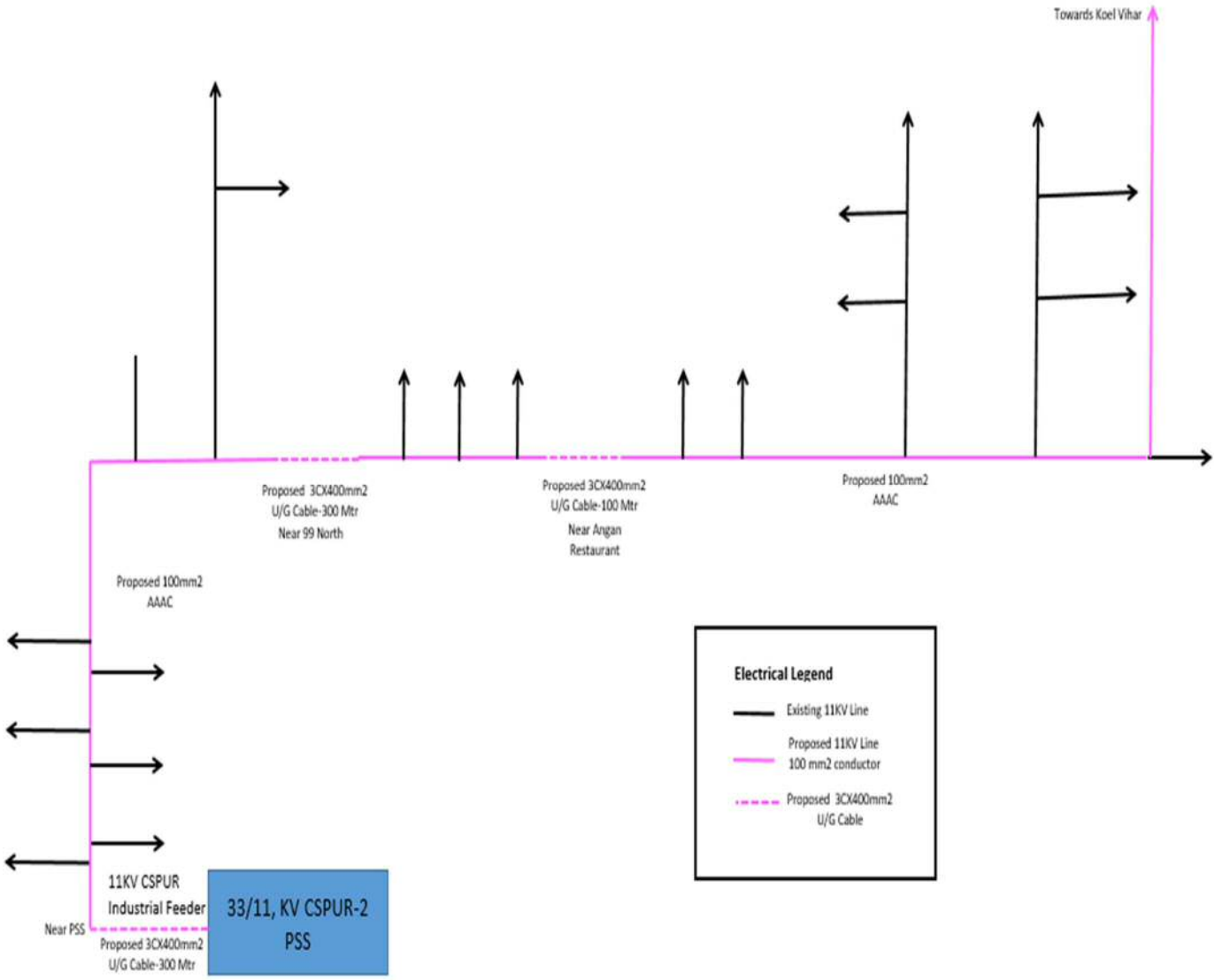


Proposed Scenario:

- Augmentation of 4.5km Existing 80sqmm old Conductor with 100sqmm AAAC conductor & U/G Cable from 3Cx185sqmm to 3Cx400sqmm (From CS Pur-2 PSS to KOEL Campus).

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
CS Pur-2 Industry	5.18	4.20	81.1	OK	5.0	97.3	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 4.5km Existing 80sqmm old Conductor with 100sqmm AAAC conductor & U/G Cable from 3Cx185sqmm to 3Cx400sqmm (From CS Pur-2 PSS to KOEL Campus).

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	Periphery
	Name of the Section : -	Cs Pur-2
	Name of the Work :-	Part- A : Laying of UG cable 3Cx400sqmm - Length 0.65km (From CS Pur-2 PSS to Koel Campus) PART-B- Augmentation of Conductor of CS pur Industrial FDR from 55/ 34sqmm to 100sqmm of length-4.5 Km
	Scope of work:-	Part- A : Laying of UG cable 3Cx400sqmm - Length 0.65km (From CS Pur-2 PSS to Koel Campus)

		PART-B- Augmentation of Conductor of CS pur Industrial FDR from 55/ 34 sqmm to 100sqmm of length-4.5 km	
	Names of Schemes: -	TPCODL CAPEX Scheme	

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A : Laying of UG cable 3Cx400mm2- Length 0.65KM (From CS Pur-2 PSS to Koel Campus)	₹ 86,08,185.69
2	PART-B- Augmentation of Conductor of CS pur Industrial FDR from 55/ 34 mm2 to 100 mm2 of length-4.5 Km	₹ 31,72,297.96
3	**Total Amount**	**₹ 1,17,80,483.65**
4	**Total Amount (In Cr.)**	**1.18**

Part- A : Laying of UG cable **3Cx400mm2- Length 0.65KM (From CS Pur-2 PSS to Koel Campus)**

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.6***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	1.20	17,70,000.00	21,24,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	4	29,874.06	1,19,496.24
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	1.20	6,94,910.00	8,33,892.00
	Sub Total (Supply Portion) (in Rs.)				**31,43,015.12**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	1.20	94,500.00	1,13,400.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	2,400.00	9,600.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for	km	0	28,00,000.00	-

	laying of individual run of UG cable at main road and unaccessable place.				
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	1.20	1,04,114.67	1,24,937.60
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	15,000.00	-
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
	Sub Total (Erection Portion) (in Rs.)				**2,55,540.80**

Civil Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	420	700.00	2,94,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	180	1,720.00	3,09,600.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	360	171.55	61,758.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	240	2,500.00	6,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	360	202.00	72,720.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.6	26,43,670.63	15,86,202.38
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	0	3,600.00	-
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	20	1,012.00	20,240.00
	Sub Total (Civil Portion) (in Rs.)				**29,91,349.18**
A	**Sub Total (Supply Portion)**				**31,43,015.12**
B	Stock, Storage & Insurance @ 3 % of A				94,290.45
C	**Sub Total (A+B)**				**32,37,305.57**
D	Contingency @ 3 % of C				97,119.17
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				2,42,797.92
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**35,77,222.66**
I	Sub Total (Erection Portion + Civil Portion)				32,46,889.98
J	**Total Cost (H+I)**				**68,24,112.64**

K	Other Overhead /(including Supervision Charges) @ 6 % of J	4,09,446.76
L	**Total Estimated Capital Cost i.e. (J+K)**	72,33,559.40
M	GST @ 18% of L	13,02,040.69
M1	CESS @ 1% of L	72,335.59
N	**Grand Total (L+M)**	**86,07,935.69**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**86,08,185.69**

PART-B- Augmentation of Conductor of CS pur Industrial FDR from 55/ 34 mm2 to 100 mm2 of length-4.5 Km

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	2

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm, 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00

21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
O1				Total CESS @ 1% of (N)	3,863.65
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**4,59,774.48**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		4.5		

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	23	6,09,889.85
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	23	21,983.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	23	4,071.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	23	2,171.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	6.92	612.48
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	69.00	6,513.60
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	27.68	2,449.93
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	69	16,284.00
9	Earthing of Support (Coil Type)	No.	195.88	23	4,505.24
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	6.03	533.30

11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	33.35	3,069.53
12	100 mm2 AAAC	K.M.	64,900.00	13.91	9,02,434.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	23.0	5,970.80
15	Yellow Colour Paint for Background	Ltr	259.60	46.0	11,941.60
A				**Total Cost of materials**	**15,92,430.43**
B				Stock, Storage & Insurance i.e 3% of A	47,772.91
C				**Sub Total (A+B)**	**16,40,203.35**
D				Contigency @ 3% of C	49,206.10
E				Tools & Plants @ 2% of C	32,804.07
F				Transportation @ 7.5% of C	1,23,015.25
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	31,409.33
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,01,201.68
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**19,77,839.77**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	10.35	67,275.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.59	16,818.75
3	Dismantling of 55sqmm AAAC	KM	6,300.00	13.91	87,601.50
K				**Total Civil & Services**	**1,71,695.25**
L				**Total Material+Services (I+K)**	**21,49,535.02**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,28,972.10
N				**Sub Total (L+M)**	**22,78,507.13**
O				Total GST @ 18% of (N)	4,10,131.28
O1				Total CESS @ 1% of (N)	22,785.07
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**27,11,423.48**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,28,972.10
				Total (6% supervision charges)	**1,50,841.82**
	Gross Total Summary				
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	4,59,774.48
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	27,11,423.48
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**31,72,297.96**

Benefit:

- To maintain reliable power supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

6. Refurbishment of 11KV BDA-2 Feeder for mitigation of Overload

Proposal: Augmentation of existing 11kV BDA-2 feeder emanating from 33/11kV CS Pur-2 PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor.

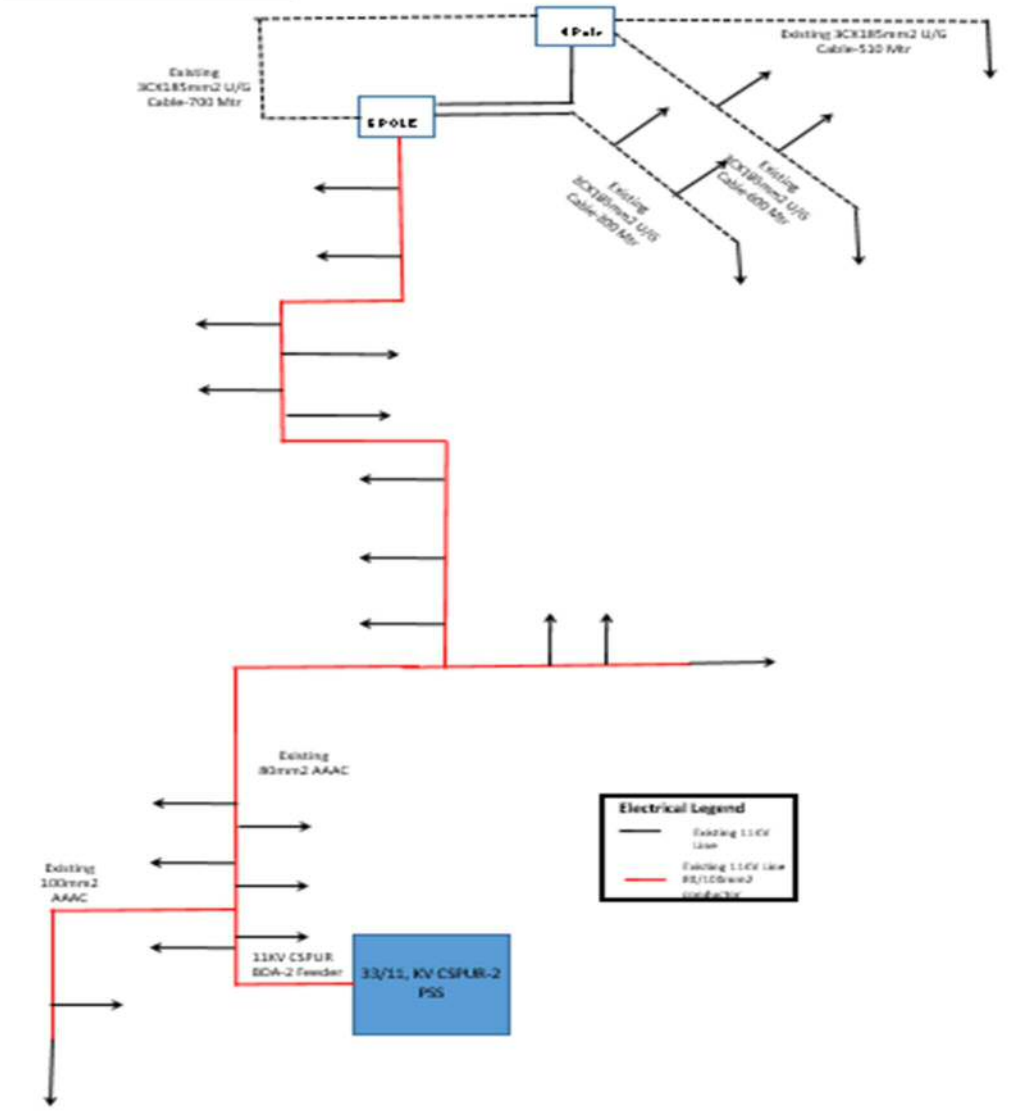
Objective: To mitigate the overloading issues of 11kV BDA-2 feeder.

Existing Scenario:

- At present, 11kV BDA-2 feeder is emanating from 33/11kV CS Pur-2 PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 13.21km and the peak load is 4.5MVA.
- In the existing scenario, conductor size of 11kV BDA-2 feeder is 55sqmm & the feeder is loaded up to 127% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several breakdown on 11 KV feeder is hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
CS Pur-2 BDA-2	3.54	4.50	127.12	Overload	6.73	190.1	Overload

Existing SLD (Summer'21):

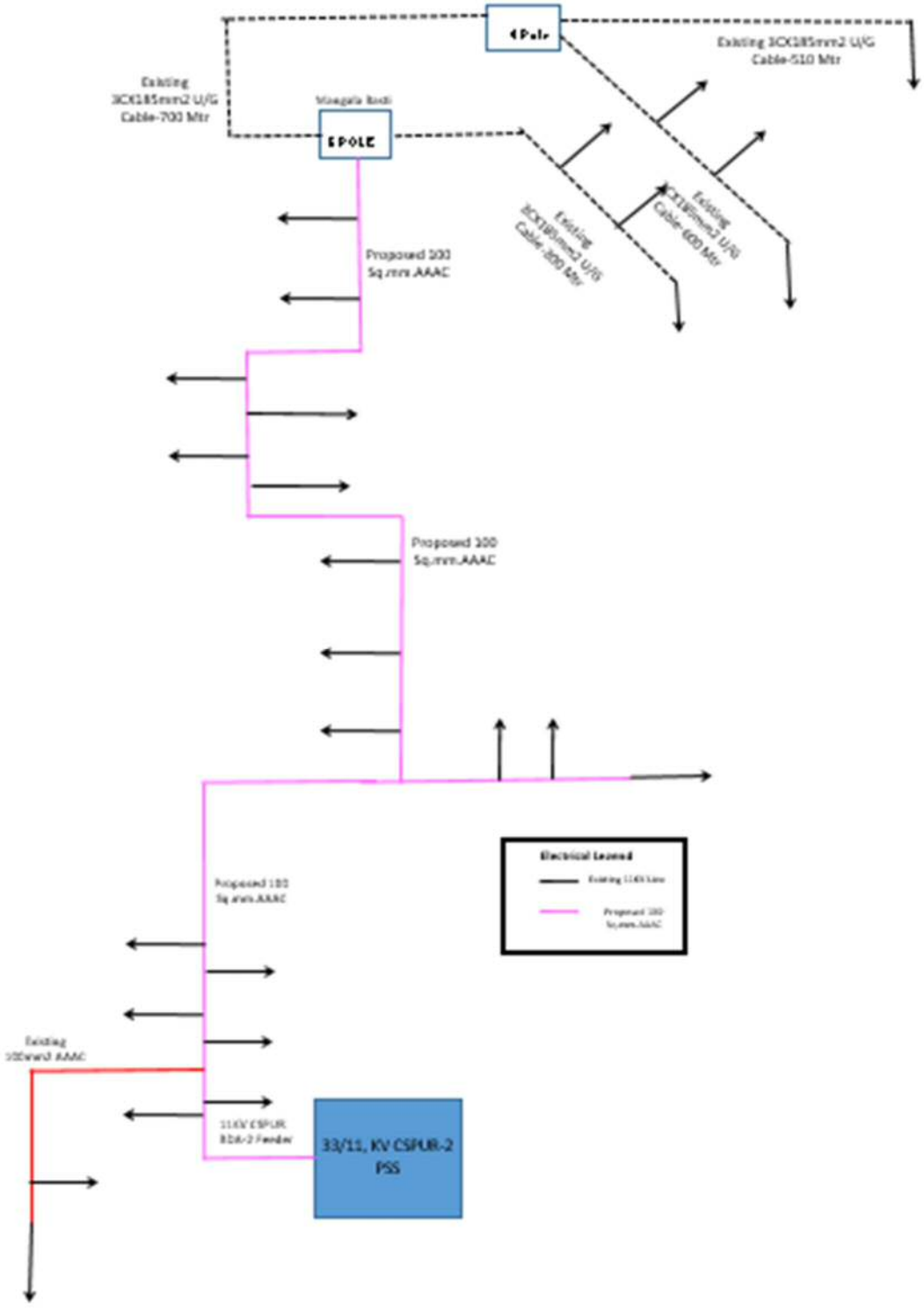


Proposed Scenario:

- Augmentation of 3km Existing 55sqmm old conductor with 100sqmm AAAC conductor (From CS Pur-2 PSS to Mangala Basti 6 Pole).

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
CS Pur-2 BDA-2	5.18	4.50	86.9	OK	5.4	104.2	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 3km existing 55sqmm old conductor with 100sqmm AAAC conductor (From CS Pur-2 PSS to Mangala Basti 6 Pole).

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	Periphery
	Name of the Section : -	CS Pur-2
	Name of the Work :-	PART-A- Augmentation of Conductor of CS pur BDA2 fdr from 55/ 34 mm2 to 100 mm2 of length-3 Km (From CS pur-2 PSS to Mangala Basti 6Pole
	Scope of work:-	PART-A- Augmentation of Conductor of CS pur BDA2 fdr from 55/ 34 mm2 to 100 mm2 of length-3 Km (From CS pur-2 PSS to Mangala Basti 6Pole
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
2	PART-A- Augmentation of Conductor of CS pur BDA2 fdr from 55/ 34 mm2 to 100 mm2 of length-3 Km (From CS pur-2 PSS to Mangala Basti 6Pole	₹ 20,53,295.72
3	**Total Amount**	**₹ 20,53,295.72**
4	**Total Amount (In Cr.)**	**0.21**

PART-A- Augmentation of Conductor of CS pur BDA2 fdr from 55/ 34 mm2 to 100 mm2 of length-3 Km (From CS pur-2 PSS to Mangala Basti 6Pole					
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor					
No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)		1			
MATERIALS OF DP With AB Switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80

10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**2,29,887.24**
11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		3			

MATERIALS FOR 11 KV Pin Points With WPB					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	15	3,97,754.25
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	15	14,337.00
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	15	2,655.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	15	1,416.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.51	399.44
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	45.00	4,248.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	18.05	1,597.78
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	45	10,620.00
9	Earthing of Support (Coil Type)	No.	195.88	15	2,938.20
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.93	347.81
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	21.75	2,001.87
12	100 mm2 AAAC	K.M.	64,900.00	9.27	6,01,623.00
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	15.0	3,894.00
15	Yellow Colour Paint for Background	Ltr	259.60	30.0	7,788.00
A				**Total Cost of materials**	**10,51,620.35**
B				Stock, Storage & Insurance i.e 3% of A	31,548.61
C				**Sub Total (A+B)**	**10,83,168.96**
D				Contigency @ 3% of C	32,495.07
E				Tools & Plants @ 2% of C	21,663.38
F				Transportation @ 7.5% of C	81,237.67
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	20,484.34
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	67,348.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**13,06,397.63**
Civil & Services					
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	6.75	43,875.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.69	10,968.75
3	Dismantling of 80sqmm AAAC	KM	9,000.00	9.27	83,430.00
K				**Total Civil & Services**	**1,38,273.75**
L				**Total Material+Services (I+K)**	**14,44,671.38**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	86,680.28
N				**Sub Total (L+M)**	**15,31,351.66**
O				Total GST @ 18% of (N)	2,75,643.30
O1				Total CESS @ 1% of (N)	15,313.52
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**18,22,308.48**
6% Supervision Charges Summary					
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	86,680.28
				Total (6% supervision charges)	**97,615.14**
Gross Total Summary					
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	18,22,308.48
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00

U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**20,53,295.72**

Benefit:

- To maintain reliable power supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

7. Bifurcation of 11kV Panchasakha Nagar Feeder for mitigation of Overloading

Proposal: Bifurcation of existing 11kV Panchasakha Nagar feeder emanating from 33/11kV Dumduma PSS by constructing 1 no. of new feeder from 33/11kV Dumduma PSS.

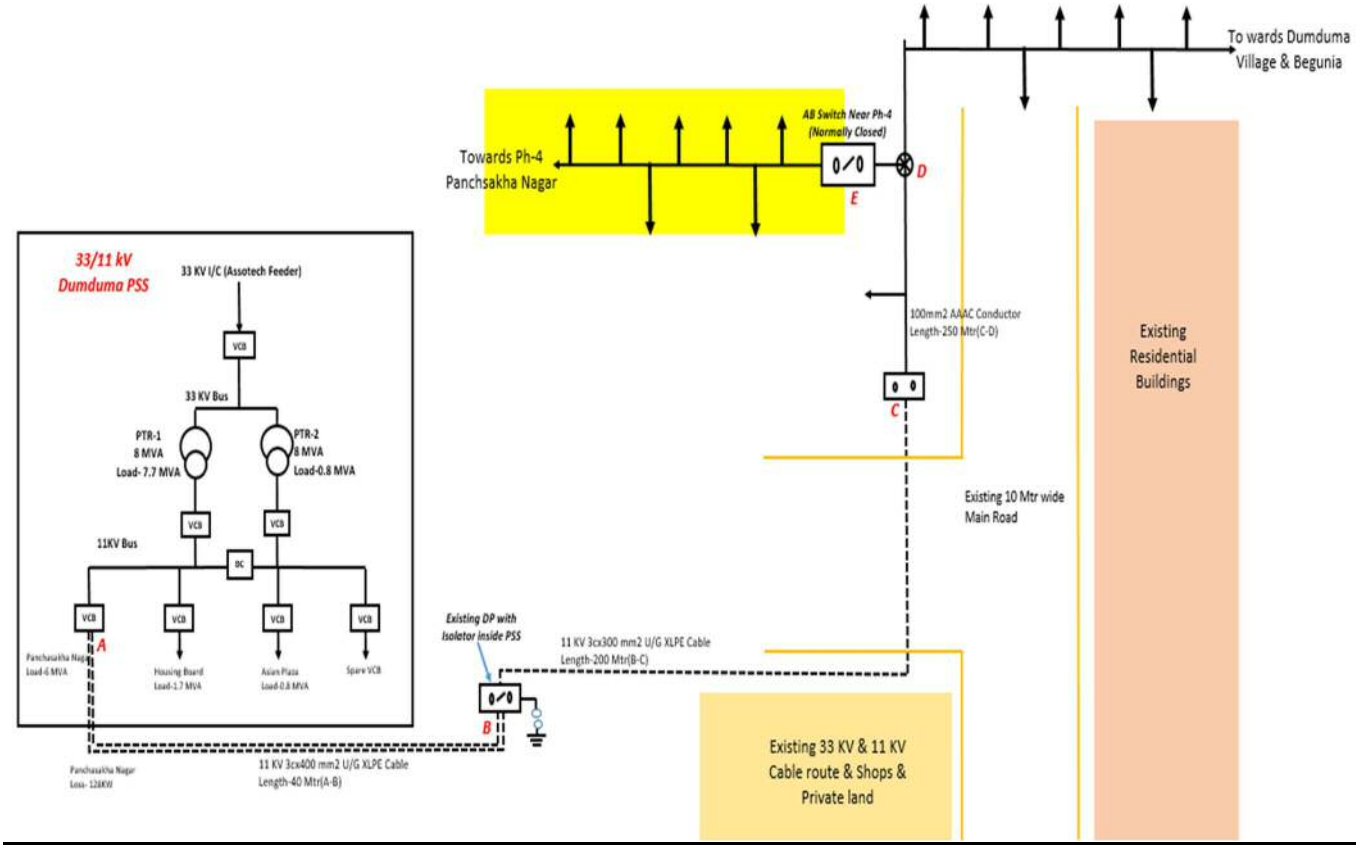
Objective: To mitigation of Overloading issue of Panchasakha nagar feeder.

Existing Scenario:

- At present, 11kV Panchasakha Nagar feeder is emanating from 33/11kV Dumduma PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 11 KM and the peak load is 5.3MVA.
- In existing scenrio 11kV Panchasakha nagar feeder Conductors size is 100sqmm & the feeder is loaded up to 102.3%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11kV feeder due to overload is hampered the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder is proposed for improving reliability.

EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
Panchasakha	5.18	5.30	102.31	OVERLOAD	7.9	153.0	OVERLOAD

Existing SLD (Summer'21):



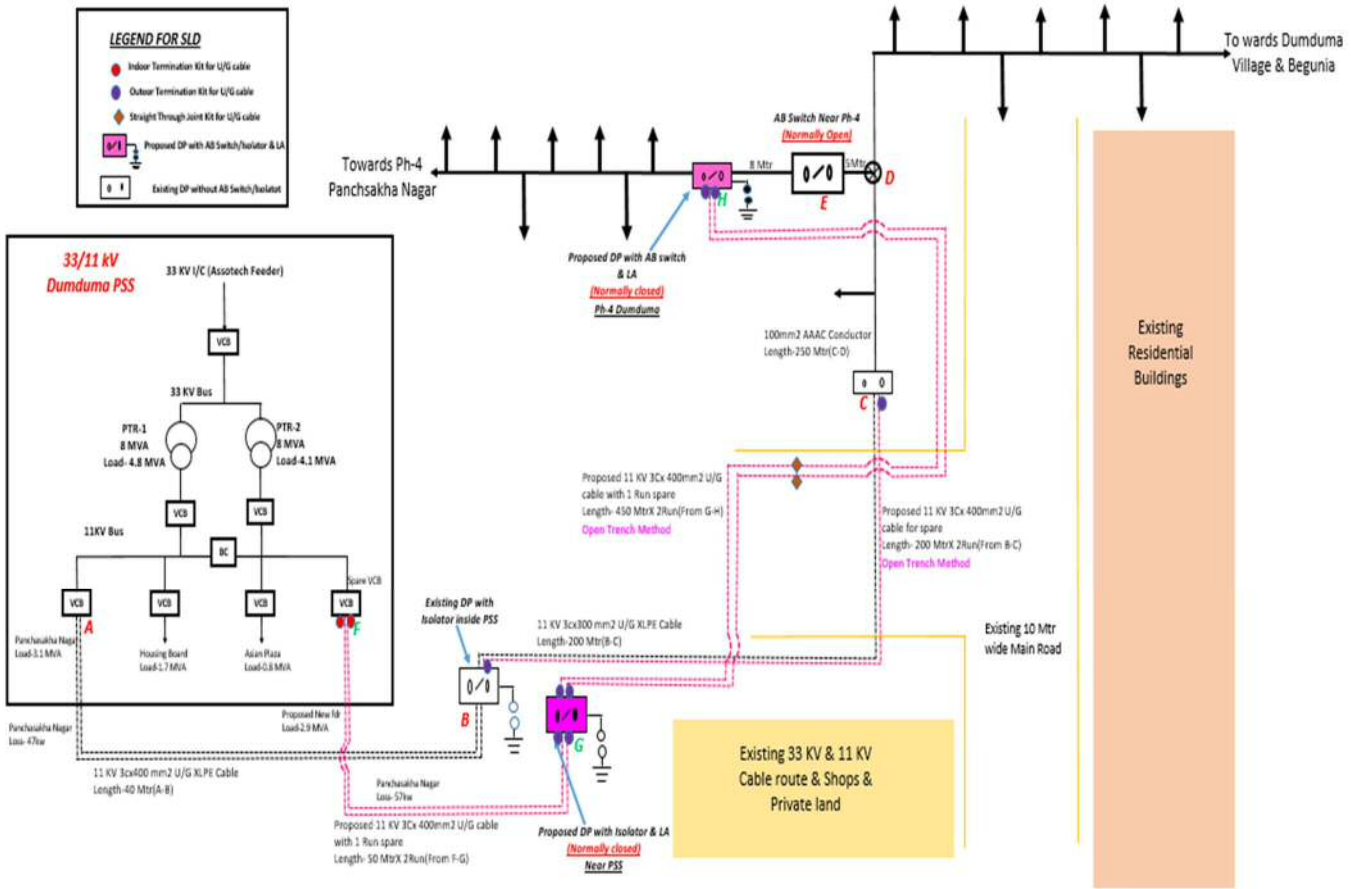
Proposed Scenario:

- Installation of 11kV line DP with Isolator inside 33/11 KV Dumduma PSS.
- Laying of 11kV U/G cable of length-50mtr using 11kV 3cx400sqmm U/G cable with 1 run spare from existing spare VCB to proposed DP with isolator inside PSS.

- Laying of 11kV U/G cable of length-450mtr using 11kV 3cx400sqmm U/G cable with 1 run spare from Proposed DP with isolator inside PSS to Proposed DP with AB switch near Ph-4. (Refer Point G-H in SLD)
- Installation of 11kV line DP with AB switch near Ph-4 Dumduma.
- Laying of 11kV U/G cable of length-200mtr using 11kV 3Cx400sqmm U/G cable for spare in existing Panchsakha Feeder. (Refer Point A-B in SLD)

LOADING OF FEEDER w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
Panchasakha	5.18	3	57.9	OK	4.5	86.6	OK
Panchasakha-NEW	5.75	2.30	40.0	OK	3.44	59.8	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Installation of 11kV line DP with Isolator inside 33/11kV Dumduma PSS.
- Laying of 11kV U/G cable of length-50 mtr using 11KV 3cx400sqmm U/G cable with 1 Run spare from existing spare VCB to Proposed DP with isolator inside PSS.
- Laying of 11kV U/G cable of length-450 Mtr using 11KV 3Cx400sqmm U/G cable with 1 Run spare from Proposed DP with isolator inside PSS to Proposed DP with AB switch near Ph-4. (Refer Point G-H in SLD)
- Installation of 11kV line DP with AB switch near Ph-4 Dumduma.
- Laying of 11 KV U/G cable of length-200 mtr using 11KV 3cx400sqmm U/G cable for spare in existing Panchsakha Feeder. (Refer Point A-B in SLD)

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	KHANDAGIRI
	Name of the Section : -	Dumduma
	Name of the Work :-	11kV Panchasakha Nagar Feeder bifurcation of 33/11 KV Dumduma PSS to reduce overloading under electrical section Dumduma.
	Scope of work:-	11kV Panchasakha Nagar Feeder bifurcation of 33/11 KV Dumduma PSS to reduce overloading under electrical section Dumduma.
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	PART-A- Installation of 11 KV line DP with Isolator inside 33/11 KV Dumduma PSS.	₹ 2,83,167.64
2	Part- B: Laying of 11 KV U/G cable of length-50 Mtr using 11KV 3cx400mm2 U/G cable with 1 Run spare From existing spare VCB to Proposed DP with isolator inside PSS.	₹ 3,84,982.48
3	Part- C :Laying of 11 KV U/G cable of length-450 Mtr using 11KV 3cx400mm2 U/G cable with 1 Run spare From Proposed DP with isolator inside PSS to Proposed DP with AB switch near Ph-4.	₹ 49,50,378.22
4	Part- D Laying of 11 KV U/G cable of length-200 Mtr using 11KV 3cx400mm2 U/G cable for spare in existing Panchsakha Feeder.	₹ 14,16,881.15
5	PART-E- Installation of 11 KV line DP with AB switch near Ph-4 dumduma	₹ 2,29,887.24
3	**Total Amount**	**₹ 72,65,296.74**
4	**Total Amount (In Cr.)**	**0.73**

PART-A- Installation of 11 KV line DP with Isolator inside 33/11 KV Dumduma PSS.

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With Isolator (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24

6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	11KV 400 AMP isolator with earth switch with PI(polymer)	Set	47,459.60	1	47,459.60
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,67,357.07**
B				Stock, Storage & Insurance i.e 3% of A	5,020.71
C				**Sub Total (A+B)**	**1,72,377.78**
D				Contigency @ 3% of C	5,171.33
E				Tools & Plants @ 2% of C	3,447.56
F				Transportation @ 7.5% of C	12,928.33
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	11,204.05
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**2,07,860.29**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**2,24,486.79**

M	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	13,469.21
N	**Sub Total (L+M)**	**2,37,956.00**
O	Total GST @ 18% of (N)	42,832.08
O1	Total CESS @ 1% of (N)	2,379.56
P	**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**2,83,167.64**

Part- B: Laying of 11 KV U/G cable of length-50 Mtr using 11KV 3cx400mm2 U/G cable with 1 Run spare From existing spare VCB to Proposed DP with isolator inside PSS.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.05***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.10	17,70,000.00	1,77,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set		29,874.06	-
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	11,306.76	22,613.52
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	16,406.72	32,813.44
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km		6,94,910.00	-
	Sub Total (Supply Portion) (in Rs.)				**2,32,426.96**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.10	94,500.00	9,450.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	2,400.00	-
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.00	1,04,114.67	-
	Sub Total (Erection Portion) (in Rs.)				**17,053.20**

Civil Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				

5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	16	1,463.40	23,414.40
	Sub Total (Civil Portion) (in Rs.)				**23,414.40**
A	**Sub Total (Supply Portion)**				**2,32,426.96**
B	Stock, Storage & Insurance @ 3 % of A				6,972.81
C	**Sub Total (A+B)**				**2,39,399.77**
D	Contingency @ 3 % of C				7,181.99
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				17,954.98
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**2,64,536.74**
I	Sub Total (Erection Portion + Civil Portion)				40,467.60
J	**Total Cost (H+I)**				**3,05,004.34**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				18,300.26
L	**Total Estimated Capital Cost i.e. (J+K)**				3,23,304.61
M	GST @ 18% of L				58,194.83
M1	CESS @ 1% of L				3,233.05
N	**Grand Total (L+M)**				**3,84,732.48**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				0
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**3,84,982.48**

Part- C :Laying of 11 KV U/G cable of length-450 Mtr using 11KV 3cx400mm2 U/G cable with 1 Run spare From Proposed DP with isolator inside PSS to Proposed DP with AB switch near Ph-4.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.45***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.90	17,70,000.00	15,93,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.90	6,94,910.00	6,25,419.00

	Sub Total (Supply Portion) (in Rs.)				**23,43,794.00**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.90	94,500.00	85,050.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.90	1,04,114.67	93,703.20
	Sub Total (Erection Portion) (in Rs.)				**1,91,156.40**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	315	700.00	2,20,500.00
1.1.b	Earth work excavation of **hard rock**	Cum	135	1,720.00	2,32,200.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	270	171.55	46,318.50
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	180	2,500.00	4,50,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	270	202.00	54,540.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km		26,43,670.63	-
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	0	3,600.00	-
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	15	1,012.00	15,180.00
	Sub Total (Civil Portion) (in Rs.)				**10,65,567.30**
A	**Sub Total (Supply Portion)**				**23,43,794.00**
B	Stock, Storage & Insurance @ 3 % of A				70,313.82
C	**Sub Total (A+B)**				**24,14,107.82**

D	Contingency @ 3 % of C	72,423.23
E	Tools & Plants Charges @ 2% of C (considered for earthing items)	-
F	Transportation @ 7.5% of C	1,81,058.09
G	Erection Charges @ 10% of earthing items	-
H	**Total (C+D+E+F+G)**	**26,67,589.14**
I	Sub Total (Erection Portion + Civil Portion)	12,56,723.70
J	**Total Cost (H+I)**	**39,24,312.84**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	2,35,458.77
L	**Total Estimated Capital Cost i.e. (J+K)**	41,59,771.61
M	GST @ 18% of L	7,48,758.89
M1	CESS @ 1% of L	41,597.72
N	**Grand Total (L+M)**	**49,50,128.22**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**49,50,378.22**

Part- D Laying of 11 KV U/G cable of length-200 Mtr using 11KV 3cx400mm2 U/G cable for spare in existing Panchsakha Feeder.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.20	17,70,000.00	3,54,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set		29,874.06	-
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	16,406.72	32,813.44
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.18	6,94,910.00	1,27,863.44
	Sub Total (Supply Portion) (in Rs.)				**5,14,676.88**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				

1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.40	94,500.00	37,800.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	2,400.00	-
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.18	1,04,114.67	19,157.10
	Sub Total (Erection Portion) (in Rs.)				**60,758.70**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	140	700.00	98,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	60	1,720.00	1,03,200.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	120	171.55	20,586.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	80	2,500.00	2,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	120	202.00	24,240.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km		26,43,670.63	-
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	0	3,600.00	-
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	16	1,463.40	23,414.40
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	7	1,012.00	7,084.00
	Sub Total (Civil Portion) (in Rs.)				**4,76,524.40**
A	**Sub Total (Supply Portion)**				**5,14,676.88**
B	Stock, Storage & Insurance @ 3 % of A				15,440.31
C	**Sub Total (A+B)**				**5,30,117.19**
D	Contingency @ 3 % of C				15,903.52
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				39,758.79

G	Erection Charges @ 10% of earthing items	-
H	**Total (C+D+E+F+G)**	**5,85,779.49**
I	Sub Total (Erection Portion + Civil Portion)	5,37,283.10
J	**Total Cost (H+I)**	**11,23,062.59**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	67,383.76
L	**Total Estimated Capital Cost i.e. (J+K)**	11,90,446.35
M	GST @ 18% of L	2,14,280.34
M1	CESS @ 1% of L	11,904.46
N	**Grand Total (L+M)**	**14,16,631.15**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**14,16,881.15**

PART-E- Installation of 11 KV line DP with AB switch near Ph-4 dumduma.

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40

18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**
	Civil & Services				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**2,29,887.24**

Benefit:

1) To maintain reliable of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2) Mitigation of Overloading issue with load growth of 5 years.
3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

8. Refurbishment of 11kV New Industry-1 Feeder for mitigation of Overloading

Proposal: Augmentation of existing 11kV New Industry-1 Feeder emanating from 33/11kV Infocity PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length 350mtr.

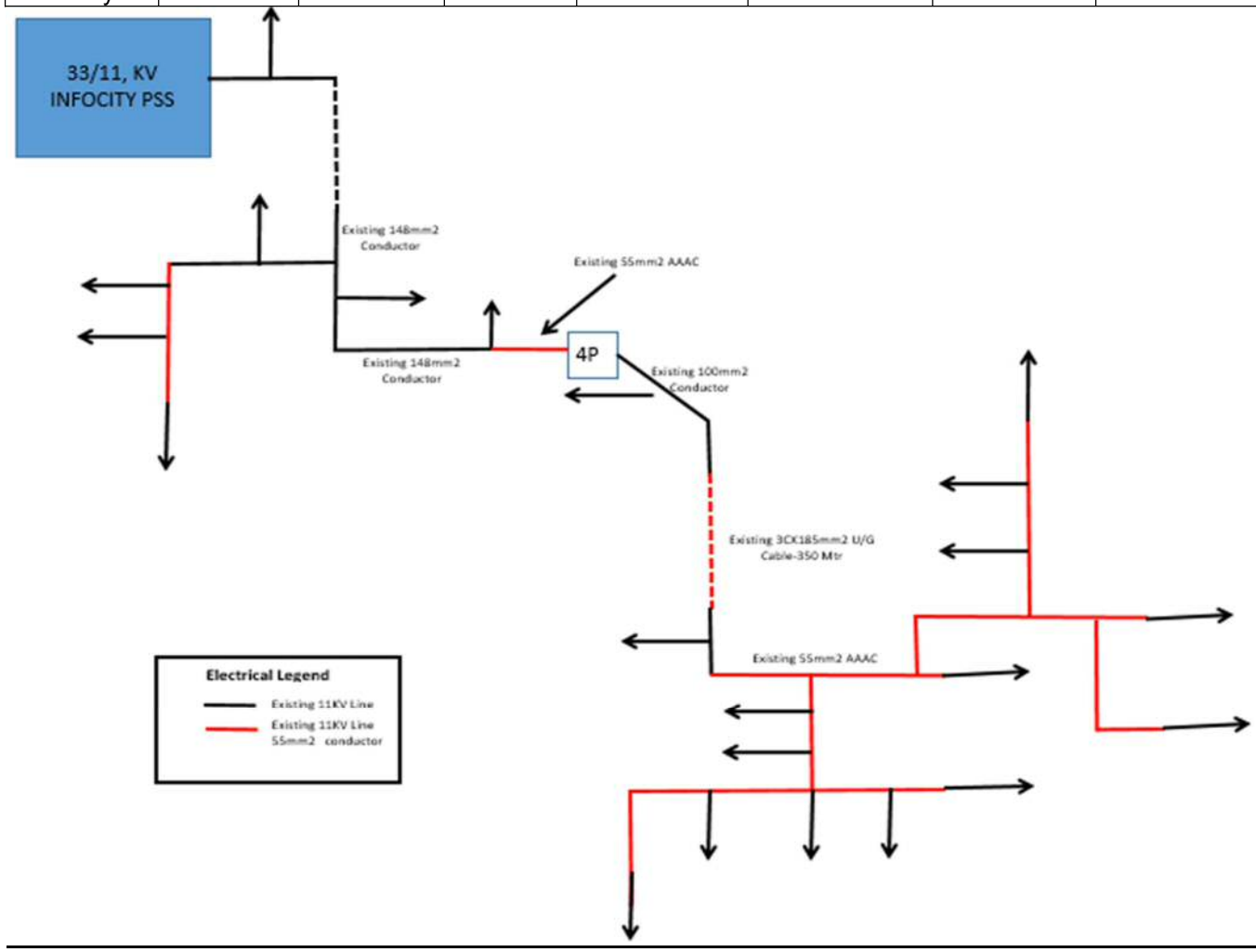
Objective: To mitigate the overloading issue of 11kV New Industry-1 feeder.

Existing Scenario:

- At present, 11kV New Industry-1 feeder is emanating from 33/11kV Infocity PSS. Only Urban & Industrial consumers are connected from this feeder. Total length of this feeder is 7.33km and the peak load is 4.4MVA.
- In the existing scenario, conductor size of 11kV New Industry feeder is 55sqmm at location (Near KIIT international School) & starting patch from PSS to Near Sikharchandi is on 148mm2. Considering 80sqmm in the trunk side the feeder where the feeder loading is higher, the loading is up to 82.04%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Industrial & Urban consumers, several breakdown on 11kV feeders hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

Existing SLD (Summer'21):

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
New Industry-1	4.51	3.7	82.04	OVERLOAD	5.53	122.69	Overload

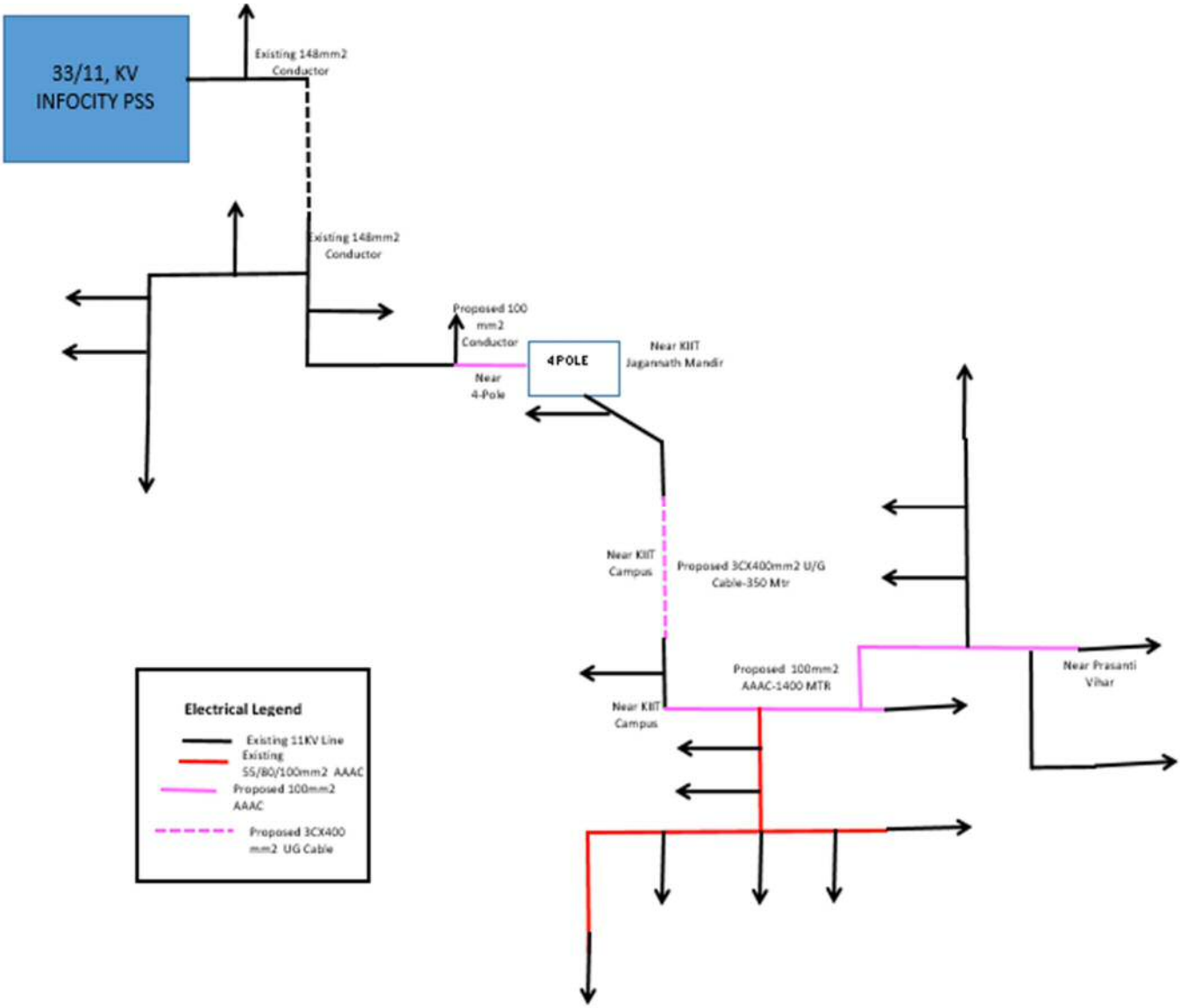


Proposed Scenario:

- Augmentation of 1.4km Existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 2 years LG**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
New Industry-1	6.67	4.40	66.0	OK	5.3	79.2	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 1.4km existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	Periphery
	Name of the Section : -	C.s.pur-2

	Name of the Work :-	Part- A : Laying of UG cable 3Cx400sqmm- Length 0.35km PART-B- Augmentation of Conductor of Infocity New Industry-1 FDR from 55/ 80sqmm to 100sqmm of length-1.4k
	Scope of work:-	Part- A : Laying of UG cable 3Cx400mm2- Length 0.35KM PART-B- Augmentation of Conductor of Infocity New Industry-1 FDR from 55/ 80 mm2 to 100 mm2 of length-1.4 Km
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A : Laying of UG cable 3Cx400mm2- Length 0.35KM	₹ 50,74,531.92
2	PART-b- Augmentation of Conductor of Infocity New Industry-1 FDR from 55/ 80 mm2 to 100 mm2 of length-1.4 Km	₹ 10,81,397.87
3	**Total Amount**	**₹ 61,55,929.79**
4	**Total Amount (In Cr.)**	**0.62**

Part- A : Laying of UG cable **3Cx400mm2- Length 0.35KM**

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.35***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.70	17,70,000.00	12,39,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.70	6,94,910.00	4,86,437.00
	Sub Total (Supply Portion) (in Rs.)				**18,50,812.00**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.70	94,500.00	66,150.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20

1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.70	1,04,114.67	72,880.27
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	15,000.00	-
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
	Sub Total (Erection Portion) (in Rs.)				**1,51,433.47**

Civil Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	245	700.00	1,71,500.00
1.1.b	Earth work excavation of **hard rock**	Cum	105	1,720.00	1,80,600.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	210	171.55	36,025.50
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	140	2,500.00	3,50,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	210	202.00	42,420.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.35	26,43,670.63	9,25,284.72
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	0	3,600.00	-
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	12	1,012.00	12,144.00
	Sub Total (Civil Portion) (in Rs.)				**17,64,803.02**
A	**Sub Total (Supply Portion)**				**18,50,812.00**
B	Stock, Storage & Insurance @ 3 % of A				55,524.36
C	**Sub Total (A+B)**				**19,06,336.36**
D	Contingency @ 3 % of C				57,190.09
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				1,42,975.23
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**21,06,501.68**

I	Sub Total (Erection Portion + Civil Portion)	19,16,236.49
J	**Total Cost (H+I)**	**40,22,738.17**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	2,41,364.29
L	**Total Estimated Capital Cost i.e. (J+K)**	42,64,102.46
M	GST @ 18% of L	7,67,538.44
M1	CESS @ 1% of L	42,641.02
N	**Grand Total (L+M)**	**50,74,281.92**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**50,74,531.92**

PART-B- Augmentation of Conductor of Infocity New Industry-1 FDR from 55/ 80 mm2 to 100 mm2 of length-1.4 Km

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40

18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**2,29,887.24**
11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		1.4			

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	7	1,85,618.65
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	7	6,690.60
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	7	1,239.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	7	660.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	2.11	186.41
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	21.00	1,982.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	8.43	745.63

8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	21	4,956.00
9	Earthing of Support (Coil Type)	No.	195.88	7	1,371.16
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.83	162.31
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	10.15	934.21
12	100 mm2 AAAC	K.M.	64,900.00	4.33	2,80,757.40
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	7.0	1,817.20
15	Yellow Colour Paint for Background	Ltr	259.60	14.0	3,634.40
A				**Total Cost of materials**	**4,90,756.16**
B				Stock, Storage & Insurance i.e 3% of A	14,722.68
C				**Sub Total (A+B)**	**5,05,478.85**
D				Contigency @ 3% of C	15,164.37
E				Tools & Plants @ 2% of C	10,109.58
F				Transportation @ 7.5% of C	37,910.91
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	9,559.36
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	31,429.16
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**6,09,652.23**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	3.15	20,475.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.79	5,118.75
3	Dismantling of 80sqmm AAAC	KM	9,000.00	4.33	38,934.00
K				**Total Civil & Services**	**64,527.75**
L				**Total Material+Services (I+K)**	**6,74,179.98**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	40,450.80
N				**Sub Total (L+M)**	**7,14,630.78**
O				Total GST @ 18% of (N)	1,28,633.54
O1				Total CESS @ 1% of (N)	7,146.31
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**8,50,410.62**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	40,450.80
				Total (6% supervision charges)	**51,385.66**
	Gross Total Summary				
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	8,50,410.62
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**10,81,397.87**

Benefit:

- To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

9. Refurbishment of 11kV Polymer Complex Feeder for mitigation of Overloading

Proposal: Augmentation of existing 11kV Polymer Complex Feeder emanating from 33/11kV Infocity PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

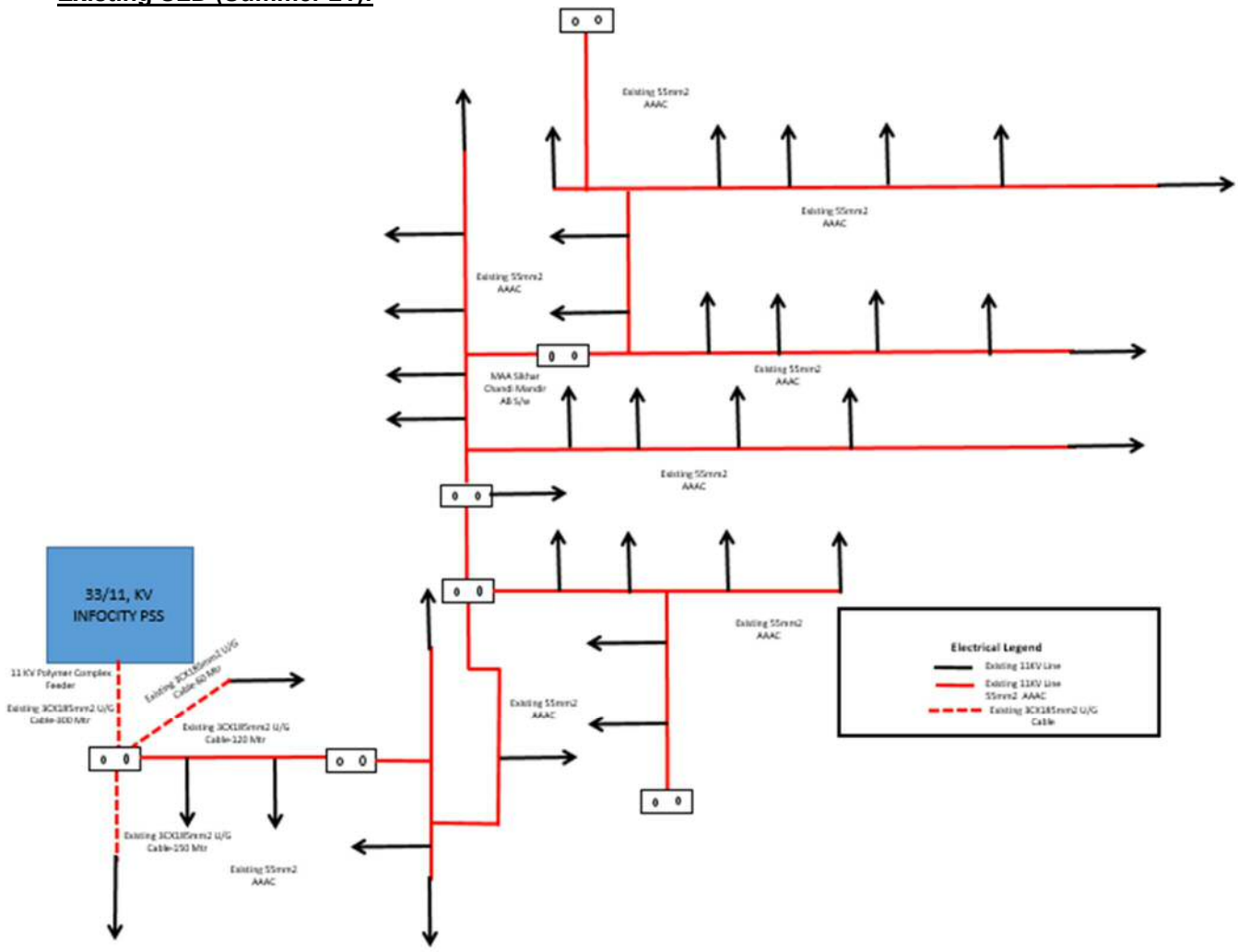
Objective: To mitigate the overloading issue of 11kV Polymer Complex feeder.

Existing Scenario:

- At present, 11kV Polymer Complex feeder is emanating from 33/11kV Infocity PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 14.2km and the peak load is 3MVA.
- In the existing scenario, conductor size of 11kV Polymer Complex feeder is 55sqmm & the feeder is loaded up to 84.75%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several breakdown on 11kV feeder hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
Polymer Complex	3.54	3.00	84.75	Overload	4.50	127.1	Overload

Existing SLD (Summer'21):

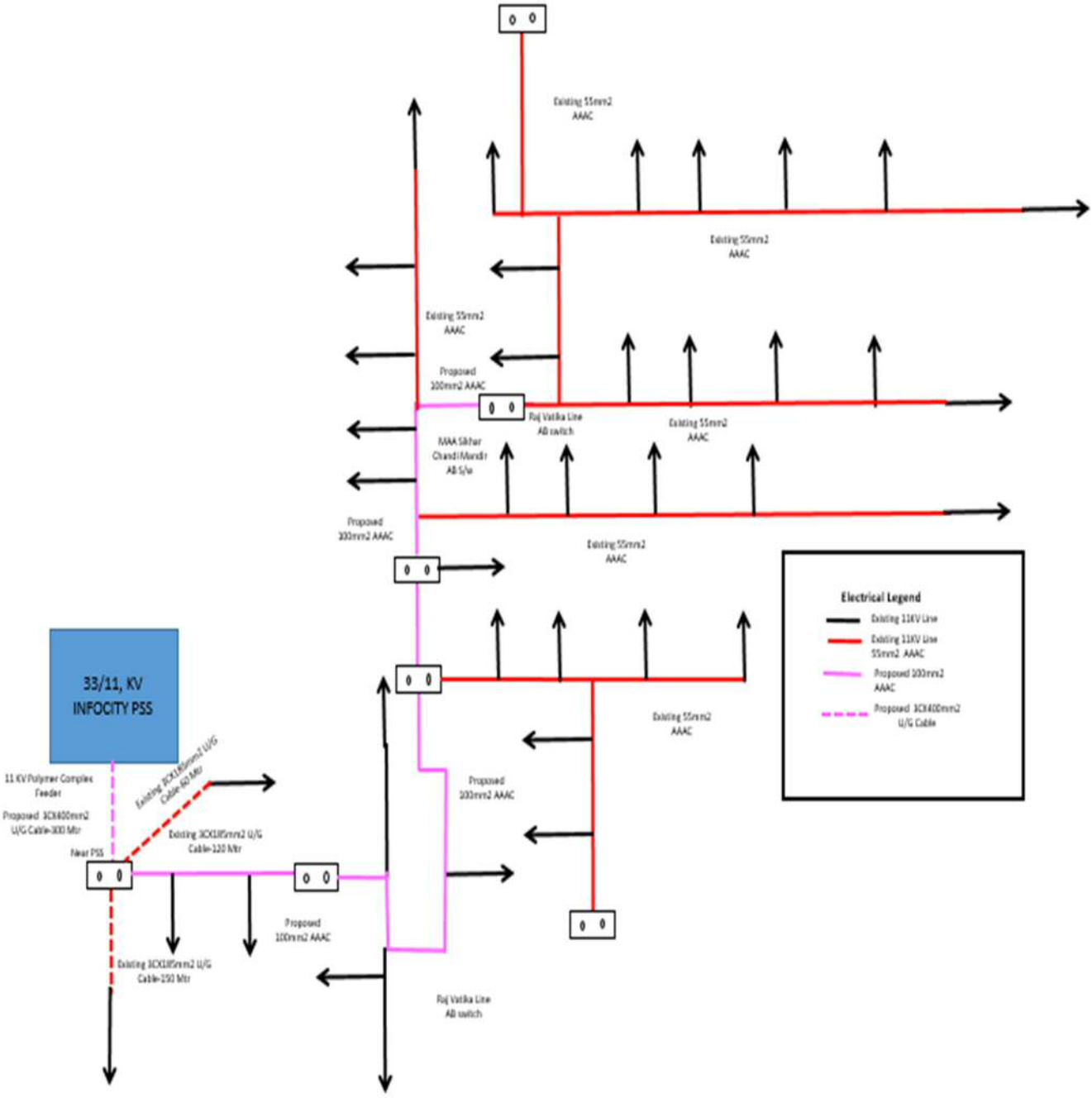


Proposed Scenario:

- Augmentation of 2.5km existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
Polymer Complex	5.18	3.00	57.9	OK	3.6	69.5	Ok

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 2.5km Existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr (From Infocity PSS to Rajvatika Line AB Switch).

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	Periphery
	Name of the Section : -	CS Pur-2
	Name of the Work :-	Part- A : Laying of UG cable to 3Cx400mm2- Length 0.35KM PART-B- Augmentation of Conductor of Infocity Polymer complex FDR from 55/ 80 mm2 to 100 mm2 of length-2.5 Km
	Scope of work:-	Part- A : Laying of UG cable 3Cx400mm2- Length 0.35KM PART-B- Augmentation of Conductor of Infocity Polymer complex FDR from 55/ 80 mm2 to 100 mm2 of length-2.5 Km
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A : Laying of UG cable 3Cx400mm2- Length 0.35km	₹ 50,74,531.92
2	PART-B- Augmentation of Conductor of Infocity Polymer complex FDR from 55/ 80 mm2 to 100 mm2 of length-2.5 Km	₹ 17,74,895.77
3	**Total Amount**	**₹ 68,49,427.70**
4	**Total Amount (In Cr.)**	**0.68**

Part- A : Laying of UG cable **3Cx400mm2- Length 0.35KM**

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.35***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.70	17,70,000.00	12,39,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.70	6,94,910.00	4,86,437.00
	Sub Total (Supply Portion) (in Rs.)				**18,50,812.00**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.70	94,500.00	66,150.00

1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.70	1,04,114.67	72,880.27
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	15,000.00	-
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
	Sub Total (Erection Portion) (in Rs.)				**1,51,433.47**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	245	700.00	1,71,500.00
1.1.b	Earth work excavation of **hard rock**	Cum	105	1,720.00	1,80,600.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	210	171.55	36,025.50
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	140	2,500.00	3,50,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	210	202.00	42,420.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.35	26,43,670.63	9,25,284.72
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	0	3,600.00	-
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	12	1,012.00	12,144.00
	Sub Total (Civil Portion) (in Rs.)				**17,64,803.02**
A	**Sub Total (Supply Portion)**				**18,50,812.00**
B	Stock, Storage & Insurance @ 3 % of A				55,524.36
C	**Sub Total (A+B)**				**19,06,336.36**
D	Contingency @ 3 % of C				57,190.09
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				1,42,975.23
G	Erection Charges @ 10% of earthing items				-

H	**Total (C+D+E+F+G)**	**21,06,501.68**
I	Sub Total (Erection Portion + Civil Portion)	19,16,236.49
J	**Total Cost (H+I)**	**40,22,738.17**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	2,41,364.29
L	**Total Estimated Capital Cost i.e. (J+K)**	42,64,102.46
M	GST @ 18% of L	7,67,538.44
M1	CESS @ 1% of L	42,641.02
N	**Grand Total (L+M)**	**50,74,281.92**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**50,74,531.92**

PART-B- Augmentation of Conductor of Infocity Polymer complex FDR from 55/ 80 mm2 to 100 mm2 of length-2.5 Km

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04

19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**2,29,887.24**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		2.5		

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	13	3,44,720.35
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	13	12,425.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	13	2,301.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	13	1,227.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	3.91	346.19
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	39.00	3,681.60
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	15.65	1,384.74
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	39	9,204.00
9	Earthing of Support (Coil Type)	No.	195.88	13	2,546.44
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.41	301.43

11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	18.85	1,734.95
12	100 mm2 AAAC	K.M.	64,900.00	7.73	5,01,352.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	13.0	3,374.80
15	Yellow Colour Paint for Background	Ltr	259.60	26.0	6,749.60
A				**Total Cost of materials**	**8,91,350.20**
B				Stock, Storage & Insurance i.e 3% of A	26,740.51
C				**Sub Total (A+B)**	**9,18,090.71**
D				Contigency @ 3% of C	27,542.72
E				Tools & Plants @ 2% of C	18,361.81
F				Transportation @ 7.5% of C	68,856.80
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	17,753.10
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	56,302.87
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**11,06,908.02**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	5.85	38,025.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.46	9,506.25
3	Dismantling of 80sqmm AAAC	KM	9,000.00	7.73	69,525.00
K				**Total Civil & Services**	**1,17,056.25**
L				**Total Material+Services (I+K)**	**12,23,964.27**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	73,437.86
N				**Sub Total (L+M)**	**12,97,402.13**
O				Total GST @ 18% of (N)	2,33,532.38
O1				Total CESS @ 1% of (N)	12,974.02
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**15,43,908.53**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	73,437.86
				Total (6% supervision charges)	**84,372.72**
	Gross Total Summary				
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	15,43,908.53
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**17,74,895.77**

Benefit:

- To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

10.Refurbishment of 11kV Sikharchandi Feeder for mitigation of Overloading

Proposal: Augmentation of existing 11kV Sikharchandi Feeder emanating from 33/11kV Kalarahanga PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor.

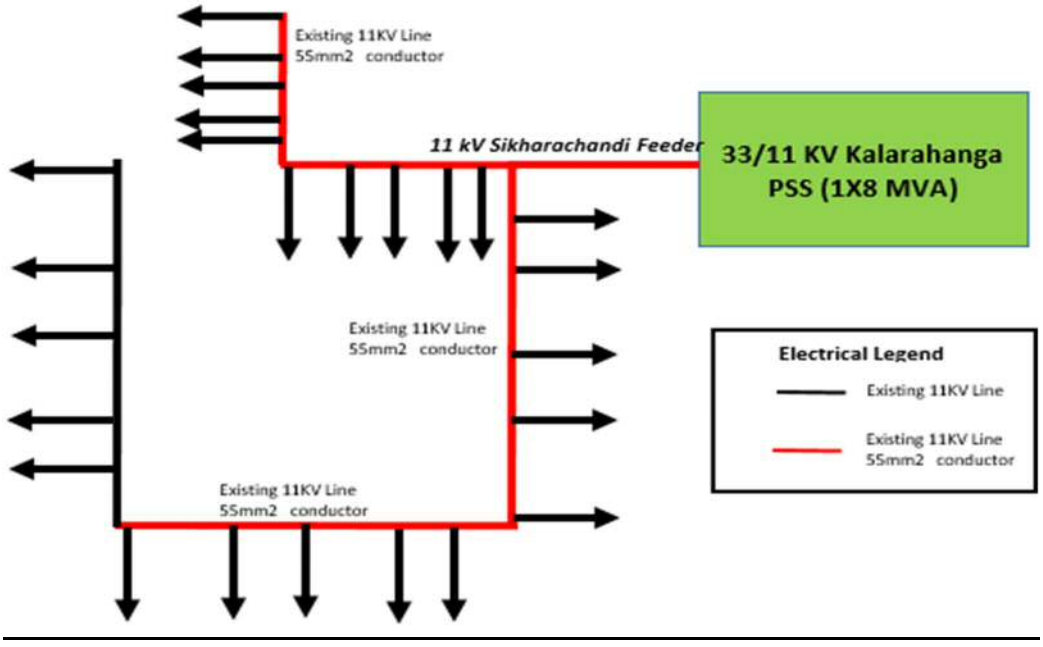
Objective: To mitigate the overloading issue of 11kV Sikharchandi feeder.

Existing Scenario:

- At present, 11kV Sikharchandi feeder is emanating from 33/11kV Kalarahanga PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 13.21km and the peak load is 3.5MVA.
- In the existing scenario, conductor size of 11kV Sikharchandi feeder is 55 sq mm & the feeder is loaded up to 98.87 %, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
Sikharchandi	3.54	3.50	98.87	Overload	5.20	146.9	Overload

Existing SLD (Summer'21):

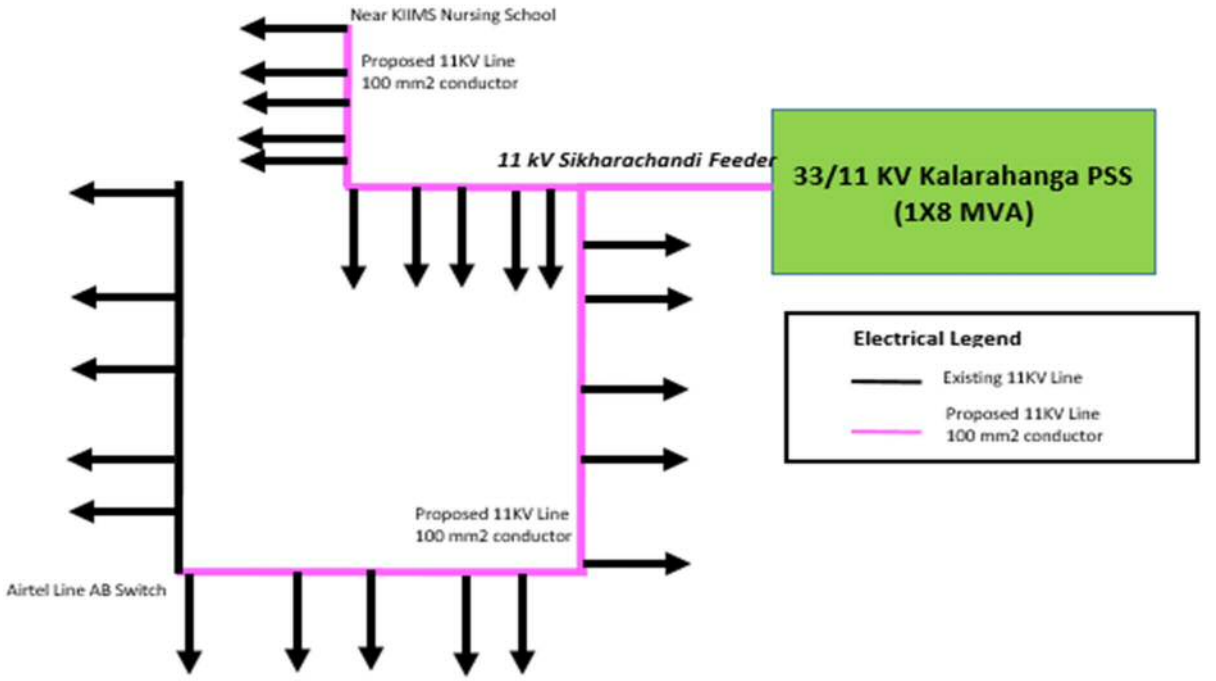


Proposed Scenario:

- Augmentation of 4km existing 55sqmm old conductor with 100sqmm AAAC conductor (from Kalarahanga PSS to Airtel line DP AB switch).

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
Sikharchandi	5.18	3.50	67.6	OK	4.2	81.1	Ok

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 4km existing 55sqmm old conductor with 100sqmm AAAC conductor (from kalarahanga PSS to Airtel line DP AB switch).

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**BCDD-II**	
	Name of the Sub-Division : -	Periphery	
	Name of the Section : -	Kanan Vihar	
	Name of the Work :-	PART-A- Augmentation of Conductor From 80 & 55 mm2 to 100 mm2 of length-4 Km from kalarahanga PSS to Airtel line DP AB switch.	
	Scope of work:-	PART-A- Augmentation of Conductor From 80 & 55 mm2 to 100 mm2 of length-4 Km from kalarahanga PSS to Airtel line DP AB switch.	
	Names of Schemes: -	TPCODL CAPEX Scheme	
ABSTRACT OF ESTIMATE			
Sl. No.	**Description**		**Amount**
1	PART-A- Augmentation of Conductor From 80 & 55 mm2 to 100 mm2 of length-4 Km from kalarahanga PSS to Airtel line DP AB switch.		₹ 29,23,355.97
2	**Total Amount**		**₹ 29,23,355.97**
3	**Total Amount (In Cr.)**		**0.29**

PART-A- Augmentation of Conductor From 80 & 55 mm2 to 100 mm2 of length-4 Km from kalarahanga PSS to Airtel line DP AB switch.					
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor					
No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)		2			
MATERIALS OF DP With AB Switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***

1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***

1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
O1				Total CESS @ 1% of (N)	3,863.65
P				**Gross Total Material +Services (N+O) for DP With AB Switch**	**4,59,774.48**
	No. of Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0004)		2		
	MATERIALS FOR 11 KV Cut Point with 180 Degree Angle				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2)	KG	88.50	45.888	4,061.09
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	10.5728	935.69
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	11.70144	1,035.58
5	Danger Plate, 1 no's.	No.	94.40	2	188.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.6018	53.26
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	6	566.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	2.4072	213.04
9	11 KV pin insulator polymer	No.	236.00	6	1,416.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
12	Earthing of Support (Coil Type)	EA	195.88	2	391.76
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.524	46.37
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	7.1	653.48
16	Black Paint	Ltr	259.60	1	259.60
17	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**93,346.17**
B				Stock, Storage & Insurance i.e 3% of A	2,800.39
C				**Sub Total (A+B)**	**96,146.56**
D				Contigency @ 3% of C	2,884.40
E				Tools & Plants @ 2% of C	1,922.93
F				Transportation @ 7.5% of C	7,210.99
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				4,152.16
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J				**Sum of (C to I)**	**1,15,048.29**

	Civil & Services				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
K				**Total Civil & Services**	**7,312.50**
L				**Total (J+K)**	**1,22,360.79**
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				7,341.65
N				**Sub Total (L+M)**	**1,29,702.43**
O				Total GST @ 18% of (N)	23,346.44
				Total CESS @ 1% of (N)	1,297.02
P	**Gross Total Material +Services (N+O) for 11 KV Cut Point with 180 Degree Angle**				**1,54,345.90**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)	4			
	MATERIALS FOR 11 KV Pin Points With WPB				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	20	5,30,339.00
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	20	19,116.00
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	20	3,540.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	20	1,888.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	6.02	532.59
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	60.00	5,664.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	24.07	2,130.37
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	60	14,160.00
9	Earthing of Support (Coil Type)	No.	195.88	20	3,917.60
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	5.24	463.74
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	29.00	2,669.16
12	100 mm2 AAAC	K.M.	64,900.00	12.36	8,02,164.00
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	20.0	5,192.00
15	Yellow Colour Paint for Background	Ltr	259.60	40.0	10,384.00
A				**Total Cost of materials**	**14,02,160.47**
B	Stock, Storage & Insurance i.e 3% of A				42,064.81
C				**Sub Total (A+B)**	**14,44,225.28**
D	Contigency @ 3% of C				43,326.76
E	Tools & Plants @ 2% of C				28,884.51
F	Transportation @ 7.5% of C				1,08,316.90
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				27,312.46
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				89,797.61
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J				**Sum of (C to I)**	**17,41,863.51**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	9.00	58,500.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.25	14,625.00
3	Dismantling of 80sqmm AAAC	M	1,200.00	12.36	14,832.00
K				**Total Civil & Services**	**87,957.00**
L				**Total Material+Services (I+K)**	**18,29,820.51**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				1,09,789.23
N				**Sub Total (L+M)**	**19,39,609.74**
O				Total GST @ 18% of (N)	3,49,129.75

O1	Total CESS @ 1% of (N)	19,396.10
P	**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**23,08,135.59**
	6% Supervision Charges Summary	
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,09,789.23
	Total (6% supervision charges)	**1,39,000.60**
	Gross Total Summary	
2	Gross Total Material +Services (N+O) for DP With AB Switch	4,59,774.48
3	Gross Total Material +Services (N+O) for 11 KV Cut Point with 180 Degree Angle	1,54,345.90
4	Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	-
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	23,08,135.59
	Total	29,22,255.97
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**29,23,355.97**

Benefit:

- To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

11.Bifurcation of 11kV K-5 Feeder for mitigation of Overloading & Low Voltage issue

Proposal: Bifurcation of existing 11kV K-5 Feeder emanating from 33/11kV Kalinga Nagar PSS by constructing 1no. of new feeder from 33/11kV CET PSS.

Objective: To mitigate the overloading issue of 11kV K-5 feeder.

Existing Scenario:

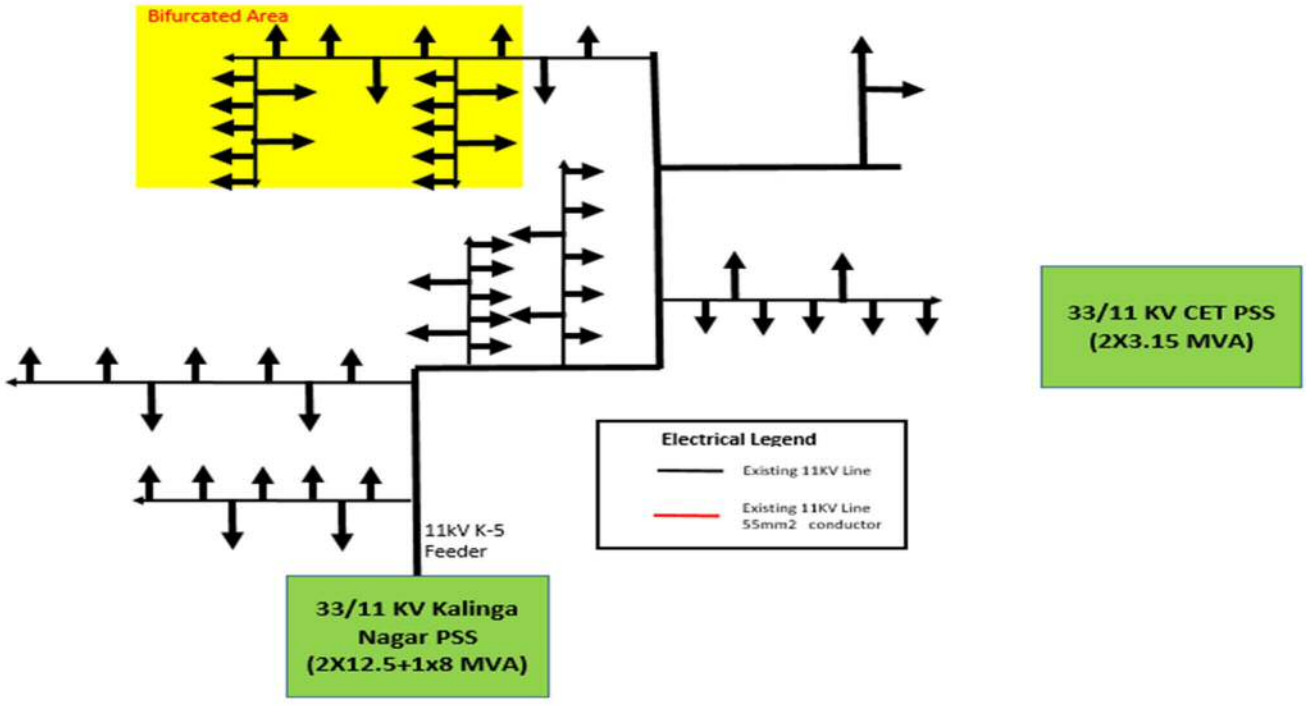
- At present, 11 KV K-5 feeder is emanating from 33/11 KV Kalinga Nagar PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 17 KM and the peak load is 5.5 MVA.
- In the existing scenario, conductor size of 11kV K-5 feeder where the feeder is overloaded is 80sqmm & the feeder is loaded up to 122.83%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overloading hampers the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder is proposed for improving Reliability & mitigation of Overload.

EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
K-5	4.51	5.54	122.83	OVERLOAD	8.3	183.7	OVERLOAD

Proposal: Construction of New Feeder from 33/11kV CET PSS of length-1.5km by laying 3Cx400sqmm U/G Cable for feeder bifurcation. Installation of 2 No. of 11kV 4 way RMU for N-1 connectivity feeder bifurcation.

Objective: To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.

Existing SLD (Summer'21):

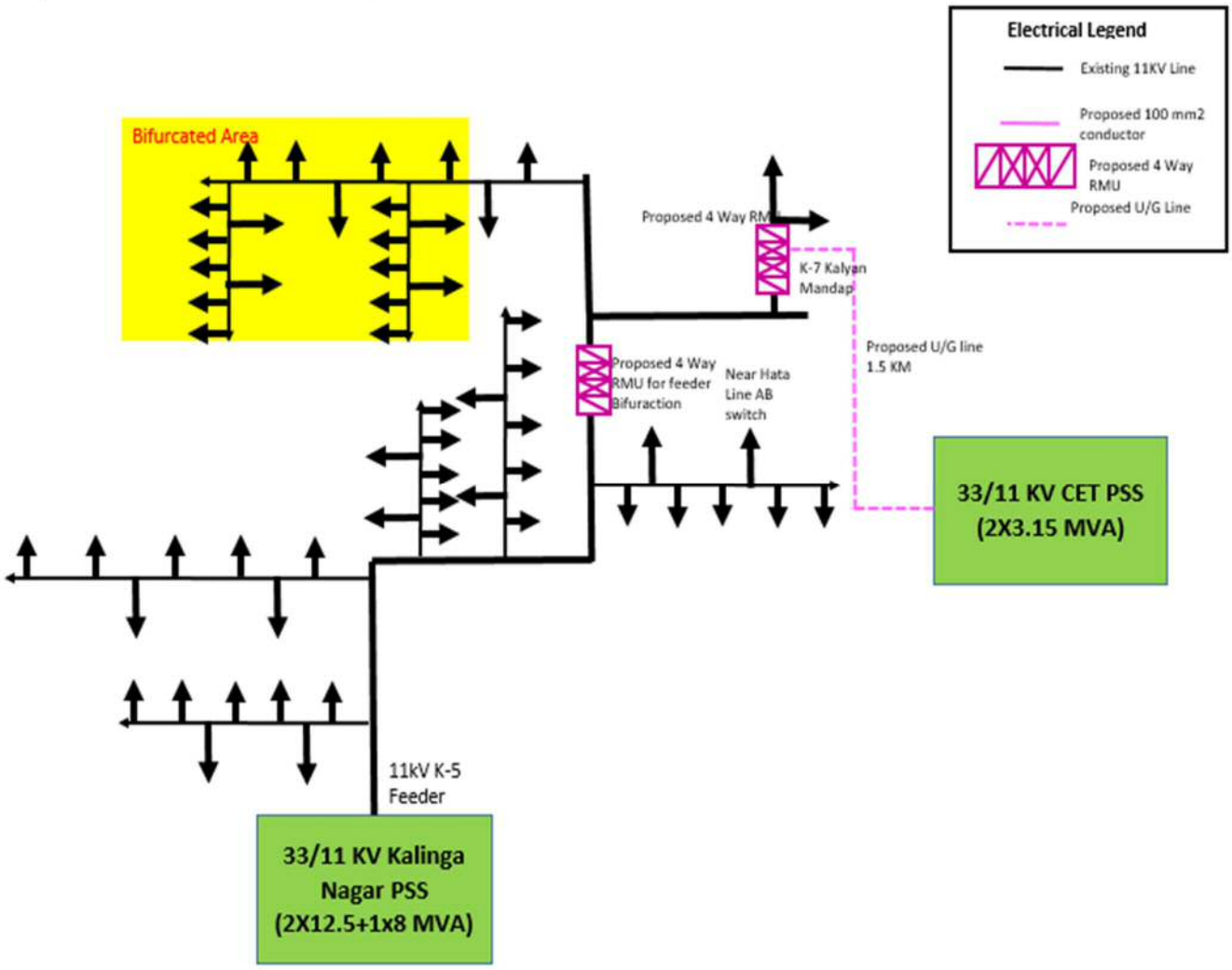


Proposed Scenario:

- Construction of New Feeder from 33/11 KV CET PSS of length-1.5 KM by using in 3Cx400mm2 U/G Cable from CET PSS to K-7 Kalyan mandap DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

LOADING OF FEEDER w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
K-5	5.18	3	57.9	OK	4.5	86.6	OK
K-5-NEW	5.75	2.54	44.2	OK	3.80	66.1	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Construction of New Feeder from 33/11 KV CET PSS of length-1.5 KM by using in 3Cx400mm2 U/G Cable from CET PSS to K-7 Kalyan mandap DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	KHANDAGIRI
	Name of the Section : -	Kalinga Nagar
	Name of the Work :-	Part- A :Construction of U/G Cable - 1.5 Km without spare (from CET PSS to K7 Kalyan mandap) with 2 no.s 4W RMU

	Scope of work:-	Part- A :Construction of U/G Cable - 1.5 km without spare (from CET PSS to K7 Kalyan mandap) with 2 no.s 4W RMU	
	Names of Schemes: -	TPCODL CAPEX Scheme	

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A :Construction of U/G Cable for new feeder - 1.5 Km without spare (from CET PSS to K7 Kalyan mandap) with 2 no.s 4W RMU	₹ 1,47,01,367.97
2	**Total Amount**	**₹ 1,47,01,367.97**
3	**Total Amount (In Cr.)**	**1.47**

Part- A :Construction of U/G Cable - 1.5 Km without spare (from CET PSS to K7 Kalyan mandap) with 2 no.s 4W RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.3***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***1.2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	1.50	17,70,000.00	26,55,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	5	29,874.06	1,49,370.30
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.30	6,94,910.00	2,08,473.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	1.5	56,515.00	84,772.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	1.5	77,990.00	1,16,985.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	3	6,766.00	20,298.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode	Nos.	2	4,35,542.00	8,71,084.00

	along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.				
	Sub Total (Supply Portion) (in Rs.)				**54,14,916.16**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.30	94,500.00	28,350.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	2,400.00	12,000.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.2	28,00,000.00	33,60,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.30	1,04,114.67	31,234.40
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	1.5	27,296.35	40,944.53
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	1.5	1,22,488.27	1,83,732.41
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	3.0	612.54	1,837.62
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**37,28,057.55**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	210	700.00	1,47,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	90	1,720.00	1,54,800.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	180	171.55	30,879.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	120	2,500.00	3,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	180	202.00	36,360.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.3	26,43,670.63	7,93,101.19

2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	50	1,012.00	50,600.00
	Sub Total (Civil Portion) (in Rs.)				**17,59,487.59**
A	**Sub Total (Supply Portion)**				**54,14,916.16**
B	Stock, Storage & Insurance @ 3 % of A				1,62,447.48
C	**Sub Total (A+B)**				**55,77,363.64**
D	Contingency @ 3 % of C				1,67,320.91
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				4,18,302.27
G	Erection Charges @ 10% of earthing items				751.12
H	**Total (C+D+E+F+G)**				**61,63,888.17**
I	Sub Total (Erection Portion + Civil Portion)				54,87,545.14
J	**Total Cost (H+I)**				**1,16,51,433.31**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				6,99,086.00
L	**Total Estimated Capital Cost i.e. (J+K)**				1,23,50,519.31
M	GST @ 18% of L				22,23,093.48
M1	CESS @ 1% of L				1,23,505.19
N	**Grand Total (L+M)**				**1,46,97,117.97**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**1,47,01,367.97**

Benefit:

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

12.Bifurcation of 11kV KIIT Feeder for mitigation of Overloading

Proposal: Bifurcation of existing 11kV KIIT Feeder emanating from 33/11kV Kanan Vihar PSS by constructing 1 No. of new feeder from 33/11 KV Infocity PSS .

Objective: To mitigation of Overloading issue of feeder.

Existing Scenario:

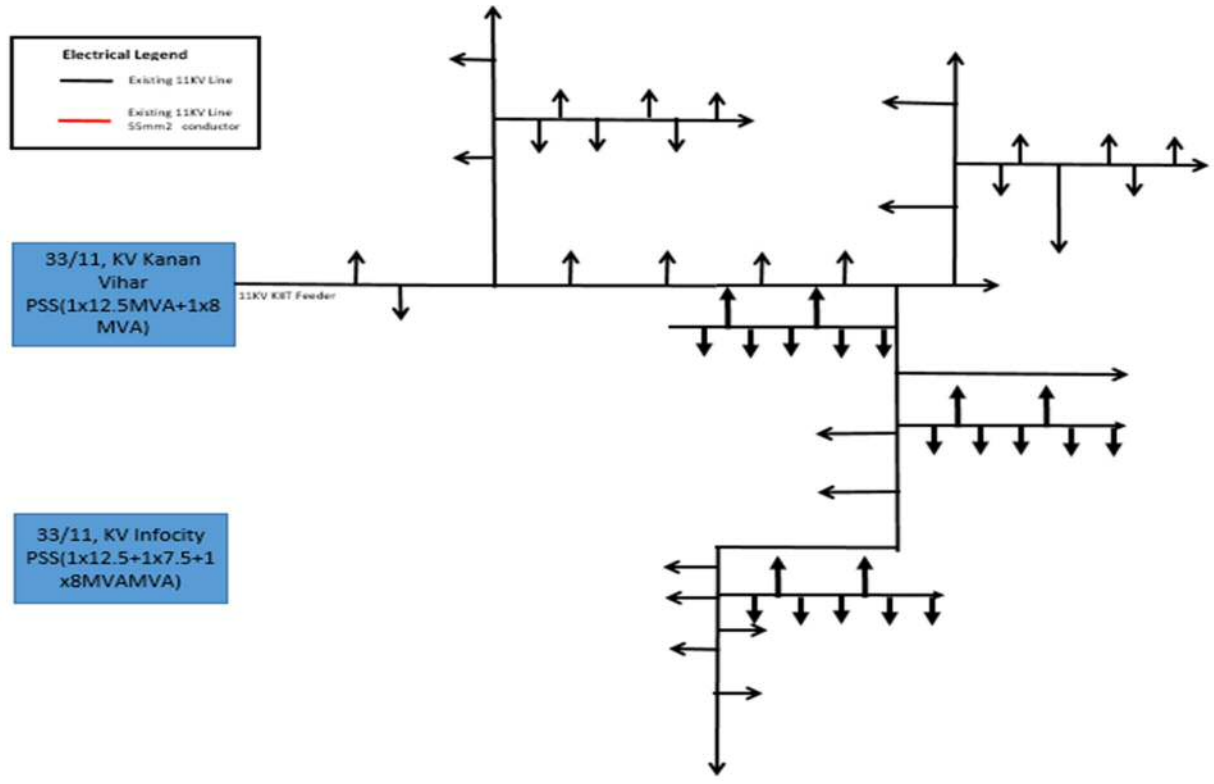
- At present, 11kV KIIT feeder is emanating from 33/11 KV Kanan Vihar PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 13.15 KM and the peak load is 5.8 MVA.
- In the existing scenario, conductor size of 11kV K-5 feeder is 55sqmm & the feeder is loaded up to 113.27%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overload hampers the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder is proposed for improving Reliability & mitigation of Overload.

EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
KIIT	3.54	4.01	113.27	OVERLOAD	6.0	169.4	OVERLOAD

Proposal: Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

Objective: To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.

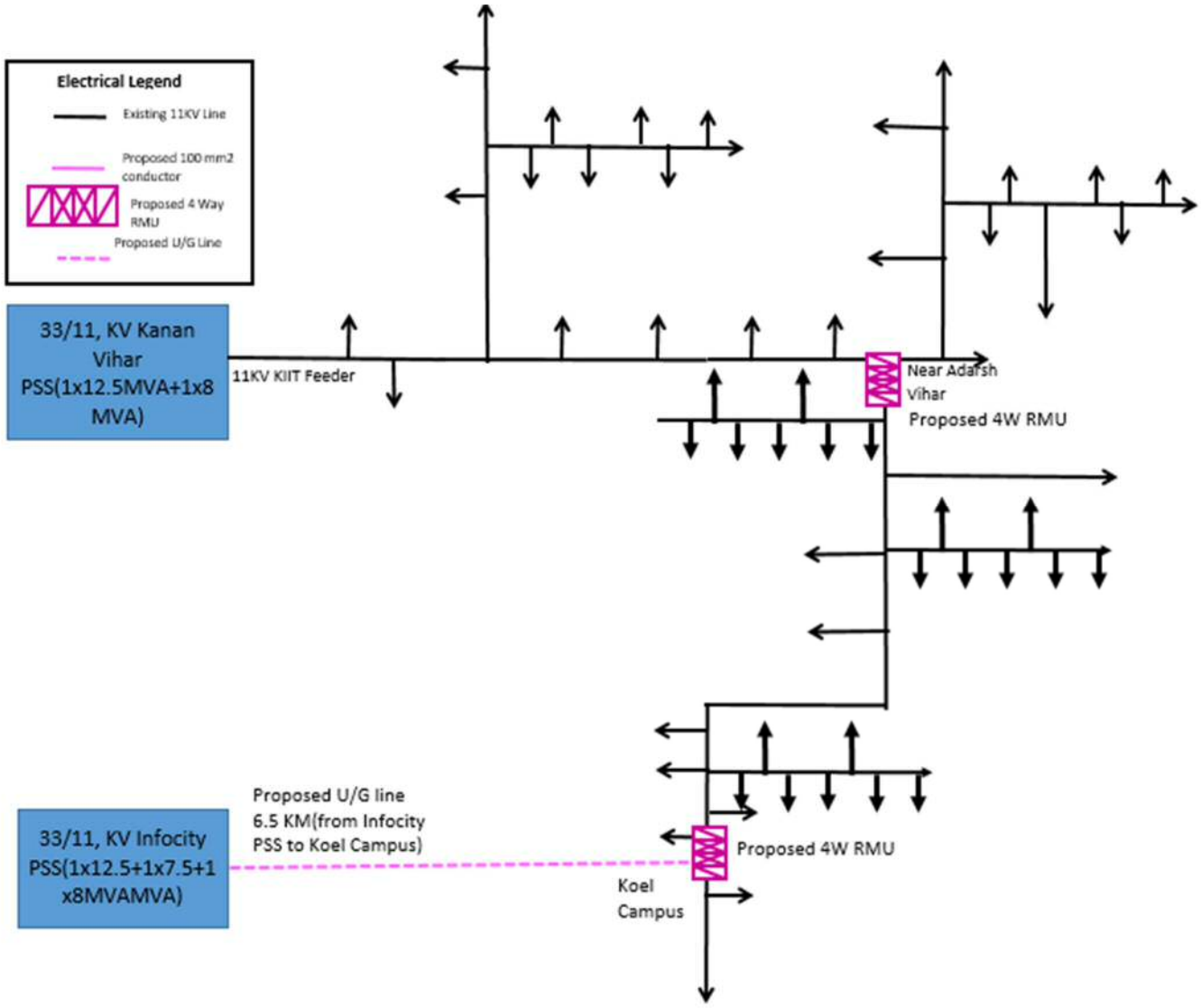
Existing SLD (Summer'21):



Proposed Scenario:

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to KOEL CAMPUS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to KOEL CAMPUS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	PERIPHERY
	Name of the Section : -	Kanan Vihar
	Name of the Work :-	Part- A :Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to KOEL Campus) with 2 no.s 4W RMU
	Scope of work:-	Part- A :Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to KOEL Campus) with 2 no.s 4W RMU

	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A :Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to KOEL Campus) with 2 no.s 4W RMU	₹ 5,20,77,245.23
2	**Total Amount**	**₹ 5,20,77,245.23**
3	**Total Amount (In Cr.)**	**5.21**

Part- A :Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to KOEL Campus) with 2 no.s 4W RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***1.3***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***5.2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.50	17,70,000.00	1,15,05,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	25	29,874.06	7,46,851.50
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	1.30	6,94,910.00	9,03,383.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	6.5	56,515.00	3,67,347.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	6.5	77,990.00	5,06,935.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13	6,766.00	87,958.00

4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**1,62,97,492.36**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	1.30	94,500.00	1,22,850.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	25	2,400.00	60,000.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	5.2	28,00,000.00	1,45,60,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	1.30	1,04,114.67	1,35,349.07
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.5	27,296.35	1,77,426.28
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	6.5	1,22,488.27	7,96,173.76
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13.0	612.54	7,963.02
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**1,59,29,720.72**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				

1.1.a	Earth work excavation of **soil**	Cum	910	700.00	6,37,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	390	1,720.00	6,70,800.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	780	171.55	1,33,809.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	520	2,500.00	13,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	780	202.00	1,57,560.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	1.3	26,43,670.63	34,36,771.82
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	217	1,012.00	2,19,604.00
	Sub Total (Civil Portion) (in Rs.)				**68,02,292.22**
A	**Sub Total (Supply Portion)**				**1,62,97,492.36**
B	Stock, Storage & Insurance @ 3 % of A				4,88,924.77
C	**Sub Total (A+B)**				**1,67,86,417.13**
D	Contingency @ 3 % of C				5,03,592.51
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				12,58,981.28
G	Erection Charges @ 10% of earthing items				751.12
H	**Total (C+D+E+F+G)**				**1,85,49,892.27**
I	Sub Total (Erection Portion + Civil Portion)				2,27,32,012.94
J	**Total Cost (H+I)**				**4,12,81,905.21**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				24,76,914.31
L	**Total Estimated Capital Cost i.e. (J+K)**				4,37,58,819.52
M	GST @ 18% of L				78,76,587.51
M1	CESS @ 1% of L				4,37,588.20
N	**Grand Total (L+M)**				**5,20,72,995.23**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**5,20,77,245.23**

Benefit:

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply

13.Bifurcation of load of 11kV Kalarahanga Feeder for mitigation of Overloading

Proposal: Bifurcation of existing 11 KV Kalarahanga Feeder load emanating from 33/11 KV Kanan Vihar PSS by constructing 2 No. of new feeder from 33/11 KV Baranga Kalarahanga PSS through RMU .

Objective: To mitigation of Overloading issue of feeder.

Existing Scenario:

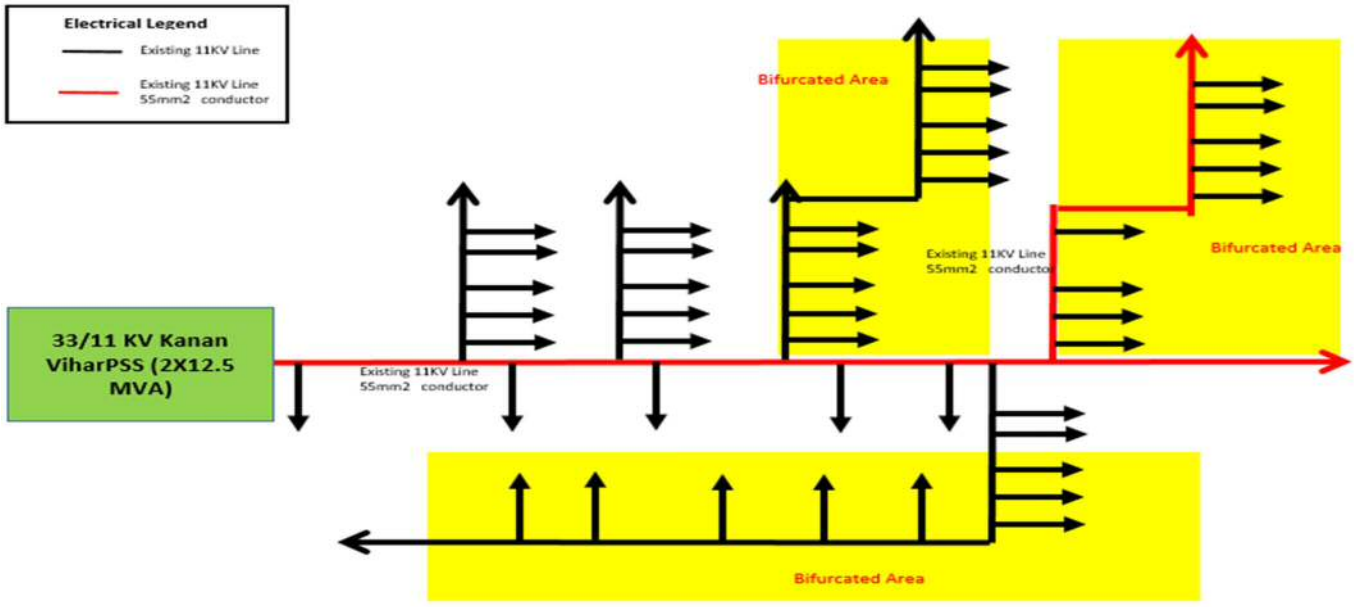
- At present, 11 KV Kalarahanga feeder is emanating from 33/11 KV Kanan Vihar PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 13.21 KM and the peak load is 3.4 MVA.
- In the existing scenario, conductor size 11kV Kalarahanga feeder where feeder loading is observed is 80 sq mm & the feeder is loaded up to 75.38%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overload is hampered the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder & Conductor augmentation is proposed for improving Reliability & mitigation of Overload.

EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	Feeder Capacity (MVA)	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
KALARAHANGA	4.51	3.40	75.38	OK	5.1	143.6	OVERLOAD

Proposal: Construction of 2 Nos. of New Feeder from 33/11 KV Baranga Kalarahanga PSS of length-3.5 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 4 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation. Augmentation of 55mm2 Conductor to 100mm2 conductor for mitigation of N-1 issue.

Objective: To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.

Existing SLD (Summer'21):

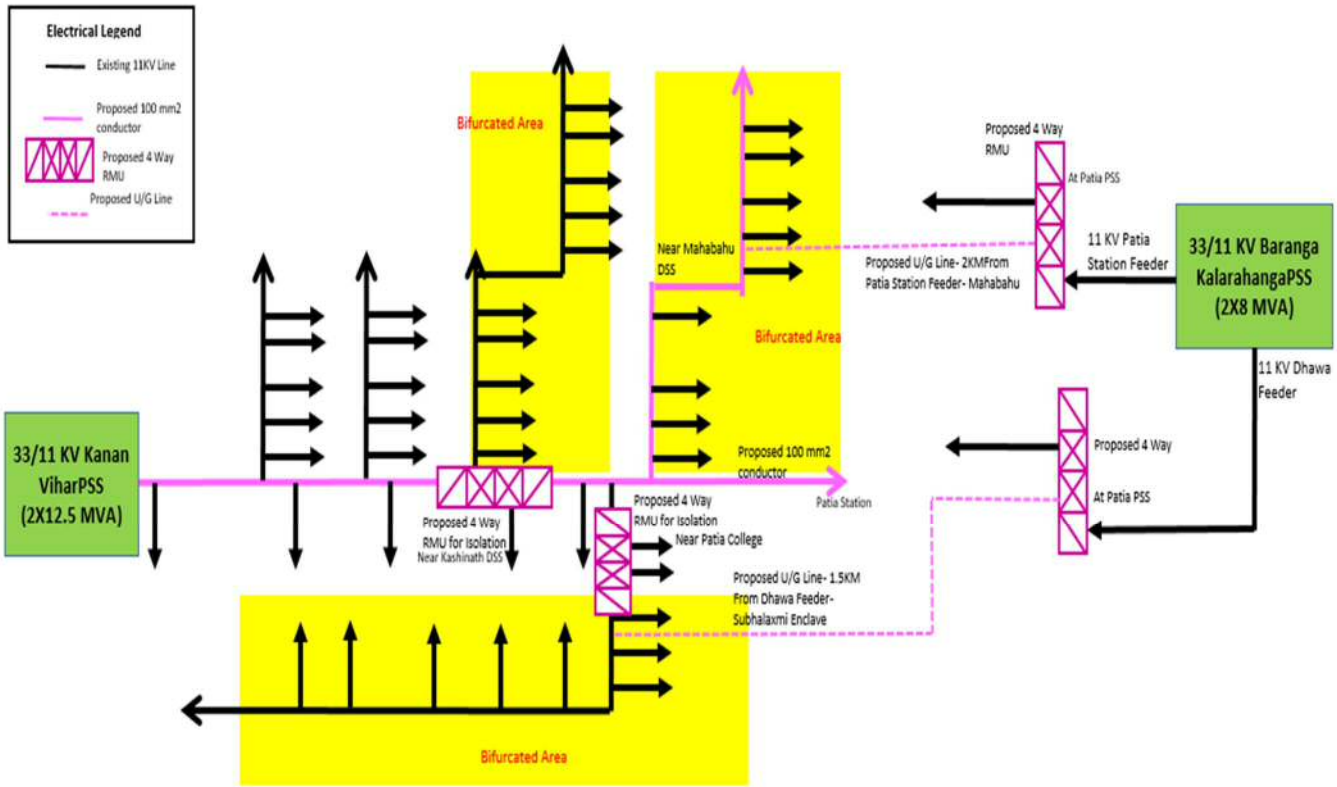


Proposed Scenario:

- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS(Patia station feeder) to Mahabahu DSS.
- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-1.5 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS(Dhawa feeder) to Subhalaxmi Enclave DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

LOADING OF FEEDER w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
KALARAHANGA	5.18	1.4	27.0	OK	2.1	40.4	OK
KALARAHANGA NEW-1	5.75	1.00	17.4	OK	1.50	26.0	OK
KALARAHANGA NEW-2	5.75	1.00	17.4	OK	1.50	26.0	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS (Patia station feeder) to Mahabahu DSS.
- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-1.5 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS(Dhawa feeder) to Subhalaxmi Enclave DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	PERIPHERY
	Name of the Section : -	Kanan Vihar
	Name of the Work :-	Part- A :Construction of 1 No. of new Feeder in UG Through RMU from barang Kalarahanga PSS(11KV Patia Station Feeder) to Mahabahu DSS.- 2 KM with 2 No. RMU Part- B :Construction of 1 No. of new Feeder from barang Kalarahanga PSS(11KV Dhawa feeder) to Subhalaxmi Enclave.- 1.5 KM with 2 No. RMU Part- C :-Conductor Augmentation of length-3.5 KM
	Scope of work:-	Part- A :Construction of 1 No. of new Feeder in UG Through RMU from barang Kalarahanga PSS(11KV Patia Station Feeder) to Mahabahu DSS.- 2 KM with 2 No. RMU Part- B :Construction of 1 No. of new Feeder from barang Kalarahanga PSS(11KV Dhawa feeder) to Subhalaxmi Enclave.- 1.5 KM with 2 No. RMU Part- C :-Conductor Augmentation of length-3.5 KM
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A :Construction of 1 No. of new Feeder in UG Through RMU from barang Kalarahanga PSS(11KV Patia Station Feeder) to Mahabahu DSS.- 2 KM with 2 No. RMU	₹ 1,86,02,217.23
2	Part- B :Construction of 1 No. of new Feeder from barang Kalarahanga PSS(11KV Dhawa feeder) to Subhalaxmi Enclave.- 1.5 KM with 2 No. RMU	₹ 1,48,64,246.54
3	Part- C :-Conductor Augmentation of length-3.5 KM	₹ 23,20,942.75
4	**Total Amount**	**₹ 3,57,87,406.52**
5	**Total Amount (In Cr.)**	**3.58**

Part- A :Construction of 1 No. of new Feeder in UG Through RMU from barang Kalarahanga PSS(11KV Patia Station Feeder) to Mahabahu DSS.- 2 KM with 2 No. RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.4***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***1.6***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.00	17,70,000.00	35,40,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	7	29,874.06	2,09,118.42
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.40	6,94,910.00	2,77,964.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		

c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2	56,515.00	1,13,030.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.0	77,990.00	1,55,980.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4	6,766.00	27,064.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**65,68,800.66**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.40	94,500.00	37,800.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	2,400.00	16,800.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.6	28,00,000.00	44,80,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.40	1,04,114.67	41,645.87
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2.0	27,296.35	54,592.70

3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.0	1,22,488.27	2,44,976.54
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4.0	612.54	2,450.16
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**49,55,827.07**

Civil Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	280	700.00	1,96,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	120	1,720.00	2,06,400.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	240	171.55	41,172.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	160	2,500.00	4,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	240	202.00	48,480.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.4	26,43,670.63	10,57,468.25
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	67	1,012.00	67,804.00
	Sub Total (Civil Portion) (in Rs.)				**23,10,900.45**

A	**Sub Total (Supply Portion)**	**65,68,800.66**
B	Stock, Storage & Insurance @ 3 % of A	1,97,064.02
C	**Sub Total (A+B)**	**67,65,864.68**
D	Contingency @ 3 % of C	2,02,975.94
E	Tools & Plants Charges @ 2% of C (considered for earthing items)	150.22
F	Transportation @ 7.5% of C	5,07,439.85
G	Erection Charges @ 10% of earthing items	751.12
H	**Total (C+D+E+F+G)**	**74,77,181.81**
I	Sub Total (Erection Portion + Civil Portion)	72,66,727.52
J	**Total Cost (H+I)**	**1,47,43,909.33**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	8,84,634.56

L	**Total Estimated Capital Cost i.e. (J+K)**	1,56,28,543.89
M	GST @ 18% of L	28,13,137.90
M1	CESS @ 1% of L	1,56,285.44
N	**Grand Total (L+M)**	**1,85,97,967.23**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**1,86,02,217.23**

Part- B :Construction of 1 No. of new Feeder from barang Kalarahanga PSS(11KV Dhawa feeder) to Subhalaxmi Enclave.- 1.5 KM with 2 No. RMU

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.3***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***1.2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	1.50	17,70,000.00	26,55,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	5	29,874.06	1,49,370.30
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.30	6,94,910.00	2,08,473.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	1.5	56,515.00	84,772.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	1.5	77,990.00	1,16,985.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	3	6,766.00	20,298.00

4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**54,80,543.04**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.30	94,500.00	28,350.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	2,400.00	12,000.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.2	28,00,000.00	33,60,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.30	1,04,114.67	31,234.40
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	1.5	27,296.35	40,944.53
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	1.5	1,22,488.27	1,83,732.41
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	3.0	612.54	1,837.62
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**37,35,660.75**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				

1.1.a	Earth work excavation of **soil**	Cum	210	700.00	1,47,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	90	1,720.00	1,54,800.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	180	171.55	30,879.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	120	2,500.00	3,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	180	202.00	36,360.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.3	26,43,670.63	7,93,101.19
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	50	1,012.00	50,600.00
	Sub Total (Civil Portion) (in Rs.)				**18,06,316.39**
A	**Sub Total (Supply Portion)**				**54,80,543.04**
B	Stock, Storage & Insurance @ 3 % of A				1,64,416.29
C	**Sub Total (A+B)**				**56,44,959.33**
D	Contingency @ 3 % of C				1,69,348.78
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				4,23,371.95
G	Erection Charges @ 10% of earthing items				751.12
H	**Total (C+D+E+F+G)**				**62,38,581.40**
I	Sub Total (Erection Portion + Civil Portion)				55,41,977.14
J	**Total Cost (H+I)**				**1,17,80,558.54**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				7,06,833.51
L	**Total Estimated Capital Cost i.e. (J+K)**				1,24,87,392.05
M	GST @ 18% of L				22,47,730.57
M1	CESS @ 1% of L				1,24,873.92
N	**Grand Total (L+M)**				**1,48,59,996.54**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**1,48,64,246.54**

Part- C :-Conductor Augmentation of length-3.5 KM
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)			1		
MATERIALS OF DP With AB Switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**
Civil & Services					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay	No.	2,250.00	2	4,500.00

	Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.				
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**2,29,887.24**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)	3.5			
	MATERIALS FOR 11 KV Pin Points With WPB				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	18	4,77,305.10
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	18	17,204.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	18	3,186.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	18	1,699.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	5.42	479.33
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	54.00	5,097.60
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	21.66	1,917.33
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	54	12,744.00
9	Earthing of Support (Coil Type)	No.	195.88	18	3,525.84
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	4.72	417.37
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	26.10	2,402.24
12	100 mm2 AAAC	K.M.	64,900.00	10.82	7,01,893.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	18.0	4,672.80
15	Yellow Colour Paint for Background	Ltr	259.60	36.0	9,345.60
A				**Total Cost of materials**	**12,41,890.32**
B	Stock, Storage & Insurance i.e 3% of A				37,256.71
C				**Sub Total (A+B)**	**12,79,147.03**
D	Contigency @ 3% of C				38,374.41
E	Tools & Plants @ 2% of C				25,582.94
F	Transportation @ 7.5% of C				95,936.03
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				24,581.21
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				78,752.28
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J				**Sum of (C to I)**	**15,42,373.90**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	8.10	52,650.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.03	13,162.50
3	Dismantling of 34/55sqmm AAAC	KM	4,500.00	10.82	48,667.50
K				**Total Civil & Services**	**1,14,480.00**
L				**Total Material+Services (I+K)**	**16,56,853.90**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				99,411.23
N				**Sub Total (L+M)**	**17,56,265.13**

O	Total GST @ 18% of (N)	3,16,127.72
O1	Total CESS @ 1% of (N)	17,562.65
P	**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**20,89,955.51**
	6% Supervision Charges Summary	
1	Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	-
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	99,411.23
	Total (6% supervision charges)	**1,10,346.10**
	Gross Total Summary	
1	Gross Total Material +Services (N+O+O1) for DP Without AB Switch	-
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24
3	Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle	-
4	Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	-
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	20,89,955.51
	TOTAL	23,19,842.75
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**23,20,942.75**

Benefit:

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

14.Bifurcation of 11kV Patia Feeder for mitigation of Overloading

Proposal: Bifurcation of existing 11 KV Patia Feeder emanating from 33/11 KV Kanan Vihar PSS by constructing 1 No. of new feeder from 33/11 KV Infocity PSS.

Objective: To mitigate of Overloading issue of feeder.

Existing Scenario:

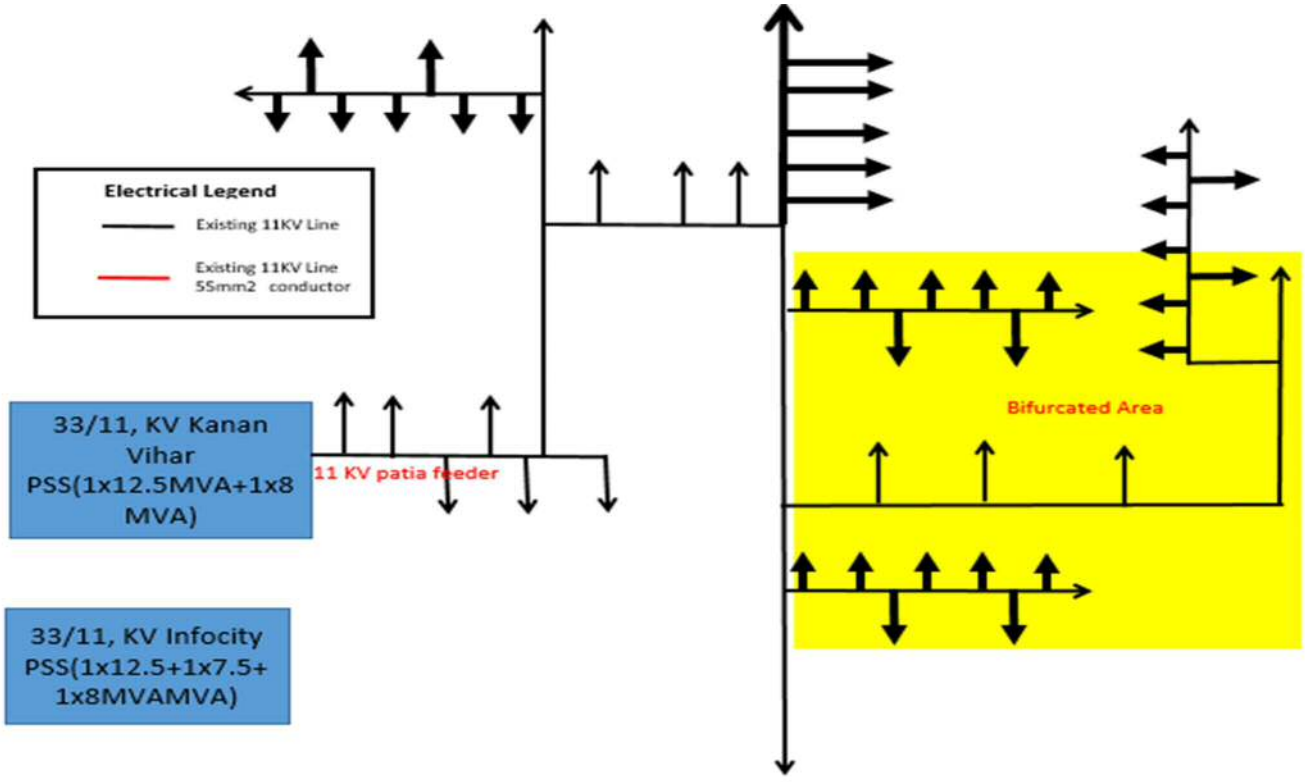
- At present, 11 KV Patia feeder is emanating from 33/11 KV Kanan Vihar PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 10.62 KM and the peak load is 5.7 MVA.
- In the existing scenario, conductor size of 11kV Patia feeder where overloading is observed is 80sq mm & the feeder is loaded up to 126.38%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overload is hampered the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder.

EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
PATIA	4.51	5.70	126.38	OVERLOAD	8.5	188.5	OVERLOAD

Proposal: Construction of New Feeder from 33/11 KV PSS of length-6 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation. Augmentation of 55sqmm Conductor to 100sqmm conductor for mitigation of N-1 issue.

Objective: To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.

Existing SLD (Summer'21):

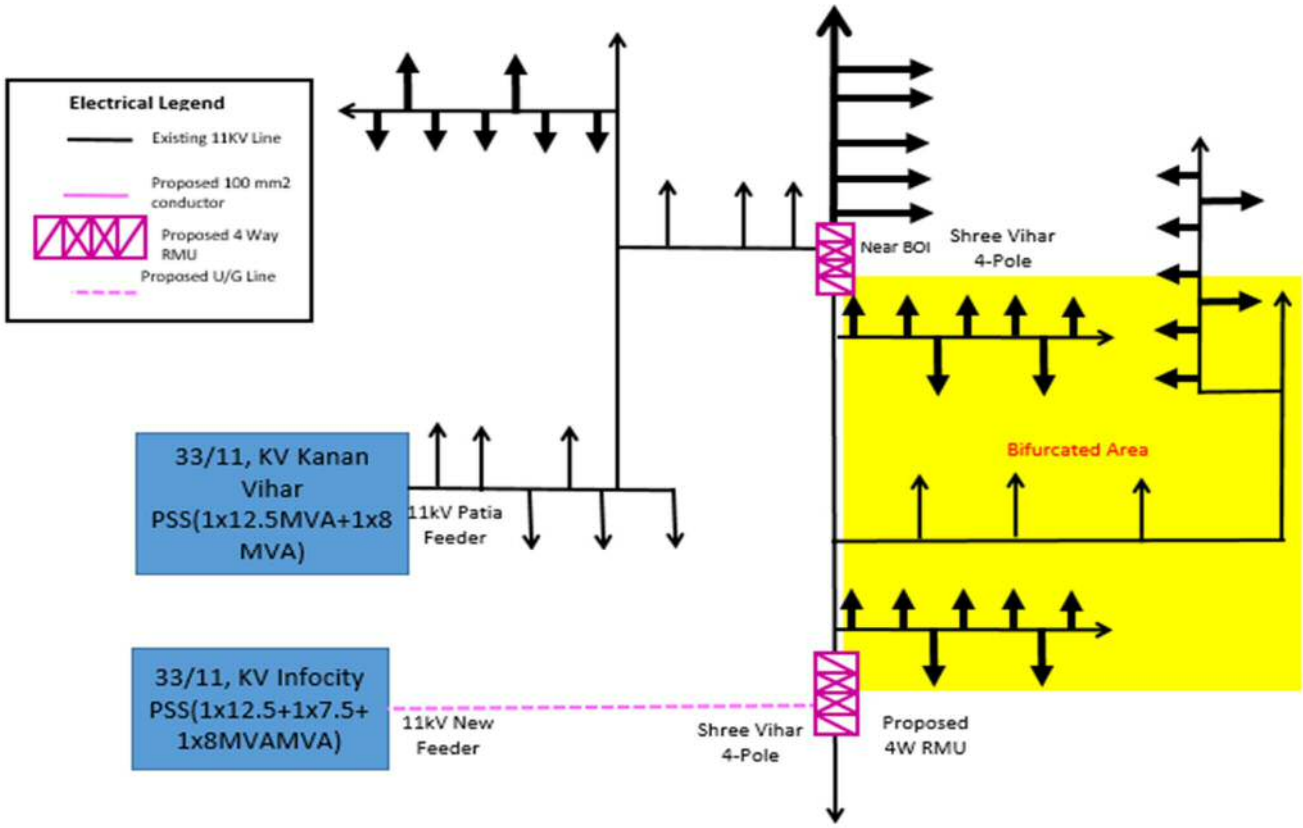


Proposed Scenario:

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to Sri Vihar 4 Pole.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-4.5 km.

LOADING OF FEEDER w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
PATIA	5.18	3	57.9	OK	4.5	86.6	OK
PATIA NEW	5.75	2.70	46.9	OK	4.04	70.2	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to Sri Vihar 4 Pole.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-4.5 km.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	PERIPHERY
	Name of the Section : -	Kanan Vihar
	Name of the Work :-	Part- A :Construction of 1 No. of new 11kv feeder from Infocity PSS to IOCL/Srivihar 4 Pole -6 KM with 2 Nos. of 4 Way RMU. Part- B :Conductor Augmentation of length-4.5 KM on Patia feeder.

	Scope of work:-	Part- A :Construction of 1 No. of new 11kv feeder from Infocity PSS to IOCL/Srivihar 4 Pole -6 KM with 2 Nos. of 4 Way RMU. Part- B :Conductor Augmentation of length-4.5 KM on Patia feeder.
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A :Construction of 1 No. of new 11kv feeder from Infocity PSS to IOCL/Srivihar 4 Pole -6 KM with 2 Nos. of 4 Way RMU.	₹ 4,83,39,274.55
2	Part- B :Conductor Augmentation of length-4.5 KM on Patia feeder.	₹ 29,10,839.14
3	**Total Amount**	**₹ 5,12,50,113.69**
4	**Total Amount (In Cr.)**	**5.13**

Part- A :Construction of 1 No. of new 11kv feeder from Infocity PSS to IOCL/Srivihar 4 Pole -6 KM with 2 Nos. of 4 Way RMU.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***1.2***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***4.8***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.00	17,70,000.00	1,06,20,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	23	29,874.06	6,87,103.38
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	1.20	6,94,910.00	8,33,892.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	6	56,515.00	3,39,090.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	6.0	77,990.00	4,67,940.00

4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12	6,766.00	81,192.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**1,52,09,234.74**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	1.20	94,500.00	1,13,400.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	23	2,400.00	55,200.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	4.8	28,00,000.00	1,34,40,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	1.20	1,04,114.67	1,24,937.60
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.0	27,296.35	1,63,778.10
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	6.0	1,22,488.27	7,34,929.62
3.3	Erection of SIraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12.0	612.54	7,350.48
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**1,47,09,554.40**

Civil Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	840	700.00	5,88,000.00

1.1.b	Earth work excavation of **hard rock**	Cum	360	1,720.00	6,19,200.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	720	171.55	1,23,516.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	480	2,500.00	12,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	720	202.00	1,45,440.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	1.2	26,43,670.63	31,72,404.76
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	200	1,012.00	2,02,400.00
	Sub Total (Civil Portion) (in Rs.)				**62,97,708.16**

A	**Sub Total (Supply Portion)**	**1,52,09,234.74**
B	Stock, Storage & Insurance @ 3 % of A	4,56,277.04
C	**Sub Total (A+B)**	**1,56,65,511.78**
D	Contingency @ 3 % of C	4,69,965.35
E	Tools & Plants Charges @ 2% of C (considered for earthing items)	150.22
F	Transportation @ 7.5% of C	11,74,913.38
G	Erection Charges @ 10% of earthing items	751.12
H	**Total (C+D+E+F+G)**	**1,73,11,291.86**
I	Sub Total (Erection Portion + Civil Portion)	2,10,07,262.56
J	**Total Cost (H+I)**	**3,83,18,554.42**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	22,99,113.27
L	**Total Estimated Capital Cost i.e. (J+K)**	4,06,17,667.69
M	GST @ 18% of L	73,11,180.18
M1	CESS @ 1% of L	4,06,176.68
N	**Grand Total (L+M)**	**4,83,35,024.55**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**4,83,39,274.55**

Part- B :-Conductor Augmentation of length-4.5 KM	
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor	
No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**
Civil & Services					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***

1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P	**Gross Total Material +Services (N+O+O1) for DP With AB Switch**				**2,29,887.24**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		4.5		
	MATERIALS FOR 11 KV Pin Points With WPB				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	23	6,09,889.85
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	23	21,983.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	23	4,071.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	23	2,171.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	6.92	612.48
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	69.00	6,513.60
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	27.68	2,449.93
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	69	16,284.00
9	Earthing of Support (Coil Type)	No.	195.88	23	4,505.24
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	6.03	533.30
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	33.35	3,069.53
12	100 mm2 AAAC	K.M.	64,900.00	13.91	9,02,434.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	23.0	5,970.80
15	Yellow Colour Paint for Background	Ltr	259.60	46.0	11,941.60
A				**Total Cost of materials**	**15,92,430.43**
B				Stock, Storage & Insurance i.e 3% of A	47,772.91
C				**Sub Total (A+B)**	**16,40,203.35**
D				Contigency @ 3% of C	49,206.10
E				Tools & Plants @ 2% of C	32,804.07
F				Transportation @ 7.5% of C	1,23,015.25
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	31,409.33
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				1,01,201.68
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J				**Sum of (C to I)**	**19,77,839.77**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	10.35	67,275.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.59	16,818.75

3	Dismantling of 34/55sqmm AAAC	KM	4,500.00	13.91	62,572.50
K				**Total Civil & Services**	**1,46,666.25**
L				**Total Material+Services (I+K)**	**21,24,506.02**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				1,27,470.36
N				**Sub Total (L+M)**	**22,51,976.39**
O				Total GST @ 18% of (N)	4,05,355.75
O1				Total CESS @ 1% of (N)	22,519.76
P	**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**				**26,79,851.90**
	6% Supervision Charges Summary				
1	Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)				-
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				10,934.86
3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				-
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)				-
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				1,27,470.36
	Total (6% supervision charges)				**1,38,405.22**
	Gross Total Summary				
1	Gross Total Material +Services (N+O+O1) for DP Without AB Switch				-
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch				2,29,887.24
3	Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle				-
4	Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle				-
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB				26,79,851.90
	TOTAL				29,09,739.14
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**				**29,10,839.14**

Benefit:

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

15.Bifurcation of 11kV Kolathia Feeder for mitigation of Overloading

Proposal: Bifurcation of existing 11 KV Kolathia Feeder emanating from 33/11 KV Khandagiri PSS by constructing 1 No. of new feeder from 33/11 KV Khandagiri PSS.

Objective: To mitigation of Overloading issue of feeder.

Existing Scenario:

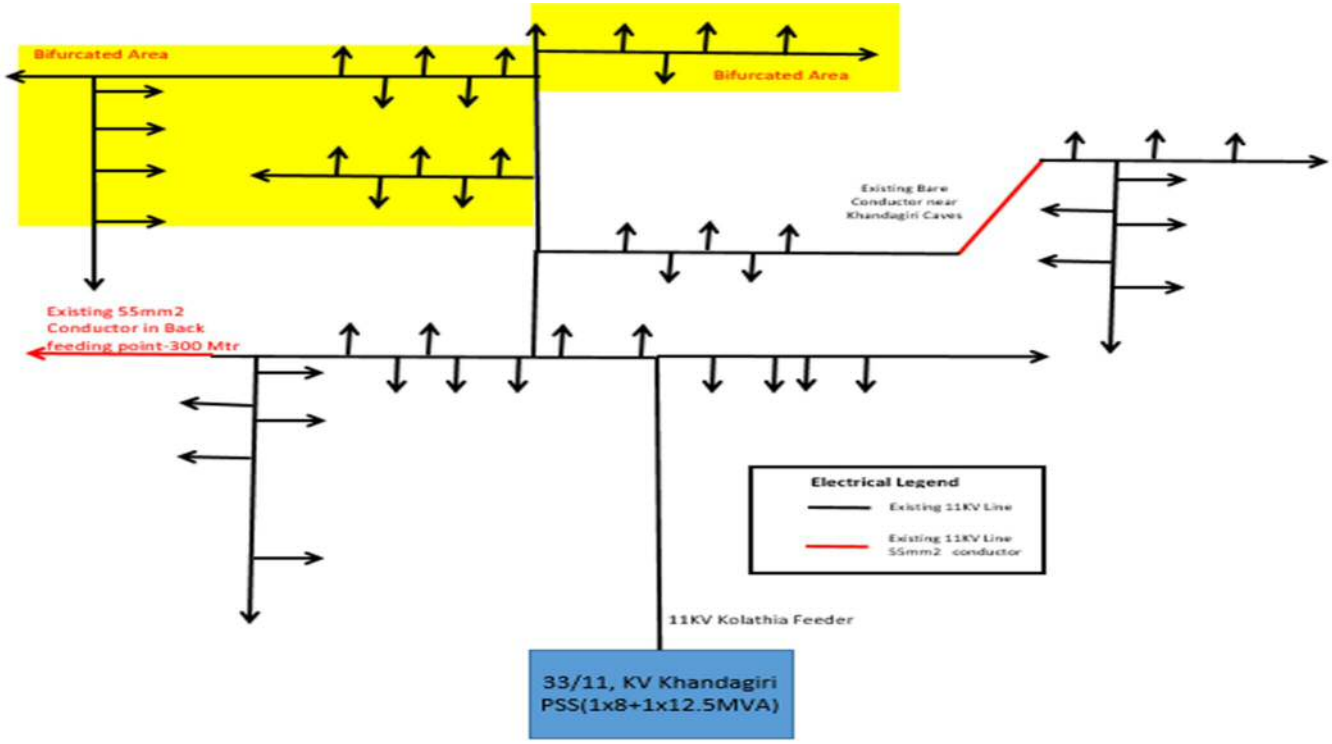
- At present, 11 KV Kolathia feeder is emanating from 33/11 KV Khandagiri PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 26.5 KM and the peak load is 5.5 MVA.
- In the existing scenario, Conductor size of 11 KV Kolathia feeder is 100 sq mm & the feeder is loaded 106.2%
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overload is hampered the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder.

EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
KOLATHIA	5.18	5.50	106.2	OVERLOAD	8.2	158.8	OVERLOAD

Proposal: Construction of New Feeder from 33/11 KV Khandagiri PSS of length-2 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation. Augmentation of 0.5 KM existing 55mm2 old Conductor with O/H insulated conductor from Near Khandgiri caves for making it unsafe to safe. Augmentation of conductor from 55mm2 to 100mm2 of length-300 Mtr Back feeding near DUMDUMA 6 Pole.

Objective: To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.

Existing SLD (Summer'21):

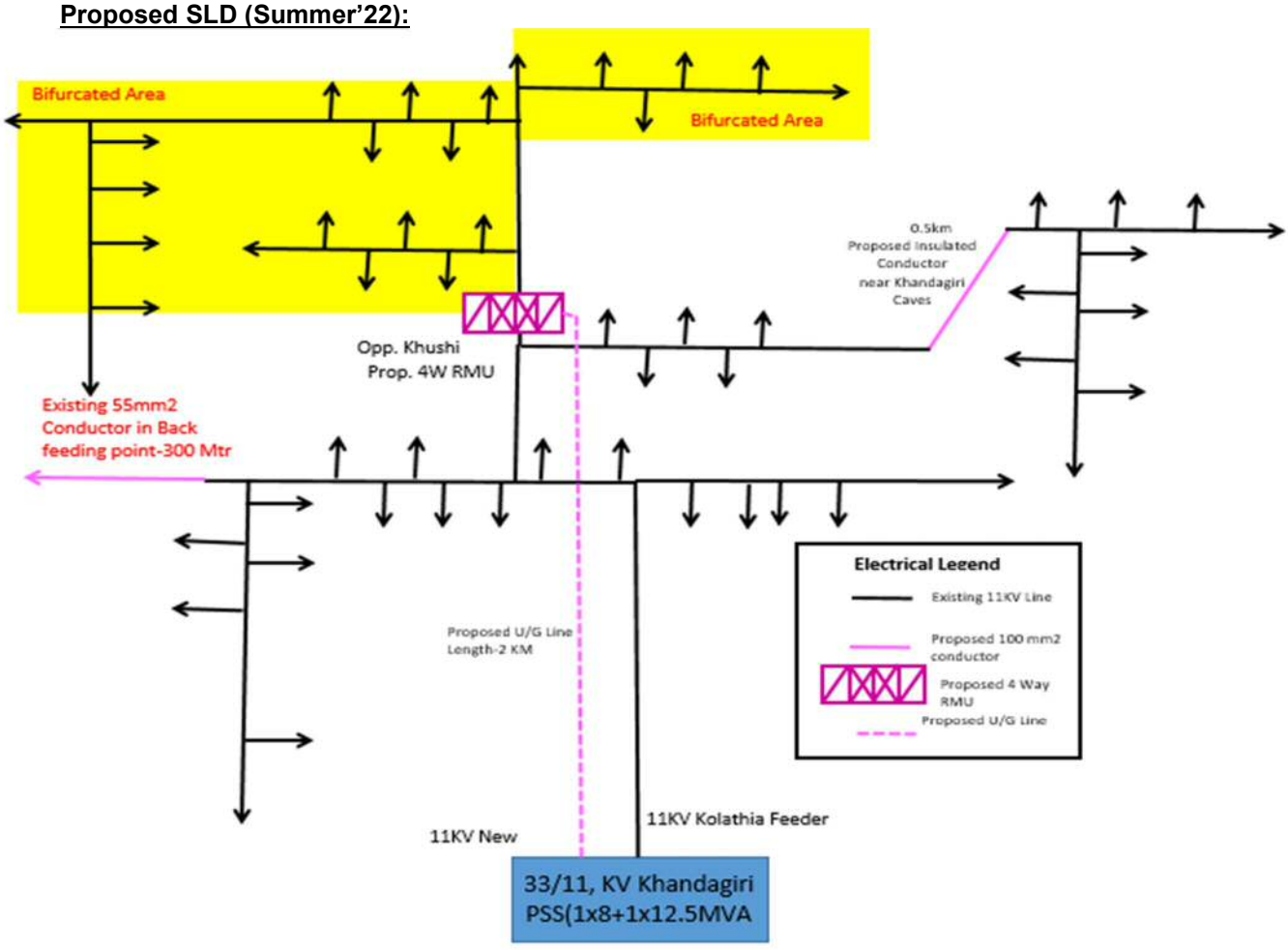


Proposed Scenario:

- Construction of New Feeder from 33/11 KV Khandagiri PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Khandagiri PSS to 4 Pole opposit to Khusi Hotel.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-0.3 km near DUMDUMA 6 Pole.
- Augmentation of 0.5 KM existing 55mm2 old Conductor with O/H insulated conductor from Near Khandgiri caves for making it unsafe to safe.

LOADING OF FEEDER w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
KOLATHIA	5.18	3	57.9	OK	4.5	86.6	OK
KOLATHIA NEW	5.75	2.50	43.5	OK	3.74	65.0	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Construction of New Feeder from 33/11 KV Khandagiri PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Khandagiri PSS to 4 Pole opposit to Khusi Hotel.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-0.3 km near DUMDUMA 6 Pole.

- Augmentation of 0.5 KM existing 55mm2 old Conductor with O/H insulated conductor from Near Khandgiri caves for making it unsafe to safe.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	**BCDD-II**
Name of the Sub-Division : -	Khandagiri
Name of the Section : -	Khandagiri
Name of the Work :-	Part- A :Construction of 1 No. of new Feeder in UG Through RMU from Khandagiri PSS 4 Pole offisite to Khusi Hotel.- 2 KM with 2 No. RMU. Part- B :-Conductor Augmentation of length-0.3 KM near Dumduma 4pole from 80/55 sqmm to 100sqmm Part_C:-Augmentation of 11 KV line from OH bare 55sqmm to XLPE Covered 70 mm2 11 KV XLPE Covered Conductor - 0.5 Ckm. For making it Unsafe to Safe due to monkey tripping the lines
Scope of work:-	Part- A :Construction of 1 No. of new Feeder in UG Through RMU from Khandagiri PSS 4 Pole offisite to Khusi Hotel.- 2 KM with 2 No. RMU. Part- B :-Conductor Augmentation of length-0.3 KM near Dumduma 4pole from 80/55 sqmm to 100sqmm Part_C:-Augmentation of 11 KV line from OH bare 55sqmm to XLPE Covered 70 mm2 11 KV XLPE Covered Conductor - 0.5 Ckm. For making it Unsafe to Safe due to monkey tripping the lines
Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	**Description**	**Amount**
1	Part- A :Construction of 1 No. of new Feeder in UG Through RMU from Khandagiri PSS 4 Pole offisite to Khusi Hotel.- 2 KM with 2 No. RMU	₹ 1,86,02,217.23
2	Part- B :-Conductor Augmentation of length-0.3 KM near Dumduma 4pole from 80/55 sqmm to 100sqmm	₹ 4,38,536.22
3	Part_C:-Augmentation of 11 KV line from OH bare 55sqmm to XLPE Covered 70 mm2 11 KV XLPE Covered Conductor - 0.5 Ckm. For making it Unsafe to Safe due to monkey tripping the lines	₹ 8,87,859.64
4	**Total Amount**	**₹ 1,99,28,613.09**
5	**Total Amount (In Cr.)**	**1.99**

Part- A :Construction of 1 No. of new Feeder in UG Through RMU from Khandagiri PSS 4 Pole opposite to Khusi Hotel.- 2 KM with 2 No. RMU

Supply Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.4***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***1.6***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.00	17,70,000.00	35,40,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	7	29,874.06	2,09,118.42
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76

1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.40	6,94,910.00	2,77,964.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2	56,515.00	1,13,030.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.0	77,990.00	1,55,980.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4	6,766.00	27,064.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**65,68,800.66**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.40	94,500.00	37,800.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	2,400.00	16,800.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.6	28,00,000.00	44,80,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.40	1,04,114.67	41,645.87
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	**FRTU and OFC for RMU SCADA Automation**				

3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2.0	27,296.35	54,592.70
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.0	1,22,488.27	2,44,976.54
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4.0	612.54	2,450.16
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**49,55,827.07**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	280	700.00	1,96,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	120	1,720.00	2,06,400.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	240	171.55	41,172.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	160	2,500.00	4,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	240	202.00	48,480.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.4	26,43,670.63	10,57,468.25
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	67	1,012.00	67,804.00
	Sub Total (Civil Portion) (in Rs.)				**23,10,900.45**
A	**Sub Total (Supply Portion)**				**65,68,800.66**
B	Stock, Storage & Insurance @ 3 % of A				1,97,064.02
C	**Sub Total (A+B)**				**67,65,864.68**
D	Contingency @ 3 % of C				2,02,975.94
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				5,07,439.85
G	Erection Charges @ 10% of earthing items				751.12
H	**Total (C+D+E+F+G)**				**74,77,181.81**
I	Sub Total (Erection Portion + Civil Portion)				72,66,727.52
J	**Total Cost (H+I)**				**1,47,43,909.33**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				8,84,634.56

L	**Total Estimated Capital Cost i.e. (J+K)**	1,56,28,543.89
M	GST @ 18% of L	28,13,137.90
M1	CESS @ 1% of L	1,56,285.44
N	**Grand Total (L+M)**	**1,85,97,967.23**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**1,86,02,217.23**

Part- B :-Conductor Augmentation of length-0.3 KM near Dumduma 4pole from 80/55 sqmm to 100sqmm

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00

24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**2,29,887.24**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		0.3		

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	2	53,033.90
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	2	1,911.60
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	2	354.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	2	188.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.60	53.26
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	6.00	566.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	2.41	213.04
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	6	1,416.00
9	Earthing of Support (Coil Type)	No.	195.88	2	391.76
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.52	46.37
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	2.90	266.92
12	100 mm2 AAAC	K.M.	64,900.00	0.93	60,162.30
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-

14	Black Paint	Ltr	259.60	2.0	519.20
15	Yellow Colour Paint for Background	Ltr	259.60	4.0	1,038.40
A				**Total Cost of materials**	**1,20,161.95**
B				Stock, Storage & Insurance i.e 3% of A	3,604.86
C				**Sub Total (A+B)**	**1,23,766.80**
D				Contigency @ 3% of C	3,713.00
E				Tools & Plants @ 2% of C	2,475.34
F				Transportation @ 7.5% of C	9,282.51
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	6,914.19
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,48,883.09**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
3	Dismantling of 80sqmm AAAC	KM	9,000.00	0.93	8,343.00
K				**Total Civil & Services**	**15,655.50**
L				**Total Material+Services (I+K)**	**1,64,538.59**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	9,872.32
N				**Sub Total (L+M)**	**1,74,410.91**
O				Total GST @ 18% of (N)	31,393.96
O1				Total CESS @ 1% of (N)	1,744.11
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**2,07,548.98**
	6% Supervision Charges Summary				
1				Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	-
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
3				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	-
4				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	-
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	9,872.32
				Total (6% supervision charges)	**20,807.18**
	Gross Total Summary				
1				Gross Total Material +Services (N+O+O1) for DP Without AB Switch	-
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24
3				Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle	-
4				Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	-
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	2,07,548.98
				TOTAL	4,37,436.22
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**4,38,536.22**

Part_C:-Augmentation of 11 KV line from OH bare 55sqmm to XLPE Covered 70 mm2 11 KV XLPE Covered Conductor - 0.5 Ckm. For making it Unsafe to Safe due to monkey tripping the lines					
No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)		1			
MATERIALS OF DP With AB switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88

4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	824.19	4	3,296.76
19	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
20	Lightning Arrester(11KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
21	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
22	11 KV pin insulator polymer	No.	236.00	3	708.00
23	Insulated Ties (Top) for 11 KV Pin insulator	No.	236.33	3	708.99
24	11KV, 90 KN, Polymer Tension insulator (B&S) with Clamp, Nut & Bolts	No.	905.61	6	5,433.66
25	11 KV, 90 KN, 4 Bolted type Single Tension Hardware fittings (B&S) with Clamp, Nut & Bolts suitable for covered conductor	No.	960.23	6	5,761.38
26	Insulating Piercing Connector (IPC)	No.	208.53	6	1,251.18
27	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
28	Black Paint	Ltr	259.60	1	259.60
29	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,35,606.04**
B				Stock, Storage & Insurance i.e 3% of A	4,068.18
C				**Sub Total (A+B)**	**1,39,674.22**
D				Contigency @ 3% of C	4,190.23
E				Tools & Plants @ 2% of C	2,793.48
F				Transportation @ 7.5% of C	10,475.57
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,933.69
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,67,798.43**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***

1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,84,424.93**
M	Other overheads (Including 6% supervision charges) of L (for DP With Isolator)				11,065.50
N				**Sub Total (L+M)**	**1,95,490.43**
O				Total GST @ 18% of (N)	35,188.28
P				CESS 1% of N	1,954.90
Q				**Gross Total Material +Services (N+O) for DP With Isolator**	**2,32,633.61**
.					

11 Kv Line Length In KM with 50Mtr. Span Ref. Drawing No.- TPCODL-MVD-0003)	0.5

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No.	26,516.95	3	79,550.85
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	3	2,867.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	3	531.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	3	283.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.90	79.89
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	9.00	849.60
7	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	Set	824.19	16	13,187.04
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	3.61	319.56
9	11 KV pin insulator polymer, 3 Nos. required for each support	No.	740.00	9	6,660.00
10	Insulated Ties (Top) for 11 KV Pin insulator	No.	475.00	9	4,275.00
11	Earthing of Support (Coil Type)	No.	195.88	3	587.64
12	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1	69.56
13	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	4.35	400.37
14	11 KV, 70 mm2, Single Core, AAAC overhead XLPE Covered Conductor	K.M.	1,90,000.00	1.55	2,93,550.00
15	11 KV Mid Span compression jointing kit for covered conductor	EA	258.18		-
16	Black Paint	Ltr	259.60	3.0	778.80
17	Yellow Colour Paint for Background	Ltr	259.60	6.0	1,557.60
A				**Total Cost of materials**	**4,05,547.51**
B				Stock, Storage & Insurance i.e 3% of A	12,166.43
C				**Sub Total (A+B)**	**4,17,713.94**
D				Contigency @ 3% of C	12,531.42
E				Tools & Plants @ 2% of C	8,354.28
F				Transportation @ 7.5% of C	31,328.55
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	4,096.87
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	33,577.66
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**5,07,602.70**

	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.35	8,775.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.34	2,193.75
K				**Total Civil & Services**	**10,968.75**
L				**Total Material+Services (I+K)**	**5,18,571.45**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				31,114.29
N				**Sub Total (L+M)**	**5,49,685.74**
O				Total GST @ 18% of (N)	98,943.43
P				CESS 1% of N	5,496.86
Q				**Gross Total Material +Services (N+O+P) for 11 KV Pin Points With WPB**	**6,54,126.03**
.					
	6% Supervision Charges Summary				
1	Other overheads (Including 6% supervision charges) of L (for DP Without Isolator)				-
2	Other overheads (Including 6% supervision charges) of L (for DP With Isolator)				11,065.50
3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				-
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)				-
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				31,114.29
				Total (6% supervision charges)	**42,179.78**
	Gross Total Summary				
1	Gross Total Material +Services (N+O+P) for DP Without Isolator				-
2	Gross Total Material +Services (N+O) for DP With Isolator				2,32,633.61
3	Gross Total Material +Services (N+O+P) for 11 KV Cut Point with 180 Degree Angle				-
4	Gross Total Material +Services (N+O+P) for 11 KV Cut Point with 90 Degree Angle				-
5	Gross Total Material +Services (N+O+P) for 11 KV Pin Points With WPB				6,54,126.03
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**8,87,859.64**

Benefit:

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

16.Refurbishment of 11kV IRC-3 Feeder for Mitigation of Overload

Proposal: Augmentation of existing 11kV IRC-3 Feeder emanating from 33/11kV Nayapalli PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor.

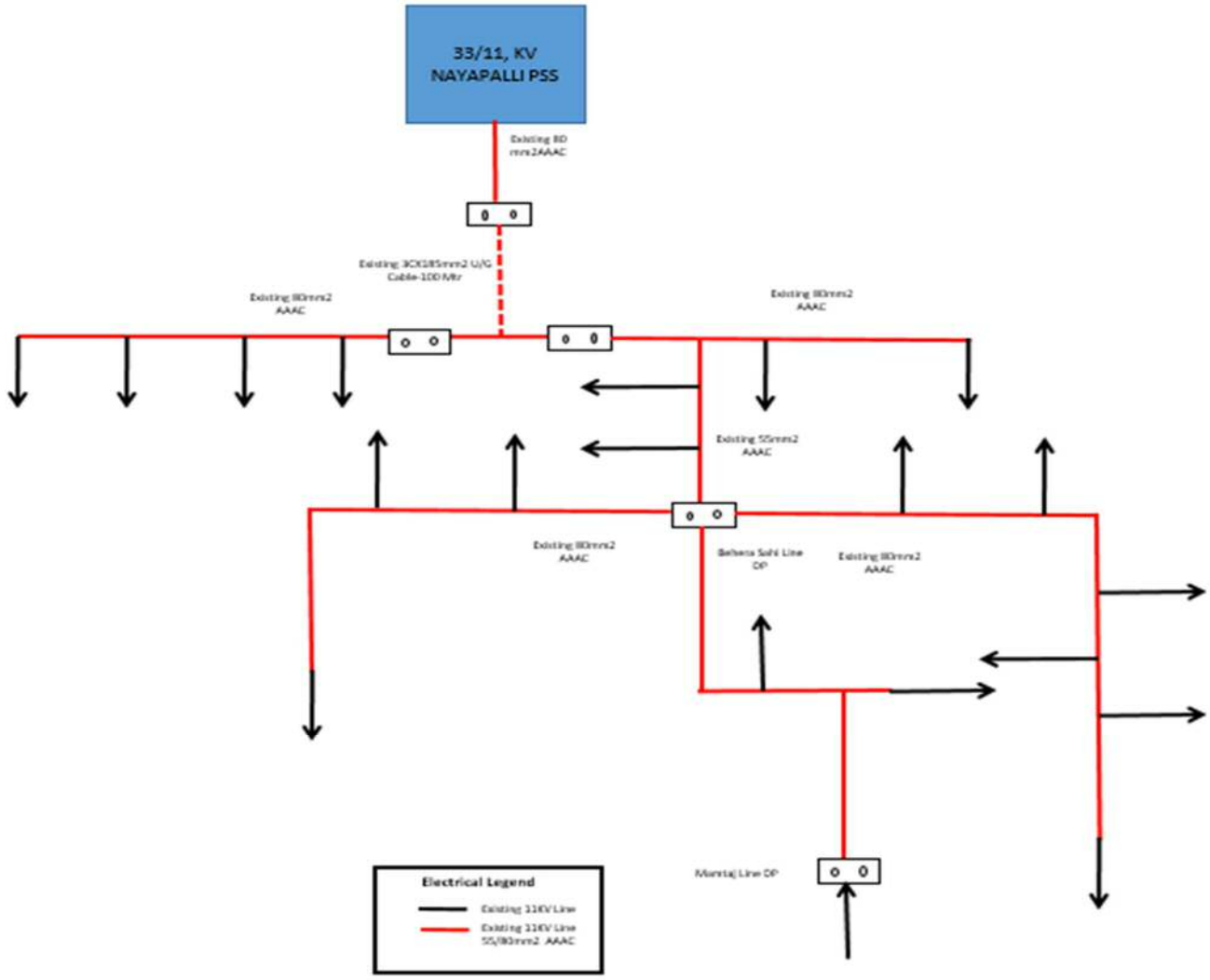
Objective: To mitigate the overloading issue of 11kV IRC-3 feeder.

Existing Scenario:

- At present, 11 KV IRC-3 feeder is emanating from 33/11 KV Nayapalli PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 9.45 KM and the peak load is 4.1 MVA.
- In the existing scenario, conductor size of 11kV IRC-3 feeder is 55 sq mm & the feeder is loaded up to 115.7%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
IRC-3	3.54	4.10	115.7	OVERLOAD	5.17	145.9	OVERLOAD

Existing SLD (Summer'21):

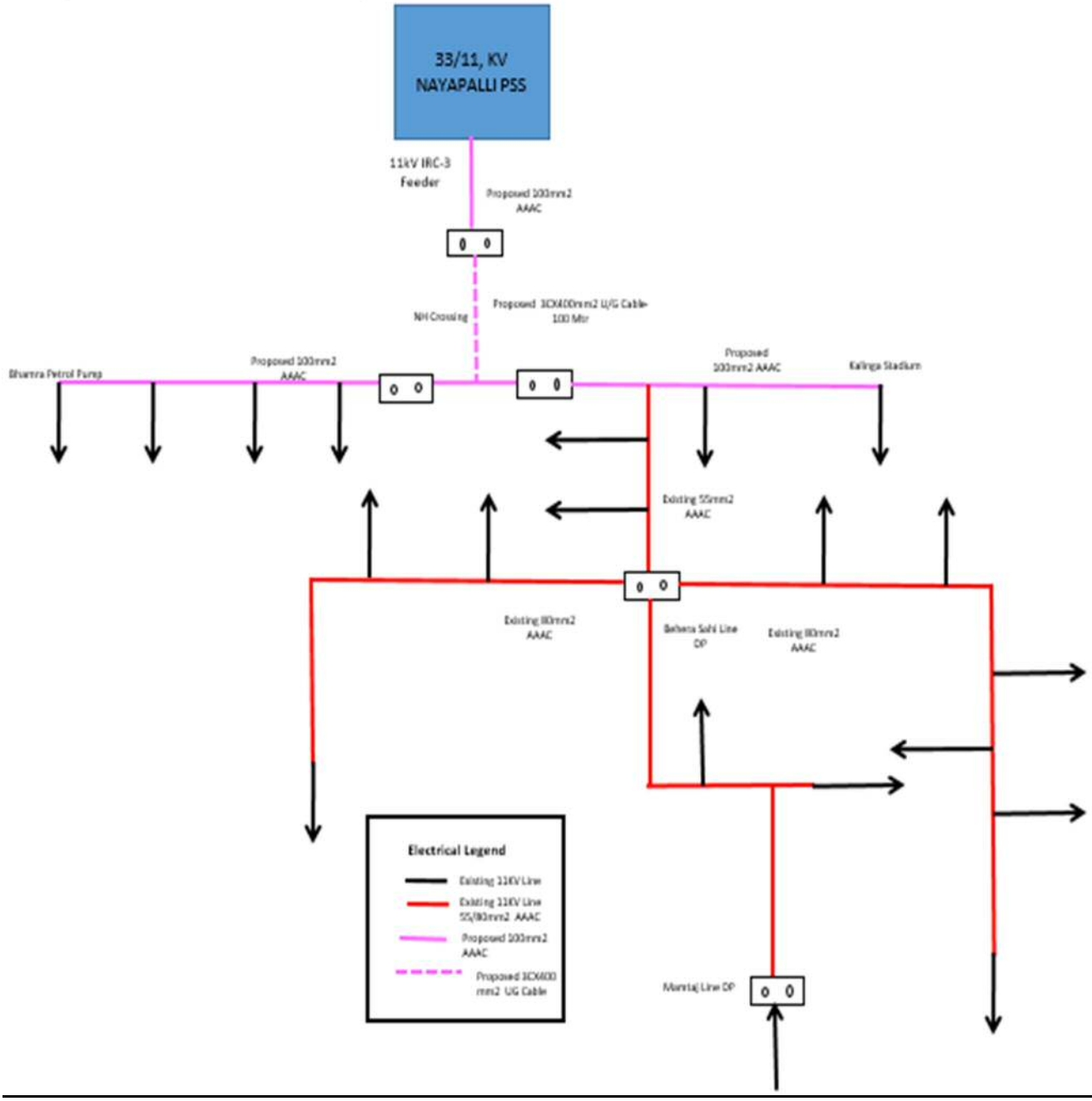


Proposed Scenario:

- Augmentation of 3 KM Existing 55mm2 old Conductor with 100mm2 AAAC conductor.

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
IRC-3	5.18	4.10	79.1	OK	4.9	95.0	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 3 KM Existing 55mm2 old Conductor with 100mm2 AAAC conductor From Nayapalli PSS to Bhamara Petrol Pump & kalinga stadium..

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
Name of the Division :-	**BCDD-II**	

Name of the Sub-Division : -	NAYAPALLI
Name of the Section : -	NAYAPALLI
Name of the Work :-	PART-A-Augmentation of Conductor of Nayapally IRC-3 feeder From 80 & 55 mm2 to 100 mm2 of length-1.9 Km
Scope of work:-	PART-A-Augmentation of Conductor of Nayapally IRC-3 feeder From 80 & 55 mm2 to 100 mm2 of length-1.9 Km
Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	PART-A-Augmentation of Conductor of Nayapally IRC-3 feeder From 80 & 55 mm2 to 100 mm2 of length-1.9 Km	₹ 20,53,295.72
2	**Total Amount**	**₹ 20,53,295.72**
3	**Total Amount (In Cr.)**	**0.21**

PART-A-Augmentation of Conductor of Nayapally IRC-3 feeder From 80 & 55 mm2 to 100 mm2 of length-1.9 Km

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	1

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00

21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**1,33,880.47**
B				Stock, Storage & Insurance i.e 3% of A	4,016.41
C				**Sub Total (A+B)**	**1,37,896.88**
D				Contigency @ 3% of C	4,136.91
E				Tools & Plants @ 2% of C	2,757.94
F				Transportation @ 7.5% of C	10,342.27
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,755.96
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,65,621.19**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**16,626.50**
L				**Total (J+K)**	**1,82,247.69**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
N				**Sub Total (L+M)**	**1,93,182.56**
O				Total GST @ 18% of (N)	34,772.86
O1				Total CESS @ 1% of (N)	1,931.83
P				**Gross Total Material +Services (N+O) for DP With AB Switch**	**2,29,887.24**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		3		

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	15	3,97,754.25
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	15	14,337.00
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	15	2,655.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	15	1,416.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.51	399.44
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	45.00	4,248.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	18.05	1,597.78
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	45	10,620.00
9	Earthing of Support (Coil Type)	No.	195.88	15	2,938.20
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.93	347.81
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	21.75	2,001.87

12	100 mm2 AAAC	K.M.	64,900.00	9.27	6,01,623.00
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	15.0	3,894.00
15	Yellow Colour Paint for Background	Ltr	259.60	30.0	7,788.00
A				**Total Cost of materials**	**10,51,620.35**
B				Stock, Storage & Insurance i.e 3% of A	31,548.61
C				**Sub Total (A+B)**	**10,83,168.96**
D				Contigency @ 3% of C	32,495.07
E				Tools & Plants @ 2% of C	21,663.38
F				Transportation @ 7.5% of C	81,237.67
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	20,484.34
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	67,348.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**13,06,397.63**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	6.75	43,875.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.69	10,968.75
3	Dismantling of 80sqmm AAAC	KM	9,000.00	9.27	83,430.00
K				**Total Civil & Services**	**1,38,273.75**
L				**Total Material+Services (I+K)**	**14,44,671.38**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	86,680.28
N				**Sub Total (L+M)**	**15,31,351.66**
O				Total GST @ 18% of (N)	2,75,643.30
O1				Total CESS @ 1% of (N)	15,313.52
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**18,22,308.48**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	86,680.28
				Total (6% supervision charges)	**97,615.14**
	Gross Total Summary				
2				Gross Total Material +Services (N+O) for DP With AB Switch	2,29,887.24
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	18,22,308.48
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**20,53,295.72**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
2) The above arrangement will help to release power supply to upcoming potential consumers.
3) Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

17.Refurbishment of 11kV No-2 Sriram bazar Feeder for Mitigation of Overloading

Proposal: Augmentation of existing 11kV No-2 Sriram Bazar feeder emanating from 33/11kV Baranga New PSS from 80 & 55sqmm lower size conductor to 100sqmm AAAC conductor.

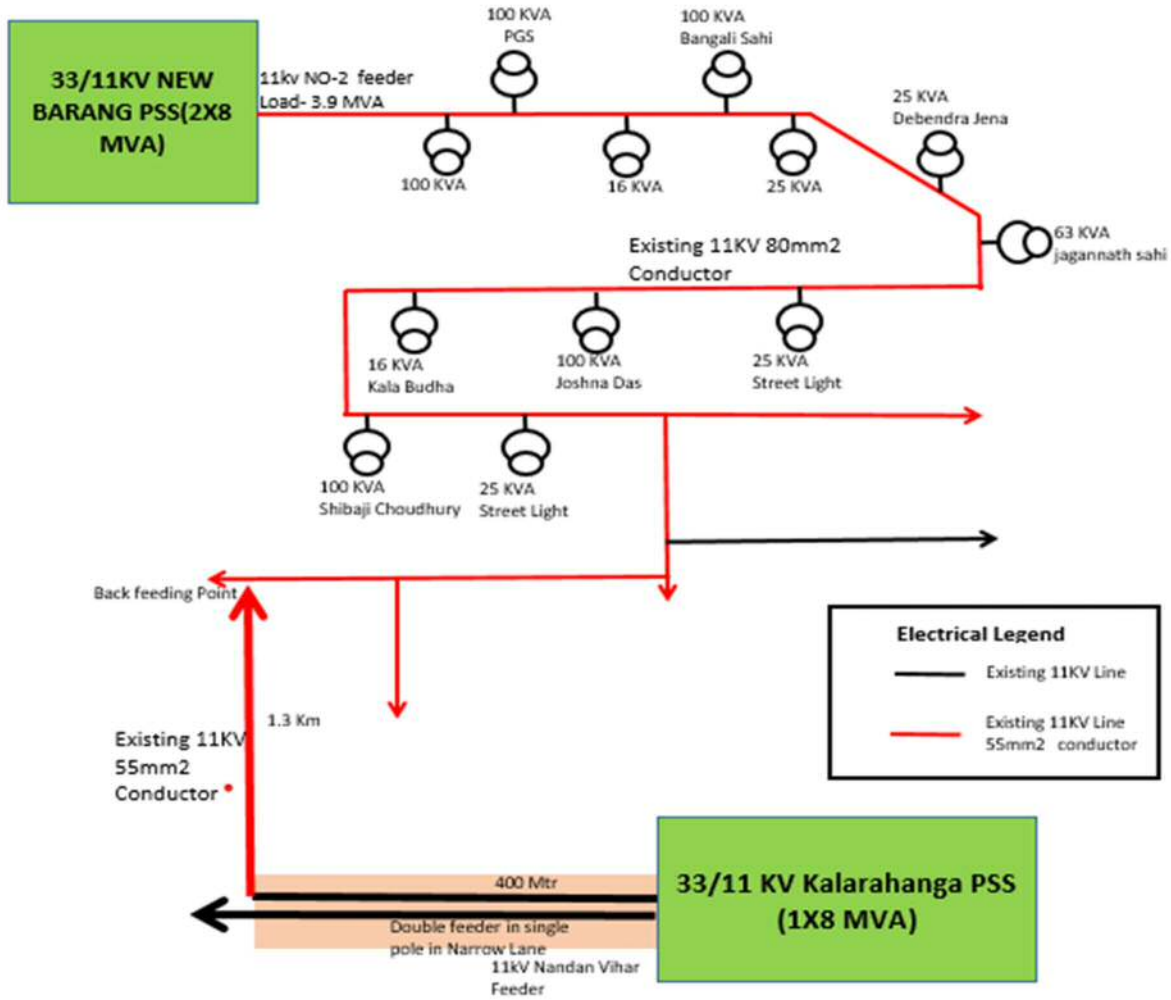
Objective: To mitigation of Overloading issue of feeder.

Existing Scenario:

- At present, 11kV No-2 Sriram Bazar feeder is emanating from 33/11 KV Baranga New PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 21 KM and the peak load is 3.9 MVA.
- In the existing scenario, conductors size of 11 KV No-2 Sriram Bazar feeder where overloading is observed is 80sqmm & the feeder is loaded up to 86.47%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

EXISTING LOADING							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
No-2 Sriram Bazar	4.51	3.90	86.47	Low Voltage	5.17	145.9	OVERLOAD

Existing SLD (Summer'21):

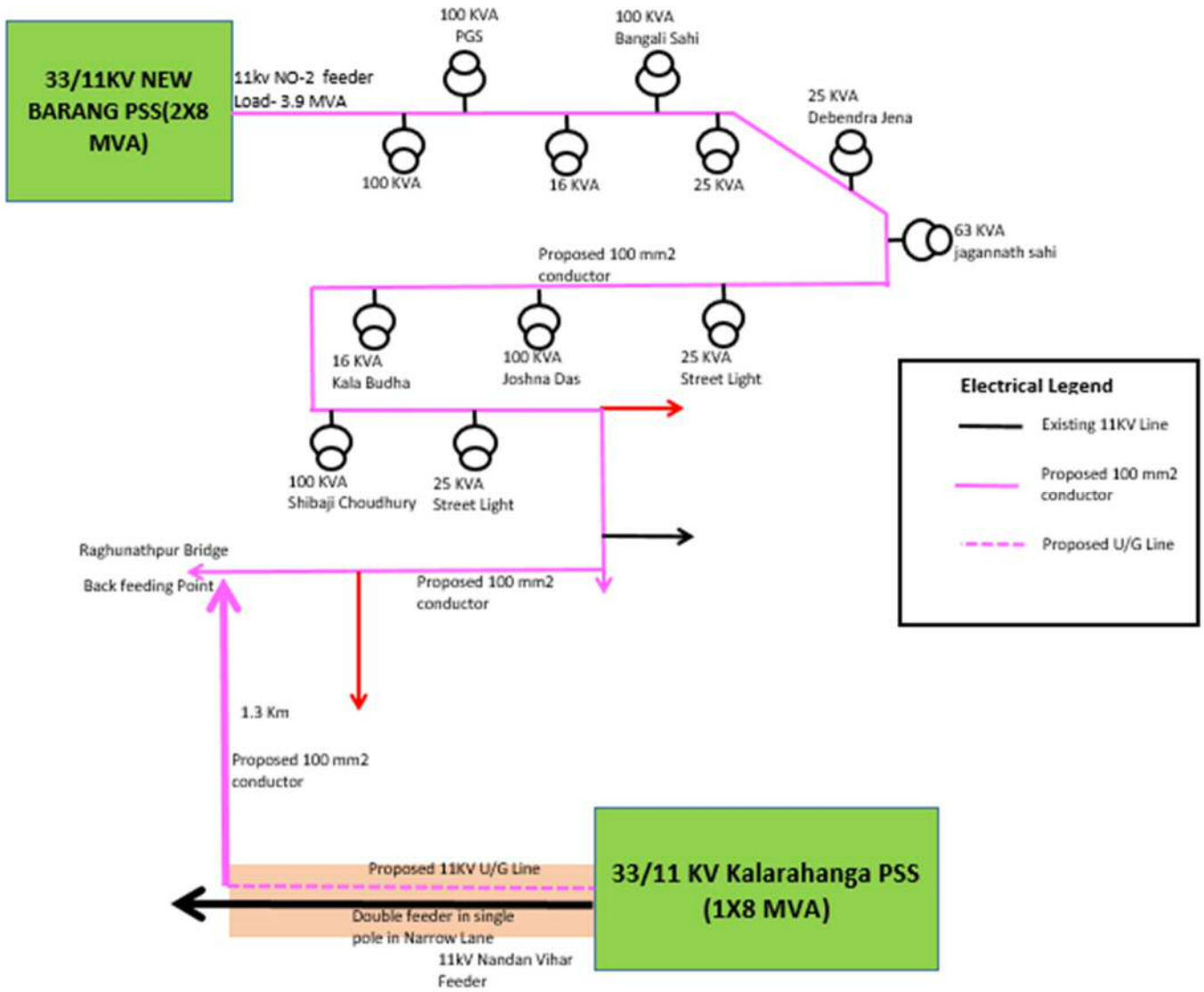


Proposed Scenario:

- Augmentation of 8 KM Existing 55mm2 old Conductor with 100mm2 AAAC conductor.
- Augmentation of Conductor of length-1.3 Km of Nandan Vihar Feeder & O-H to U/G Conversion of length-400 Mtr of Nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth

LOADING OF FEEDER AFTER PROPOSAL							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
No-2 Sriram Bazar	5.18	3.90	75.3	OK	4.7	90.3	OK

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Augmentation of 8km Existing 55 & 80sqmm old conductor with 100sqmm AAAC conductor from Barang New PSS to Raghunathpur Bridge.
- Augmentation of Conductor of length-1.3 Km of Nandan Vihar Feeder & O-H to U/G Conversion of length-400 Mtr of Nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	PERIPHERY
	Name of the Section : -	Baranga
	Name of the Work :-	PART-A- 1. Augmentation of Conductor of New Baranga No.2 feeder From 80 & 55 mm2 to 100 mm2 of length-8Km PART-B- 1. Augmentation of Conductor of backfeeding Nandan Vihar feeder From 80 & 55 mm2 to 100 mm2 of length-1.3Km. Interposing poles not required as per site condition Part- C :O-H to U/G Conversion of length-400 Mtr of nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth
	Scope of work:-	PART-A- 1. Augmentation of Conductor of New Baranga No.2 feeder From 80 & 55 mm2 to 100 mm2 of length-8Km PART-B- 1. Augmentation of Conductor of backfeeding Nandan Vihar feeder From 80 & 55 mm2 to 100 mm2 of length-1.3Km. Interposing poles not required as per site condition Part- C :O-H to U/G Conversion of length-400 Mtr of nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	PART-A- 1. Augmentation of Conductor of New Baranga No.2 feeder From 80 & 55 mm2 to 100 mm2 of length-8Km	₹ 61,35,348.90
2	PART-B- 1. Augmentation of Conductor of backfeeding Nandan Vihar feeder From 80 & 55 mm2 to 100 mm2 of length-1.3Km. Interposing poles not required as per site condition	₹ 4,61,631.32
3	Part- C :O-H to U/G Conversion of length-400 Mtr of nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth	₹ 26,54,306.70
4	**Total Amount**	**₹ 92,51,286.92**
5	**Total Amount (In Cr.)**	**0.93**

PART-A-
1. Augmentation of Conductor of New Baranga No.2 feeder From 80 & 55 mm2 to 100 mm2 of length-8Km

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	2

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48

6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**

M	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				21,869.72
N	**Sub Total (L+M)**				**3,86,365.11**
O	Total GST @ 18% of (N)				69,545.72
O1	Total CESS @ 1% of (N)				3,863.65
P	**Gross Total Material +Services (N+O) for DP With AB Switch**				**4,59,774.48**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)	9.3			
	MATERIALS FOR 11 KV Pin Points With WPB				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	47	12,46,296.65
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	47	44,922.60
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	47	8,319.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	47	4,436.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	14.14	1,251.59
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	141.00	13,310.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	56.57	5,006.37
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	141	33,276.00
9	Earthing of Support (Coil Type)	No.	195.88	47	9,206.36
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	12.31	1,089.79
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	68.15	6,272.53
12	100 mm2 AAAC	K.M.	64,900.00	28.74	18,65,031.30
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	47.0	12,201.20
15	Yellow Colour Paint for Background	Ltr	259.60	94.0	24,402.40
A	**Total Cost of materials**				**32,75,022.99**
B	Stock, Storage & Insurance i.e 3% of A				98,250.69
C	**Sub Total (A+B)**				**33,73,273.68**
D	Contigency @ 3% of C				1,01,198.21
E	Tools & Plants @ 2% of C				67,465.47
F	Transportation @ 7.5% of C				2,52,995.53
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				64,184.28
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				2,08,958.81
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**40,68,075.98**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	21.15	1,37,475.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	5.29	34,368.75
3	Dismantling of 80sqmm AAAC	KM	9,000.00	28.74	2,58,633.00
K	**Total Civil & Services**				**4,30,476.75**
L	**Total Material+Services (I+K)**				**44,98,552.73**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				2,69,913.16
N	**Sub Total (L+M)**				**47,68,465.90**
O	Total GST @ 18% of (N)				8,58,323.86
O1	Total CESS @ 1% of (N)				47,684.66
P	**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**				**56,74,474.42**
	6% Supervision Charges Summary				
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				21,869.72
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				2,69,913.16
	Total (6% supervision charges)				**2,91,782.89**

	Gross Total Summary	
2	Gross Total Material +Services (N+O) for DP With AB Switch	4,59,774.48
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	56,74,474.42
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**61,35,348.90**

PART-B-
1. Augmentation of Conductor of backfeeding Nandan Vihar feeder From 80 & 55 mm2 to 100 mm2 of length-1.3Km. Interposing poles not required as per site condition

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)	1.3

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
12	100 mm2 AAAC	K.M.	64,900.00	4.02	2,60,703.30
A				**Total Cost of materials**	**2,60,703.30**
B				Stock, Storage & Insurance i.e 3% of A	7,821.10
C				**Sub Total (A+B)**	**2,68,524.40**
D				Contigency @ 3% of C	8,055.73
E				Tools & Plants @ 2% of C	5,370.49
F				Transportation @ 7.5% of C	20,139.33
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	-
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	26,852.44
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,28,942.39**
	Civil & Services				
3	Dismantling of 80sqmm AAAC	KM	9,000.00	4.02	36,153.00
K				**Total Civil & Services**	**36,153.00**
L				**Total Material+Services (I+K)**	**3,65,095.39**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	21,905.72
N				**Sub Total (L+M)**	**3,87,001.11**
O				Total GST @ 18% of (N)	69,660.20
O1				Total CESS @ 1% of (N)	3,870.01
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**4,60,531.32**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	-
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	21,905.72
				Total (6% supervision charges)	**21,905.72**
	Gross Total Summary				
2				Gross Total Material +Services (N+O) for DP With AB Switch	-
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	4,60,531.32
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**4,61,631.32**

Part- C :O-H to U/G Conversion of length-400 Mtr of nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth

Supply Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**

1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***			
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***0.4***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.40	17,70,000.00	7,08,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	1	29,874.06	29,874.06
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	16,406.72	32,813.44
	Sub Total (Supply Portion) (in Rs.)				**7,70,687.50**

Erection Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.00	94,500.00	-
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	1	2,400.00	2,400.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0.4	28,00,000.00	11,20,000.00
	Dismantling of 80sqmm AAAC	KM	0.4	9,000.00	3,600.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.00	1,04,114.67	-
	Sub Total (Erection Portion) (in Rs.)				**11,90,327.99**

Civil Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	16	1,463.40	23,414.40
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	13	1,012.00	13,156.00
	Sub Total (Civil Portion) (in Rs.)				**36,570.40**

A	**Sub Total (Supply Portion)**	**7,70,687.50**
B	Stock, Storage & Insurance @ 3 % of A	23,120.63
C	**Sub Total (A+B)**	**7,93,808.13**
D	Contingency @ 3 % of C	23,814.24
E	Tools & Plants Charges @ 2% of C (considered for earthing items)	-

F	Transportation @ 7.5% of C	59,535.61
G	Erection Charges @ 10% of earthing items	-
H	**Total (C+D+E+F+G)**	**8,77,157.98**
I	Sub Total (Erection Portion + Civil Portion)	12,26,898.39
J	**Total Cost (H+I)**	**21,04,056.37**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	1,26,243.38
L	**Total Estimated Capital Cost i.e. (J+K)**	22,30,299.75
M	GST @ 18% of L	4,01,453.95
M1	CESS @ 1% of L	22,303.00
N	**Grand Total (L+M)**	**26,54,056.70**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**26,54,306.70**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
2) The above arrangement will help to release power supply to upcoming potential consumers, safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

18.Swapping of 11kV NALCO feeder from PTR-1 to PTR-3 for Mitigation of PTR Overload

Proposal: Swapping of 11kV NALCO feeder from PTR-1 to PTR-3 to mitigate PTR overloading issue

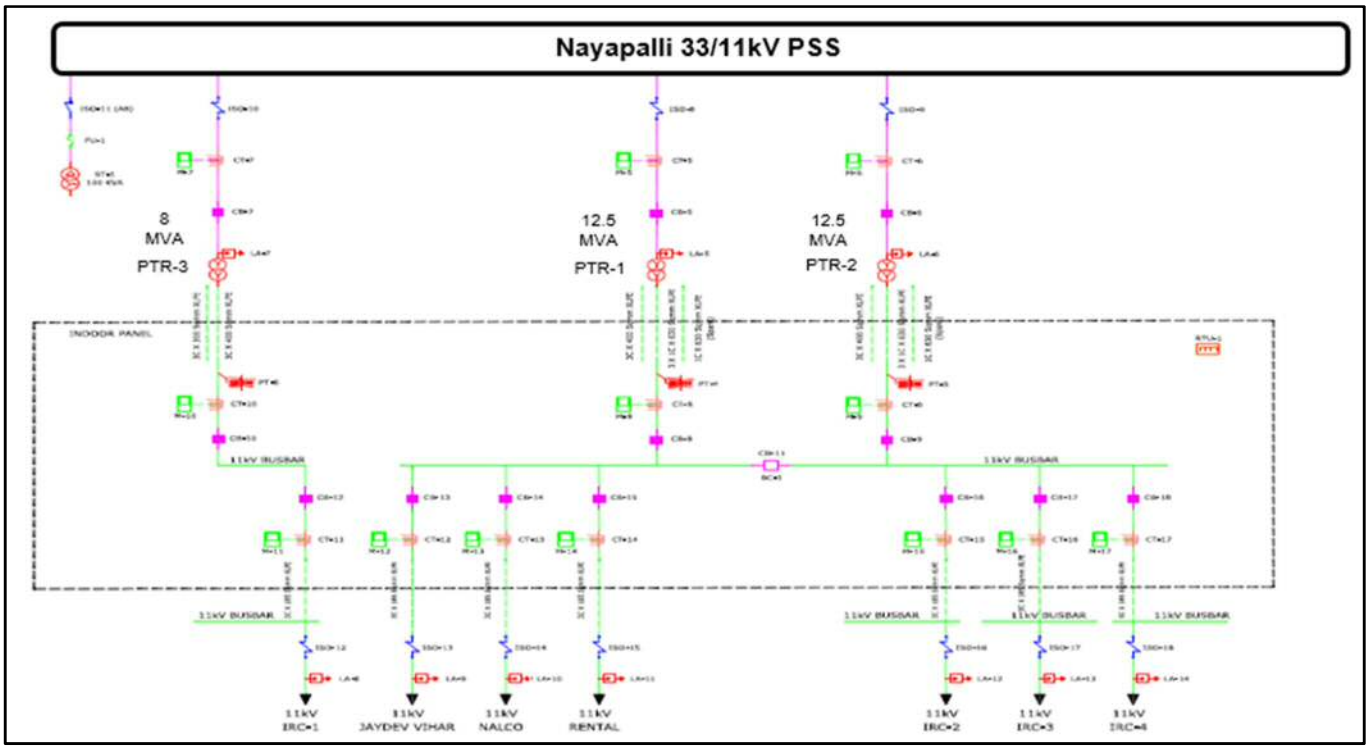
Objective: To mitigation of Overloading issue of PTR-3.

Existing Scenario:

- At present, peak load of PTR-1 of Nayapalli PSS is 9.5MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 14.2MVA. The PTR will be overloaded.
- This feeder is mainly feeding Urban consumers, overloading of PTR will hamper the reliability of power supply to the consumers in the area.

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	% PTR Loading (AS IS)	Projected load PTR load in 5years	% PTR Loading	PTR Status
33/11kV NAYAPALLI	PTR-1	12.5	9.5	76%	14.2	114%	Overloaded
	PTR-3	8	2.9	36.25	4.3	52%	Ok

Existing SLD (Summer'21):

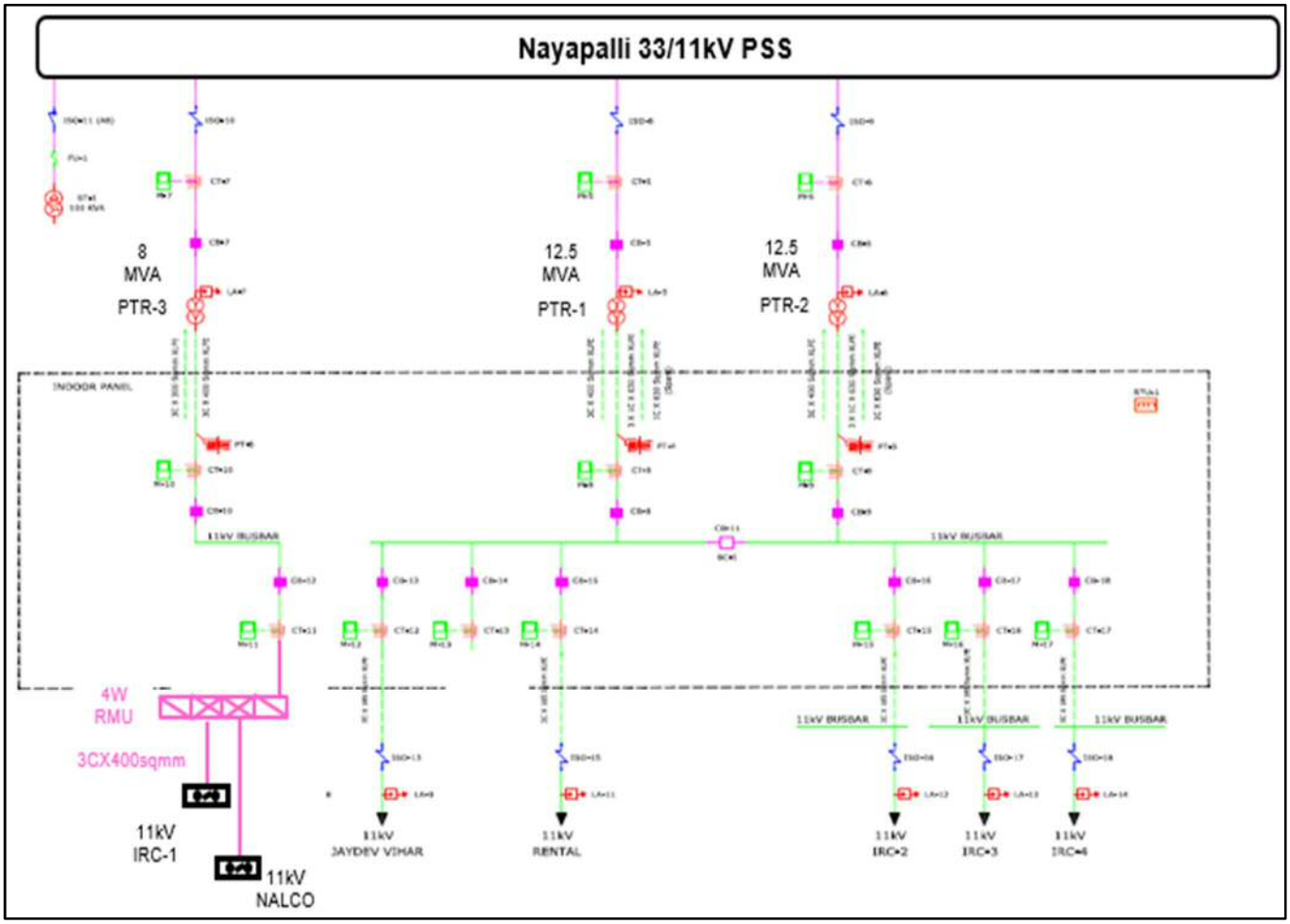


Proposed Scenario:

- Swapping of NALCO 11kV feeder (2.4MVA) from PTR-1 to PTR-3 in order to mitigate the overloading condition of PTR-1.

Structure Name	PTR Name	PTR Installed Capacity in MVA	Projected load PTR load in 2years after feeder swapping	% PTR Loading	PTR Status
33/11kV NAYAPALLI	PTR-1	12.5	8.6	69%	Ok
	PTR-3	8	6.4	80%	Ok

Proposed SLD (Summer'22):



Detailed Scope of Work:

- Swapping of NALCO 11kV feeder from PTR-1 to PTR-3 at Nayapalli 33/11kV PSS.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	NAYAPALI
	Name of the Section : -	Nayapalli
	Name of the Work :-	Laying of UG cable 0.24km (with spare) and 4W RMU (LLVV) at Nayapalli 33/11kV PSS.
	Scope of work:-	Laying of UG cable 0.24km (with spare) and 4W RMU (LLVV) at Nayapalli 33/11kV PSS.
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Laying of UG cable 0.24km (with spare) and 4W RMU (LLVV) at Nayapalli 33/11kV PSS.	₹ 29,94,424.42
2	**Total Amount**	**₹ 29,94,424.42**
3	**Total Amount (In Cr.)**	**0.30**

Supply Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.12***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***			
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.24	17,70,000.00	4,24,800.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	29,874.06	-
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.24	6,94,910.00	1,66,778.40
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***			
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***1***		
c	***No. of 11kV 3Way RMU (LLV+M)***	***nos.***			
d	***No. of 11kV 4Way RMU (LLVV+M)***	***nos.***			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	5,57,710.00	5,57,710.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
2.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	No.	1	4,35,542.00	4,35,542.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	13.20	88.50	1,168.20
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,239.00	2,478.00
	Sub Total (Supply Portion) (in Rs.)				**17,44,557.56**

Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.24	94,500.00	22,680.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	2,400.00	-
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with**	km	0	28,00,000.00	-

	HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.				
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.24	1,04,114.67	24,987.52
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	15,000.00	15,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
2.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	6,124.36	6,124.36
	Sub Total (Erection Portion) (in Rs.)				**91,601.48**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	84	700.00	58,800.00
1.1.b	Earth work excavation of **hard rock**	Cum	36	1,720.00	61,920.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	0	171.55	-
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	0	2,500.00	-
1.4	Back filling with excavated soil outside and above the trench	Cum	120	202.00	24,240.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0	26,43,670.63	-
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	20	3,600.00	72,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	2	1,012.00	2,024.00
	Sub Total (Civil Portion) (in Rs.)				**2,93,772.10**
A	**Sub Total (Supply Portion)**				**17,44,557.56**
B	Stock, Storage & Insurance @ 3 % of A				52,336.73
C	**Sub Total (A+B)**				**17,96,894.29**
D	Contingency @ 3 % of C				53,906.83
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				75.11
F	Transportation @ 7.5% of C				1,34,767.07
G	Erection Charges @ 10% of earthing items				375.56
H	**Total (C+D+E+F+G)**				**19,86,018.86**
I	Sub Total (Erection Portion + Civil Portion)				3,85,373.58

J	**Total Cost (H+I)**	**23,71,392.44**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	1,42,283.55
L	**Total Estimated Capital Cost i.e. (J+K)**	**25,13,675.98**
M	GST @ 18% of L	4,52,461.68
N	CESS @ 1% of L	25,136.76
O	**Grand Total (L+M+N)**	**29,91,274.42**
P	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	2000
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (O+P+Q+R+S+T)**	**29,94,424.42**

Benefit:

- To mitigate the overloading issue of PTR-1 at Nayapalli 33/11kV PSS.

19. To mitigate 11KV Laxmisagar Feeder Overloading issue :

Proposal: Construction of New 11 kV feeder from LAXMISAGAR PSS to Jagananth Nagar AB switch with laying of 3Cx400sqmm UG XLPE CABLE of length 3 kM with installtion of 11 kV 4 Way RMU.

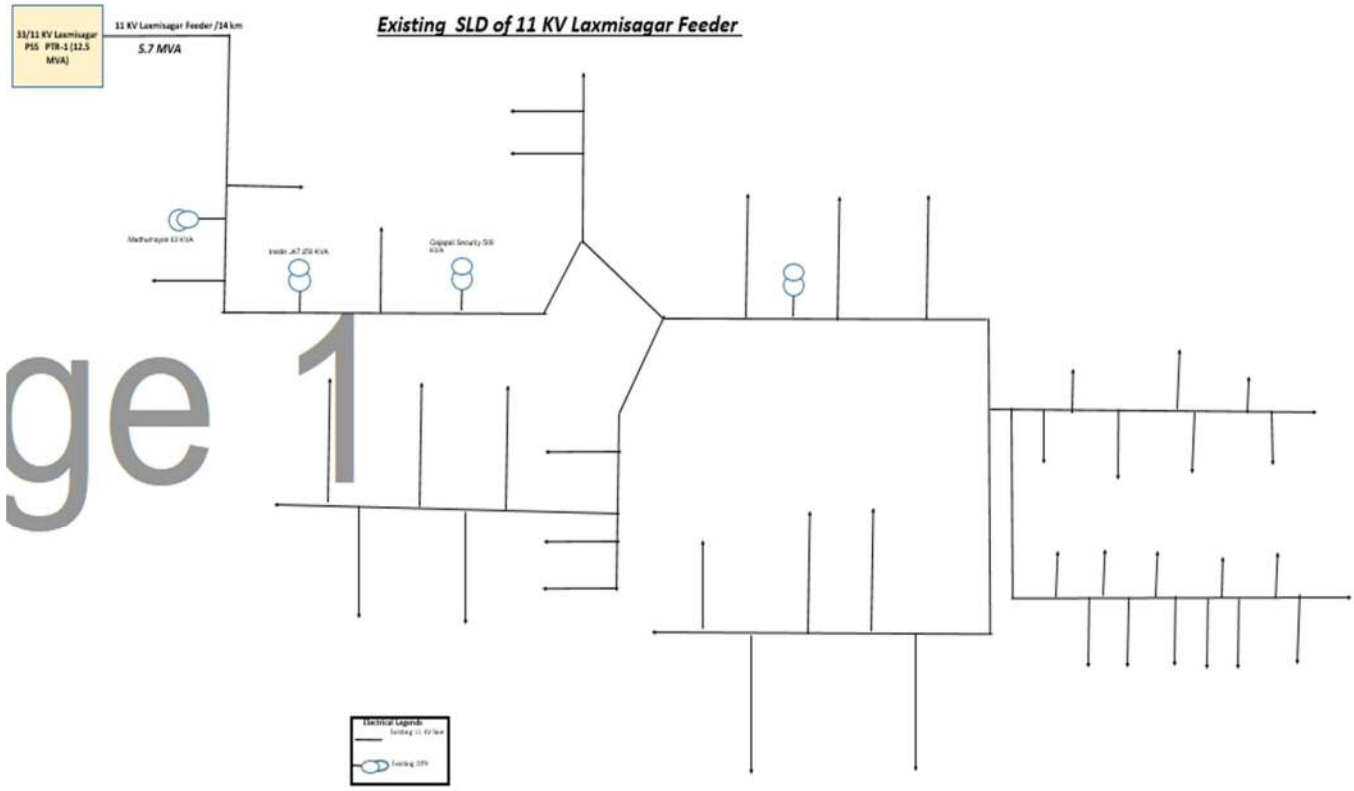
Objective: To Mitigate Overloading issue of 11 kV Laxmisagar feeder by bifurgation of load into two parts.

Existing Scenario:

- At present, 11 KV Laxmisagar feeder is emanating from 33/11 KV Laxmisagar PSS. Urban consumers are connected from this feeder. Total length of this feeder is 14 KM and the peak load is 5.7 MVA. Existing trunk size is 100sqmm of Laxmisagar feeder & the feeder loading has reached 109.4% of loading against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

EXISTING LOADING OF LAXMISAGAR FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
LAXMISAGAR	5.18	5.67	109.4	OVERLOAD	8.5	163.7	OVERLOAD

Existing SLD:



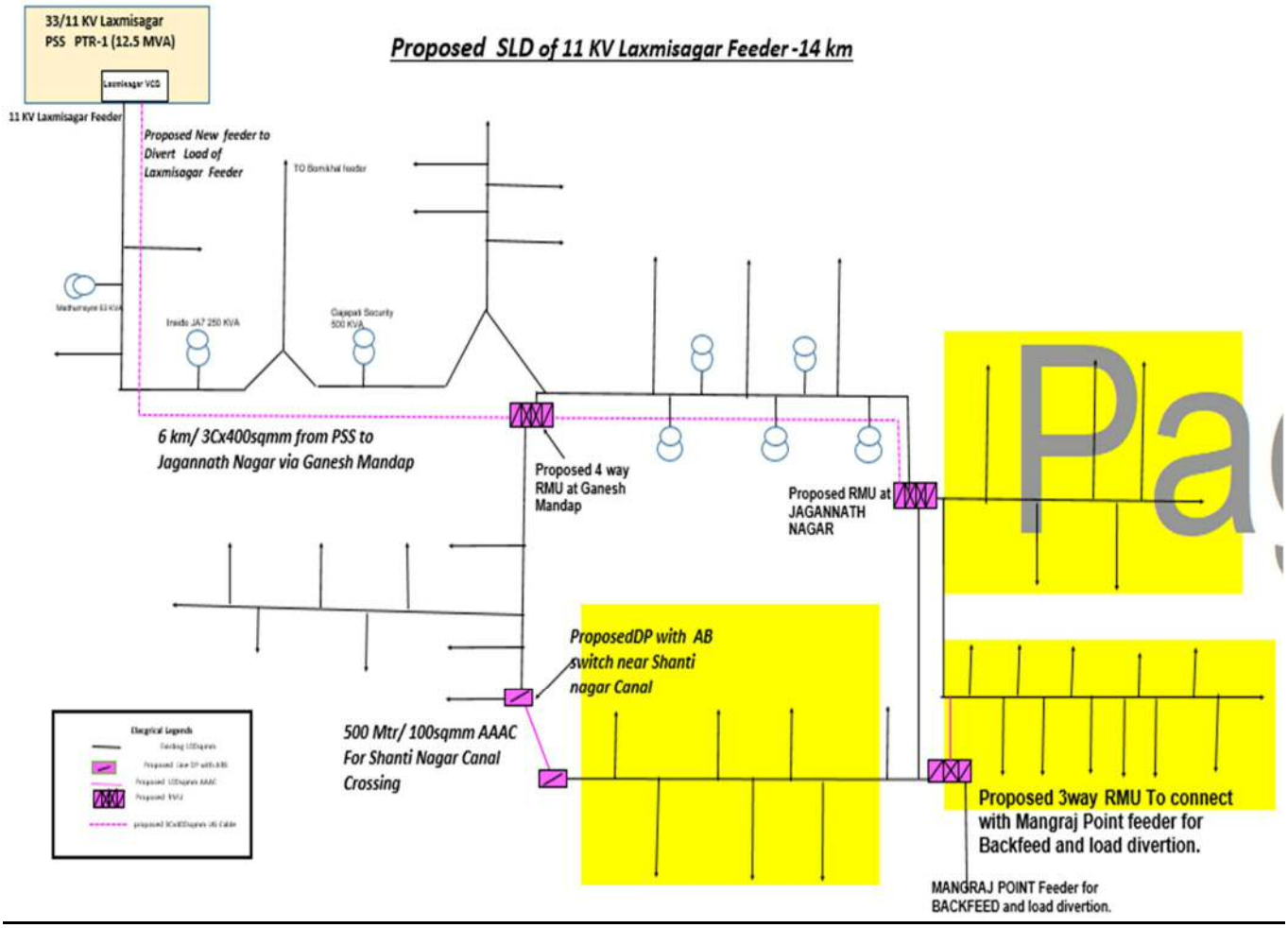
Proposed Scenario:

- Laying of UG Cable of length 5km through HDD from PSS to Ganesh Mandap with RMU installation to bifurcate Laxmisagar Feeder load on two feeder to mitigate Overloading issue.
- After proposal of New feeder approx. 1.5 MVA load to be diverted on new feeder.

- Construction of 11kV line of length 500 Mtr over Canal Crossing for load diversion.

LOADING OF LAXMISAGAR FEEDER w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
LAXMISAGAR	5.18	3.2	61.8	OK	4.8	92.4	OK
NEW LAXMISAGAR	5.75	2.4	41.7	OK	3.59	62.4	OK

Proposed SLD:



Detailed Scope of Work:

- Laying of UG Cable of length 6km through HDD from PSS to Jagannath Nagar .
- Installation of 2 Nos of 4 way RMU at Ganesh Mandap and Jagannath Nagar and 1 Nos of 3 way RMU at Mangraj part to connect with Mangraj Point feeder for N-1 and load divertion .
- Construction of 11 KV line of length 500 Mtr for canal crossing with 2 Nos of DP with AB Switch.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	**BED**
Name of the Sub-Division : -	RASULGARH
Name of the Section : -	LAXMISAGAR
Name of the Work :-	Construction of New feeder from Laxmisagar PSS to Ganesh Mandap for bifurcation of load.
Scope of work:-	Part A- Construction of U/G Cable - 6 Km without spare (from LAXMISAGAR PSS to GANESH MANDAP DSS to Jagananath Nagar) with 2 nos of 4 way RMU and 1 nos of 3 way RMU.

	Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor over canal crossing of length-0.5 Km Part- C :-Construction of DP with AB switch for canal crossing-2 nos
Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part A- Construction of U/G Cable - 6 Km without spare (from LAXMISAGAR PSS to GANESH MANDAP DSS to Jagannath Nagar) with 2 nos of 4 way RMU and 1 nos of 3 way RMU.	₹ 4,53,09,777.53
2	Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor over canal crossing of length-0.5 Km	₹ 8,31,236.87
3	Part- C :-Construction of DP with AB switch for canal crossing-2 nos	₹ 4,59,774.48
4	**Total Amount**	**₹ 4,66,00,788.89**
5	**Total Amount (In Cr.)**	**4.66**

Part A- Construction of U/G Cable - 6 Km without spare (from LAXMISAGAR PSS to GANESH MANDAP DSS to Jagananath Nagar) with 2 nos of 4 way RMU and 1 nos of 3 way RMU.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***6***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.00	17,70,000.00	1,06,20,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	24	29,874.06	7,16,977.44
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	11	11,306.76	1,24,374.36
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	7	16,406.72	1,14,847.04
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***1***		
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	39.60	88.50	3,504.60
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	6	1,239.00	7,434.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	6	56,515.00	3,39,090.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	6.0	77,990.00	4,67,940.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12	6,766.00	81,192.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	6	7,535.00	45,210.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3	4,35,542.00	13,06,626.00

	Sub Total (Supply Portion) (in Rs.)				**1,53,41,649.44**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	24	2,400.00	57,600.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	11	1,900.80	20,908.80
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	1,900.80	13,305.60
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	6	28,00,000.00	1,68,00,000.00
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.0	27,296.35	1,63,778.10
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	6.0	1,22,488.27	7,34,929.62
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12.0	612.54	7,350.48
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	6.0	1,225.07	7,350.42
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3.0	6,124.36	18,373.08
	Sub Total (Erection Portion) (in Rs.)				**1,78,68,596.10**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	3	23,145.30	69,435.90
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	60	3,600.00	2,16,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	6	2,407.00	14,442.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	56	1,463.40	81,950.40
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	200	1,012.00	2,02,400.00
	Sub Total (Civil Portion) (in Rs.)				**5,84,228.30**
A	**Sub Total (Supply Portion)**				**1,53,41,649.44**
B	Stock, Storage & Insurance @ 3 % of A				4,60,249.48
C	**Sub Total (A+B)**				**1,58,01,898.92**

D	Contingency @ 3 % of C	4,74,056.97
E	Tools & Plants Charges @ 2% of C (considered for earthing items)	225.34
F	Transportation @ 7.5% of C	11,85,142.42
G	Erection Charges @ 10% of earthing items	1,126.68
H	**Total (C+D+E+F+G)**	**1,74,62,450.32**
I	Sub Total (Erection Portion + Civil Portion)	1,84,52,824.40
J	**Total Cost (H+I)**	**3,59,15,274.72**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	21,54,916.48
L	**Total Estimated Capital Cost i.e. (J+K)**	3,80,70,191.20
M	GST @ 18% of L	68,52,634.42
M1	CESS @ 1% of L	3,80,701.91
N	**Grand Total (L+M)**	**4,53,03,527.53**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	6000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**4,53,09,777.53**

Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor over canal crossing of length-0.5 Km

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)	0.5

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	13	3,44,720.35
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	13	12,425.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	13	2,301.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	13	1,227.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	3.91	346.19
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	39.00	3,681.60
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	15.65	1,384.74
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	39	9,204.00
9	Earthing of Support (Coil Type)	No.	195.88	13	2,546.44
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.41	301.43
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	18.85	1,734.95
12	100 mm2 AAAC	K.M.	64,900.00	1.55	1,00,270.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	13.0	3,374.80
15	Yellow Colour Paint for Background	Ltr	259.60	26.0	6,749.60
A				**Total Cost of materials**	**4,90,268.20**

B	Stock, Storage & Insurance i.e 3% of A				14,708.05
C	**Sub Total (A+B)**				**5,04,976.25**
D	Contigency @ 3% of C				15,149.29
E	Tools & Plants @ 2% of C				10,099.52
F	Transportation @ 7.5% of C				37,873.22
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				17,753.10
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				14,991.43
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**6,00,842.81**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	5.85	38,025.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.46	9,506.25
3	Dismantling of 34/55sqmm AAAC	KM	6,300.00	1.55	9,733.50
K	**Total Civil & Services**				**57,264.75**
L	**Total Material+Services (I+K)**				**6,58,107.56**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				39,486.45
N	**Sub Total (L+M)**				**6,97,594.01**
O	Total GST @ 18% of (N)				1,25,566.92
O1	Total CESS @ 1% of (N)				6,975.94
P	**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**				**8,30,136.87**
	6% Supervision Charges Summary				
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				39,486.45
	Total (6% supervision charges)				**39,486.45**
	Gross Total Summary				
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB				8,30,136.87
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**				**8,31,236.87**

Part- C :-Constrcution of DP with AB switch for canal crossing-2 nos					
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor					
No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)		2			
MATERIALS OF DP With AB Switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36

8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
O1				Total CESS @ 1% of (N)	3,863.65
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**4,59,774.48**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2) Mitigation of Overloading issue with load growth of 5 years.
3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

20. To mitigate 11kV JHARAPADA Feeder Overloading issue :

Proposal: Construction of New 11 kV line from LAXMISAGAR PSS to Lagoon 500 kVA DTR with laying of 3Cx400sqmm UG XLPE CABLE of length 5 kM through HDD method with installtion of 11 kV 4 Way RMU at Lagoon 500 kVA DTR and OSCAR City.

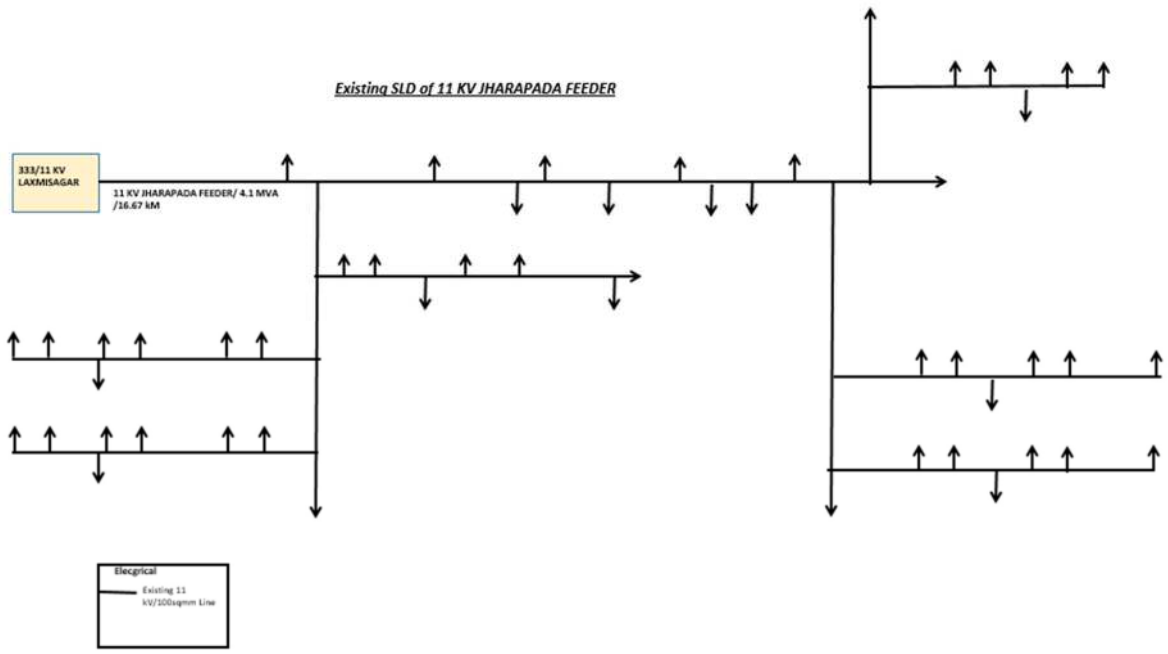
Objective: To Mitigate Overloading issue of 11 kV JHARAPADA feeder by bifurcation of load into two parts.

Existing Scenario:

- At present, 11 KV Jharapada feeder is emanating from 33/11 KV Laxmisagar PSS. Urban consumers are connected from this feeder. Total length of this feeder is 16.67 KM and the peak load is 4.2 MVA. Existing trunk size is 100sqmm of Jharapada feeder & the feeder loading is 81.1% of loading considering future Load Growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

EXISTING LOADING OF JHARAPADA FEEDER							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
JHARAPADA	5.18	4.2	81.1	Overload and Low voltage	6.1	118.2	OVERLOAD

Existing SLD :

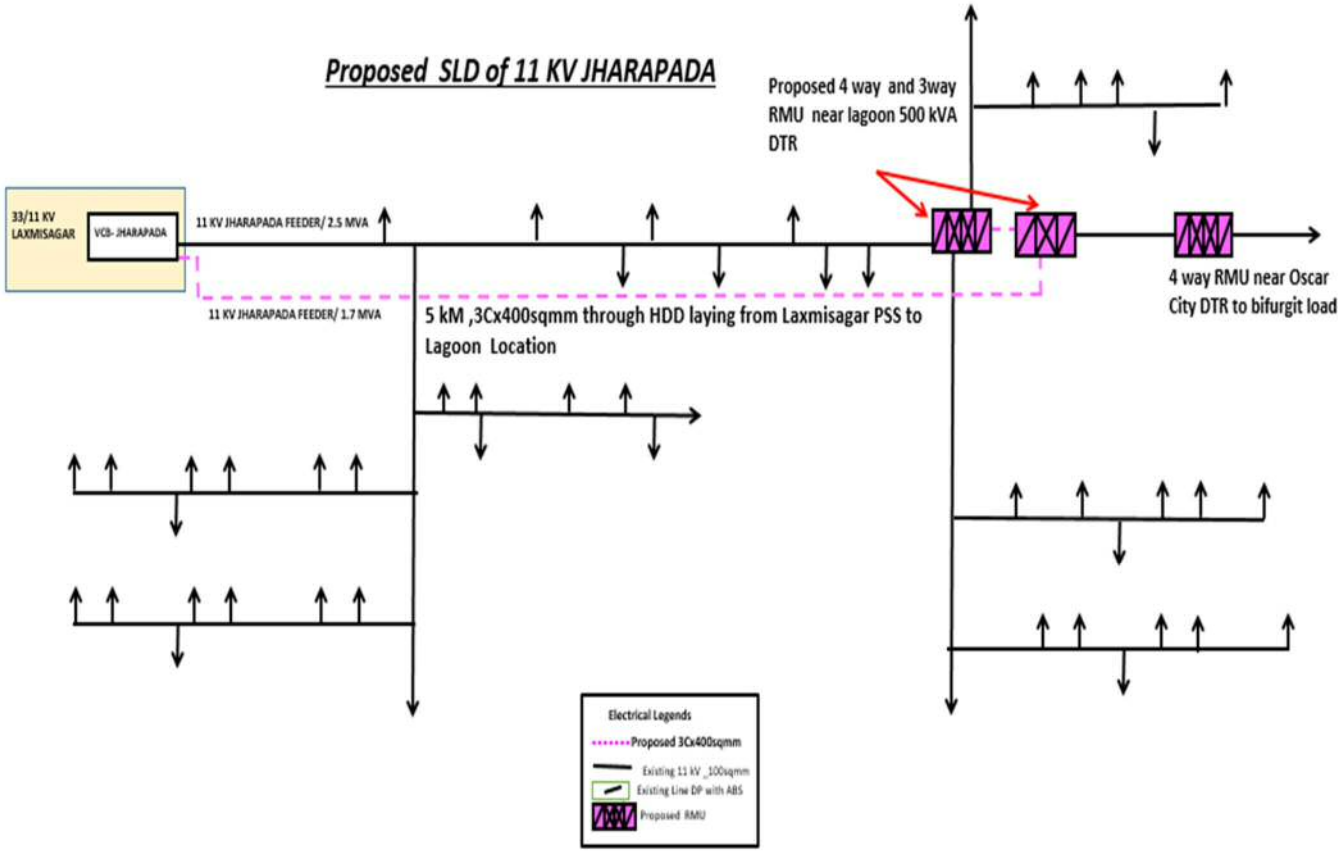


Proposed Scenario:

- Laying of UG Cable of length 5km through HDD from PSS to Lagoon with RMU installation to bifurcate Jharapada Feeder load on two feeder to mitigate Overloading issue.
- Installation of 3 Nos of RMU for feeder connectivity and bifurcation of load.
- After proposal of New feeder approx.1.9 MVA load to be diverted on New feeder.

LOADING OF JHARAPADAFEEDER w.r.t Proposal							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
JHARAPADA	5.18	2.2	41.9	OK	3.2	62.7	OK
NEW JHARAPADA	5.75	1.9	33.1	OK	2.85	49.5	OK

Proposed SLD:



Detailed Scope of Work:

- Laying of UG Cable of length 5km through HDD from PSS to Lagoon 500 kVA DTR and installation of 2 nos of 4 way RMU and 1 nos of 3 Way RMU at Lagoon and Oscar City for linking and load bifurcation of feeder.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	**BED**
Name of the Sub-Division : -	RASULGARH
Name of the Section : -	LAXMISAGAR
Name of the Work :-	Construction of New feeder from Laxmisagar PSS to Lagoon Mandap for bifurcation of Jharapada Feeder Load
Scope of work:-	

	Part A- Construction of U/G Cable - 5 Km without spare (from LAXMISAGAR PSS to near Lagoon DSS) with 2 nos of 4 way RMU and 1nos of 3Way RMU.
Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part A- Construction of U/G Cable - 5 Km without spare (from LAXMISAGAR PSS to naer Lagoon DSS) with 2 nos of 4 way RMU and 1nos of 3Way RMU.	₹ 3,85,45,119.94
2	**Total Amount**	**₹ 3,85,45,119.94**
3	**Total Amount (In Cr.)**	**3.85**

Part A- Construction of U/G Cable - 5 Km without spare (from LAXMISAGAR PSS to near Lagoon DSS) with 2 nos of 4 way RMU and 1nos of 3Way RMU.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***5***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	5.00	17,70,000.00	88,50,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	20	29,874.06	5,97,481.20
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	5	16,406.72	82,033.60
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***1***		
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***2***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	39.60	88.50	3,504.60
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	6	1,239.00	7,434.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	5	56,515.00	2,82,575.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	5.0	77,990.00	3,89,950.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	10	6,766.00	67,660.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	6	7,535.00	45,210.00

4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along with associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3	4,35,542.00	13,06,626.00
	Sub Total (Supply Portion) (in Rs.)				**1,32,82,609.52**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	20	2,400.00	48,000.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	1,900.80	9,504.00
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	5	28,00,000.00	1,40,00,000.00
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	5.0	27,296.35	1,36,481.75
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	5.0	1,22,488.27	6,12,441.35
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	10.0	612.54	6,125.40
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	6.0	1,225.07	7,350.42
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3.0	6,124.36	18,373.08
	Sub Total (Erection Portion) (in Rs.)				**1,49,06,085.60**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	3	23,145.30	69,435.90
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	60	3,600.00	2,16,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	6	2,407.00	14,442.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	40	1,463.40	58,536.00

6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	167	1,012.00	1,69,004.00
	Sub Total (Civil Portion) (in Rs.)				**5,27,417.90**
A	**Sub Total (Supply Portion)**				**1,32,82,609.52**
B	Stock, Storage & Insurance @ 3 % of A				3,98,478.29
C	**Sub Total (A+B)**				**1,36,81,087.81**
D	Contingency @ 3 % of C				4,10,432.63
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				225.34
F	Transportation @ 7.5% of C				10,26,081.59
G	Erection Charges @ 10% of earthing items				1,126.68
H	**Total (C+D+E+F+G)**				**1,51,18,954.04**
I	Sub Total (Erection Portion + Civil Portion)				1,54,33,503.50
J	**Total Cost (H+I)**				**3,05,52,457.54**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				18,33,147.45
L	**Total Estimated Capital Cost i.e. (J+K)**				3,23,85,604.99
M	GST @ 18% of L				58,29,408.90
M1	CESS @ 1% of L				3,23,856.05
N	**Grand Total (L+M)**				**3,85,38,869.94**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				6000
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**3,85,45,119.94**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2) Mitigation of Overloading issue with load growth of 5 years.
3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

21.Refurbishment of 11KV PAHAL Feeder to mitigate Overloading :

Proposal: Augmentation of Existing 55sqmm AAAC Trunk Conductor to 100sqmm of length 3 kM from Phulnakhara PSS to trunk line to mitigate Overloading Issue.

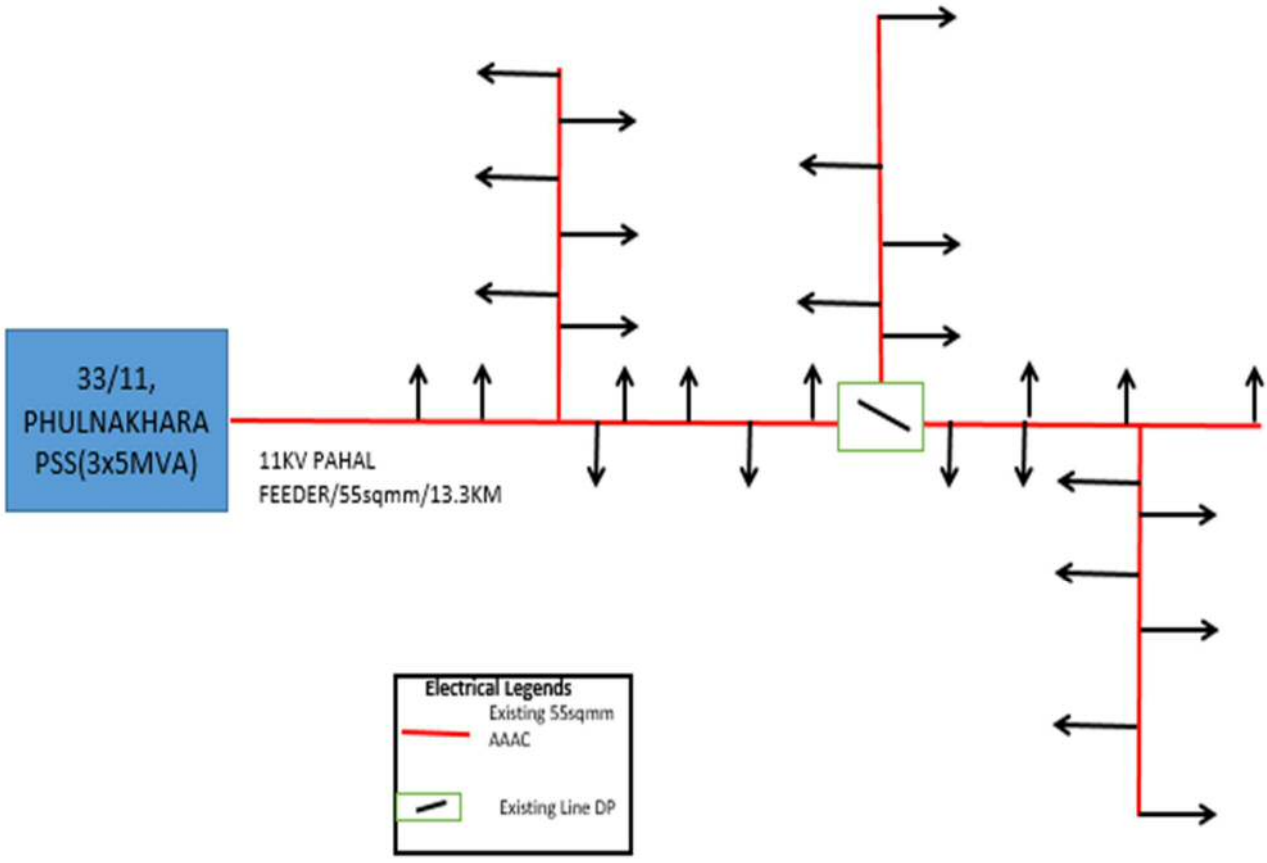
Objective: To Mitigate Overloading of 11 kV PAHAL feeder by augmentation of Trunk Conductor Conductor Size from 55sqmm to 100sqmm to enhance capacity of Conductor.

Existing Scenario:

- At present, 11 KV PAHAL feeder is emanating from 33/11 KV Phulnakhara PSS. Urban consumers are connected from this feeder. Total length of this feeder is 13.3 KM .Existing trunk size is 55sqmm of PAHAL feeder & the feeder loading has reached 90.3% in existing and 135% of loading with load growth against its circuit capacity.
- This feeder is feeding both Urban and Rural consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

LOADING OF PAHAL FEEDER							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 2 years LG**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
PAHAL	3.54	3.2	90.3	OK	3.872	109.3	OVERLOAD

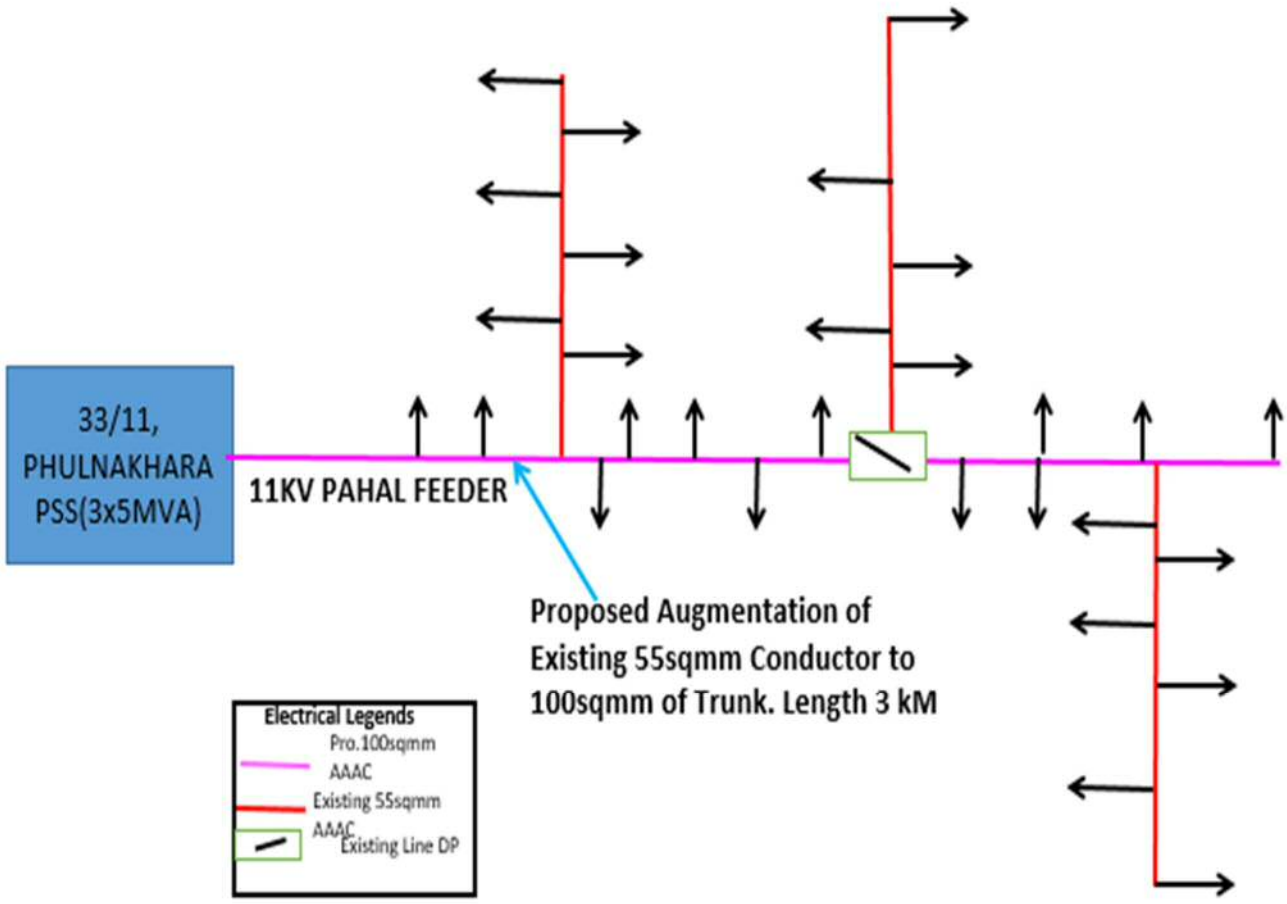
Existing SLD :



Proposed Scenario:

- Augmentation of Existing trunk line from 55sqmm to 100sqmm AAAC of length 3 KM to mitigate Overloading issue of Feeder.
- After proposal of Conductor augmentation approx. overloading of feeder to be mitigate.

Proposed SLD:



Loading Status:

LOADING OF PAHAL FEEDER AFTER PROPOSAL							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
PAHAL	5.18	3.2	61.8	OK	3.87	74.7	OK

Detailed Scope of Work:

- Augmentation of Existing trunk line Conductor from 55sqmm to 100sqmm of length 3 km with interposing poles to strengthening of line and mitigate overloading issue.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BED**
	Name of the Sub-Division : -	RASULGARH
	Name of the Section : -	PHULNAKHARA
	Name of the Work :-	Part- A Augmentation of Conductor for 11kv PAHAL feeder From 55 mm2 to 100 mm2 of length-3 Km with 15 no. Interposing poles
	Scope of work:-	Part- A - Augmentation of Conductor for 11kv PAHAL feeder From 55 mm2 to 100 mm2 of length-3 Km with 15 no. Interposing poles
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	PART-A -Augmentation of Conductor for 11kv PAHAL feeder From 55 mm2 to 100 mm2 of length-3 Km with 15 no. Interposing poles	₹ 22,51,611.38
2	**Total Amount**	**₹ 22,51,611.38**
3	**Total Amount (In Cr.)**	**0.23**

Part- A- Augmentation of Conductor for 11kv PAHAL feeder From 55 mm2 to 100 mm2 of length-3 Km with 15 no. Interposing poles

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	2

MATERIALS OF DP With AB Switch

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
O1				Total CESS @ 1% of (N)	3,863.65
P	**Gross Total Material +Services (N+O+O1) for DP With AB Switch**				**4,59,774.48**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		3		

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	15	3,97,754.25
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	15	14,337.00
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	15	2,655.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	15	1,416.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.51	399.44
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	45.00	4,248.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	18.05	1,597.78
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	45	10,620.00
9	Earthing of Support (Coil Type)	No.	195.88	15	2,938.20
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.93	347.81
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	21.75	2,001.87
12	100 mm2 AAAC	K.M.	64,900.00	9.27	6,01,623.00
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	15.0	3,894.00
15	Yellow Colour Paint for Background	Ltr	259.60	30.0	7,788.00
A				**Total Cost of materials**	**10,51,620.35**
B	Stock, Storage & Insurance i.e 3% of A				31,548.61
C				**Sub Total (A+B)**	**10,83,168.96**
D				Contigency @ 3% of C	32,495.07
E				Tools & Plants @ 2% of C	21,663.38
F				Transportation @ 7.5% of C	81,237.67
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				20,484.34
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				67,348.21
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J				**Sum of (C to I)**	**13,06,397.63**

Civil & Services

1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	6.75	43,875.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.69	10,968.75
3	Dismantling of 55sqmm AAAC	KM	6,300.00	9.27	58,401.00
K				**Total Civil & Services**	**1,13,244.75**
L				**Total Material+Services (I+K)**	**14,19,642.38**
M	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				85,178.54
N				**Sub Total (L+M)**	**15,04,820.92**
O				Total GST @ 18% of (N)	2,70,867.77
O1				Total CESS @ 1% of (N)	15,048.21
P	**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**				**17,90,736.90**
	6% Supervision Charges Summary				
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				21,869.72
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				85,178.54
	Total (6% supervision charges)				**1,07,048.27**
	Gross Total Summary				
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch				4,59,774.48
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB				17,90,736.90
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**				**22,51,611.38**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
2) The above arrangement will help to release power supply to upcoming potential consumers.
3) Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

22.Refurbishment of 11KV Badagada Feeder for Mitigation of Overloading:

Proposal: Feeder refurbishment of existing Cuttack road feeder to bifurgate load of Badagada feeder on Cuttack Road feeder.

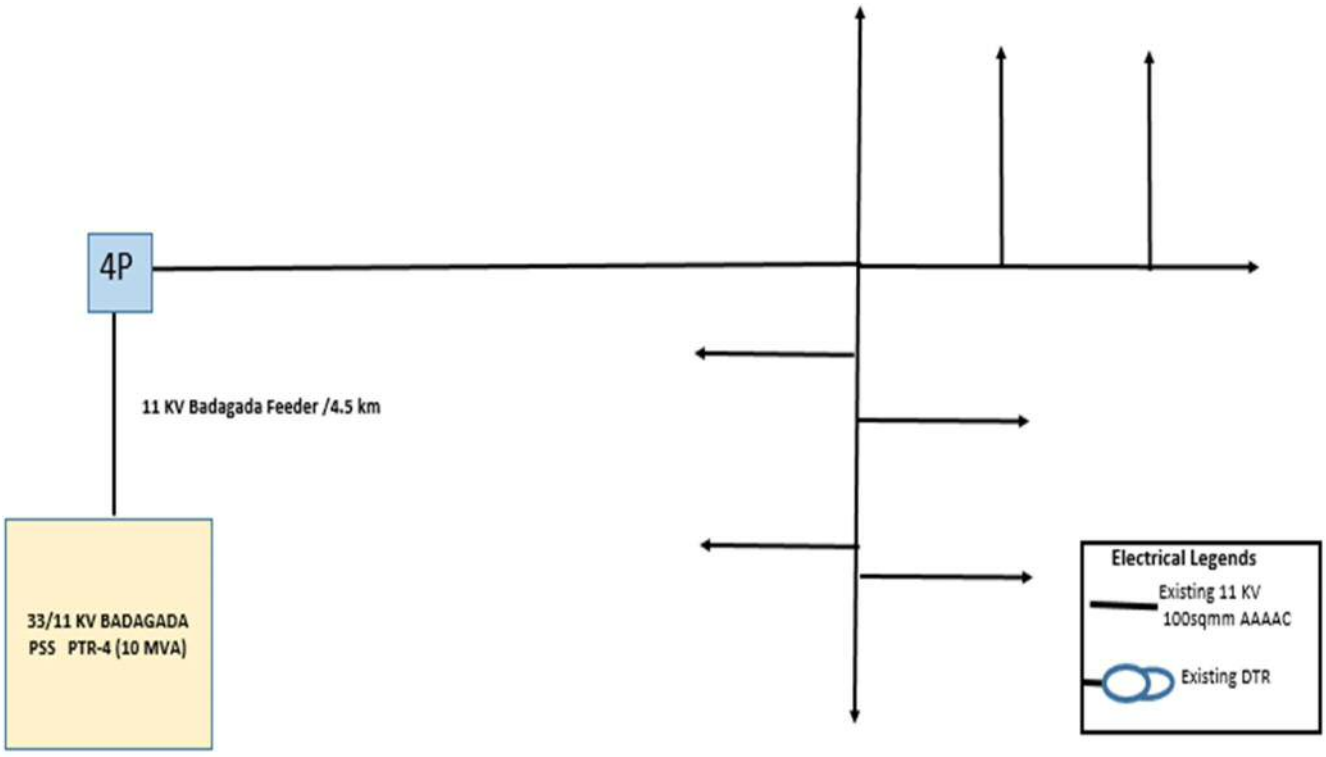
Objective: To Mitigate Overloading issue of 11 kV Badagada feeder by bifurgation of load on other nearby feeder with proposed connectivity.

Existing Scenario:

- At present, 11 KV Badagada feeder is emanating from 33/11 KV Badagada PSS. Urban consumers are connected from this feeder. Total length of this feeder is 8 KM and the peak load is 4.9 MVA. Existing trunk size is 100sqmm of Badagada feeder & the feeder loading has reached 142% of loading considering load growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.
- Cuttack road feeder cable is in faulty condition.

EXISTING LOADING OF BADAGADA FEEDER							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
BADAGADA	5.18	4.92	95.0	OK	7.4	142.0	OVERLOAD

Existing SLD :

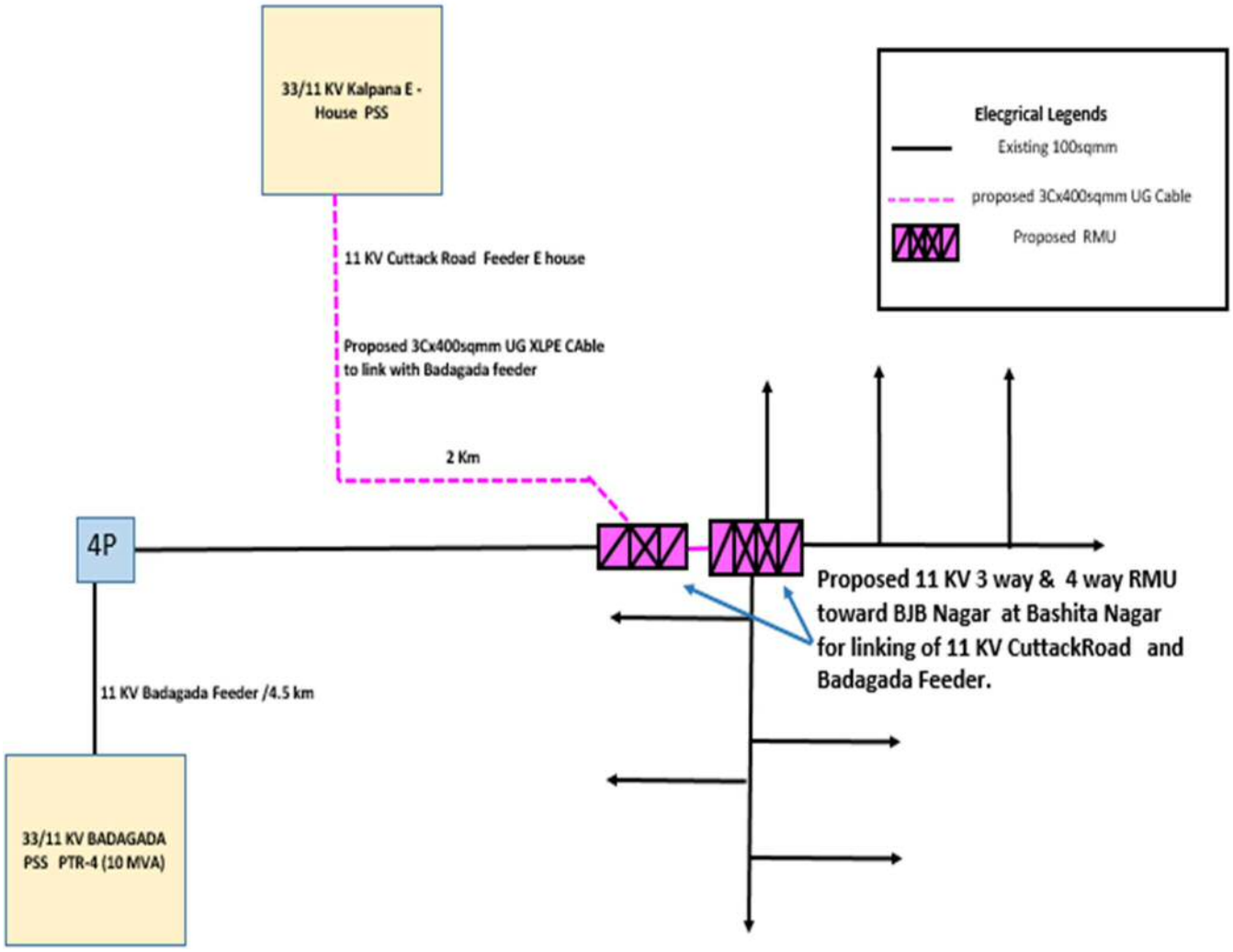


Proposed Scenario:

- Replacement of existing faulty cable of Cuttack Road feeder with new Cable of length 2 KM and connect with Badagada feeder at BJB Nagar through proposed 4 way RMU to bifurcate Badagada Feeder load on two different feeder to mitigate Overloading issue.
- Installation of 4 way RMU proposed for feeder N-1connectivity and bifurcation of load.

LOADING OF BADAGADA FEEDER w.r.t Proposal							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
BADAGADA	5.18	2.9	56.4	OK	4.4	84.3	OK
Cuttack Road	5.75	2.0	34.8	OK	2.99	52.0	OK

Proposed SLD:



BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
Name of the Division :-	**BED**	
Name of the Sub-Division : -	RASULGARH	
Name of the Section : -	LAXMISAGAR	
Name of the Work :-	Construction of U/G Cable - 2 Km without spare (from BADAGADA PSS to BJB Nagar) with 1 nos of 4 way & 3way RMU	
Scope of work:-	Part A- Construction of U/G Cable - 2 Km without spare (from BADAGADA PSS to BJB Nagar) with 1 nos of 4 way RMU and 1- 3 way RMU .	
Names of Schemes: -	TPCODL CAPEX Scheme	
ABSTRACT OF ESTIMATE		
Sl. No.	**Description**	**Amount**

1	Part A- Construction of U/G Cable - 2 Km without spare (from BADAGADA PSS to BJB Nagar) with 1 nos of 4 way RMU and 1- 3 way RMU .	₹ 1,82,79,539.20
2	**Total Amount**	**₹ 1,82,79,539.20**
3	**Total Amount (In Cr.)**	**1.83**

Part A- Construction of U/G Cable - 2 Km without spare (from BADAGADA PSS to BJB Nagar) with 1 nos of 4 way RMU and 1- 3 way RMU .

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.4***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***1.6***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.00	17,70,000.00	35,40,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	8	29,874.06	2,38,992.48
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	7	11,306.76	79,147.32
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	5	16,406.72	82,033.60
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.40	6,94,910.00	2,77,964.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***1***		
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***1***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	5,57,710.00	5,57,710.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2	56,515.00	1,13,030.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.0	77,990.00	1,55,980.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4	6,766.00	27,064.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**63,79,471.80**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)

1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.40	94,500.00	37,800.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	2,400.00	19,200.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	1,900.80	13,305.60
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	1,900.80	9,504.00
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.6	28,00,000.00	44,80,000.00
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.40	1,04,114.67	41,645.87
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	15,000.00	15,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2.0	27,296.35	54,592.70
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.0	1,22,488.27	2,44,976.54
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4.0	612.54	2,450.16
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**49,50,623.87**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	40	1,463.40	58,536.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	67	1,012.00	67,804.00
	Sub Total (Civil Portion) (in Rs.)				**22,75,778.85**
A	**Sub Total (Supply Portion)**				**63,79,471.80**

B	Stock, Storage & Insurance @ 3 % of A	1,91,384.15
C	**Sub Total (A+B)**	**65,70,855.95**
D	Contingency @ 3 % of C	1,97,125.68
E	Tools & Plants Charges @ 2% of C (considered for earthing items)	150.22
F	Transportation @ 7.5% of C	4,92,814.20
G	Erection Charges @ 10% of earthing items	751.12
H	**Total (C+D+E+F+G)**	**72,61,697.17**
I	Sub Total (Erection Portion + Civil Portion)	72,26,402.72
J	**Total Cost (H+I)**	**1,44,88,099.89**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	8,69,285.99
L	**Total Estimated Capital Cost i.e. (J+K)**	1,53,57,385.88
M	GST @ 18% of L	27,64,329.46
M1	CESS @ 1% of L	1,53,573.86
N	**Grand Total (L+M)**	**1,82,75,289.20**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**1,82,79,539.20**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2) Mitigation of Overloading issue with load growth of 5 years.
3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply and provide N-1 connectivity to feeder.

23.To mitigate 11kV Water Works Feeder Overloading issue :

Proposal: Construction of New 11 kV feeder from Badagada PSS to Akshay Sahi DTR with laying of 3Cx400sqmm UG XLPE CABLE of length 2.5 kM with installtion of 11 kV 3 Way RMU for linking of line.

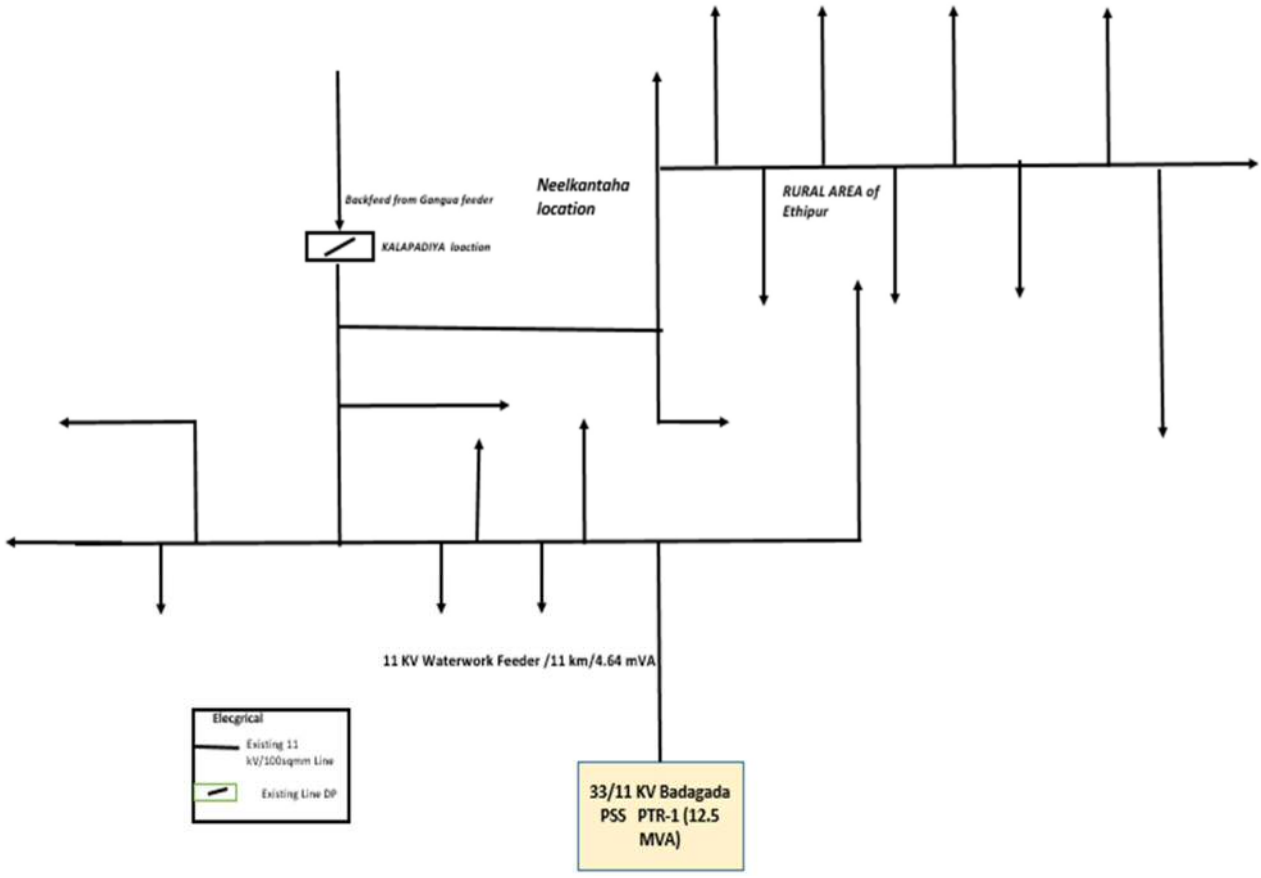
Objective: To Mitigate Overloading issue of 11 kV Water works feeder by bifurgation of load into two parts.

Existing Scenario:

- At present, 11 KV Water works feeder is emanating from 33/11 KV Badagada PSS. Urban consumers are connected from this feeder. Total length of this feeder is 11.56 KM and the peak load is 4.64 MVA. Existing trunk size is 100sqmm of Water works feeder & the feeder loading has reached 89.6% in existing scenario and 133.9% of loading with load growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11kV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

EXISTING LOADING OF WATER WORKS FEEDER							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
WATER WORKS	5.18	4.64	89.6	OK	6.9	133.9	OVERLOAD

Existing SLD :

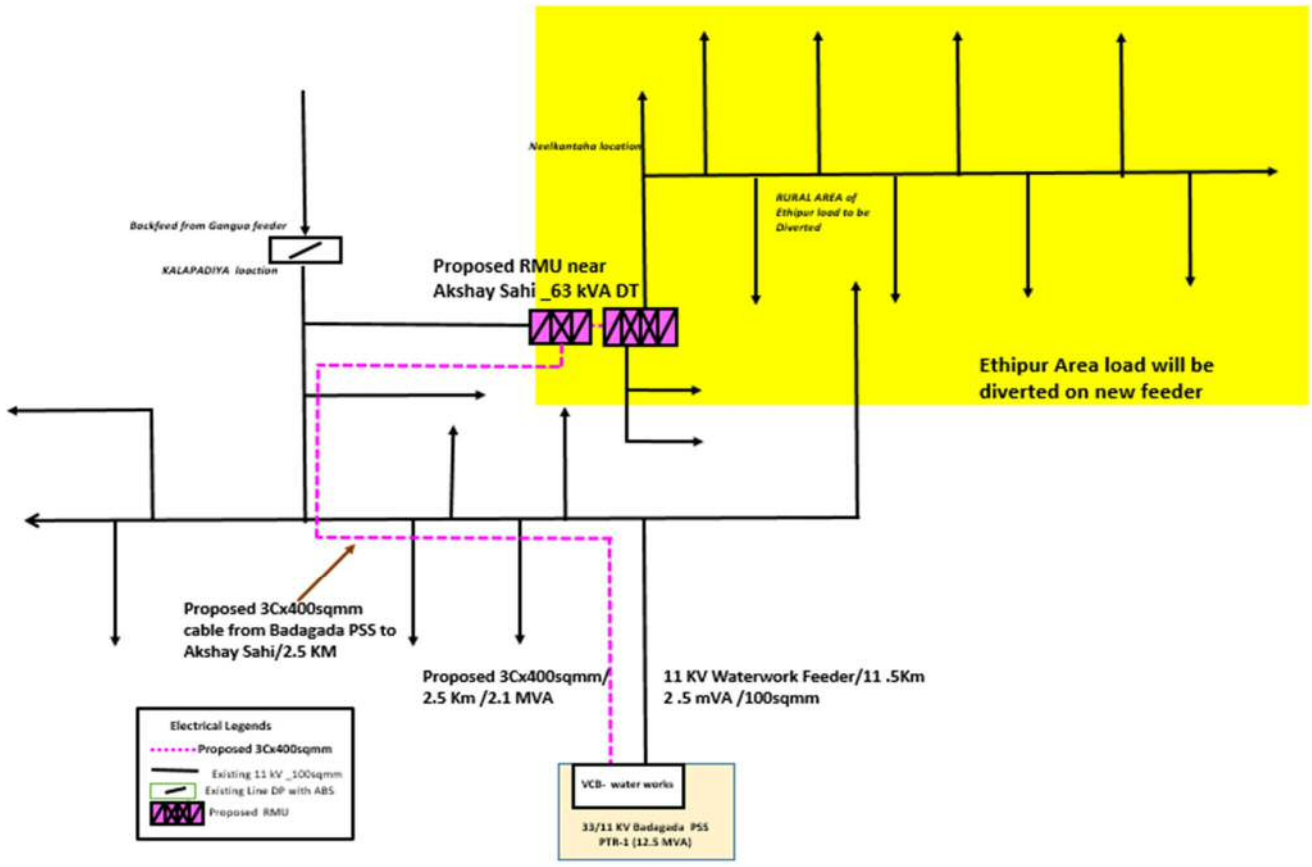


Proposed Scenario:

- Laying of UG Cable of length 2.5 km through HDD from PSS to Akshay Sahi DTR with RMU installation to bifurcate Water works Feeder load on two feeder to mitigate Overloading issue.
- After proposal of New feeder approx. 2.1 MVA load to be diverted on new feeder.

LOADING OF WATER WORKS w.r.t Proposal							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
WATER WORKS	5.18	2.5	48.3	OK	3.7	72.2	OK
NEW WATER WORKS	5.75	2.1	37.2	OK	3.20	55.6	OK

Proposed SLD :



Detailed Scope of Work:

- Laying of UG Cable of length 2.5 km from PSS to Abhay Sahi DTR.
- Installation of 1 nos of 3 way& 4way RMU near Abhay Sahi DTR for linking with feeder.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	**BED**
Name of the Sub-Division : -	TEMPLE
Name of the Section : -	BADAGADA
Name of Feeder	WATER WORKS

Name of the Work :-	Part A- Construction of U/G Cable - 2.5 Km without spare (from BADAGADA PSS to Akshay Sahi DTR) with 1 nos of 3 way RMU &4Way RMU.
Scope of work:-	Part A- Construction of U/G Cable - 2.5 Km without spare (from BADAGADA PSS to Akshay Sahi DTR) with 1 nos of 3 way RMU &4Way RMU.
Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part A- Construction of U/G Cable - 2.5 Km without spare (from BADAGADA PSS to Akshay Sahi DTR) with 1 nos of 3 way RMU & 4Way RMU	₹ 2,19,75,513.71
2	**Total Amount**	**₹ 2,19,75,513.71**
3	**Total Amount (In Cr.)**	**2.20**

Part A- Construction of U/G Cable - 2.5 Km without spare (from BADAGADA PSS to Akshay Sahi DTR) with 1 nos of 3 way RMU					
Supply Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.5***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.50	17,70,000.00	44,25,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	10	29,874.06	2,98,740.60
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	7	11,306.76	79,147.32
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.50	6,94,910.00	3,47,455.00
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***1***		
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***1***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	5,57,710.00	5,57,710.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2.5	56,515.00	1,41,287.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.5	77,990.00	1,94,975.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	5	6,766.00	33,830.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**74,51,322.70**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.50	94,500.00	47,250.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	10	2,400.00	24,000.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	1,900.80	13,305.60
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured	km	2	28,00,000.00	56,00,000.00

	(extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.				
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.50	1,04,114.67	52,057.34
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	15,000.00	15,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2.5	27,296.35	68,240.88
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.5	1,22,488.27	3,06,220.68
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	5.0	612.54	3,062.70
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**61,68,889.39**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	350	700.00	2,45,000.00
1.1.b	Earth work excavation of **hard rock**	Cum	150	1,720.00	2,58,000.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	300	171.55	51,465.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	200	2,500.00	5,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	300	202.00	60,600.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.5	26,43,670.63	13,21,835.32
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	83	1,012.00	83,996.00
	Sub Total (Civil Portion) (in Rs.)				**27,67,643.72**
A	**Sub Total (Supply Portion)**				**74,51,322.70**
B	Stock, Storage & Insurance @ 3 % of A				2,23,539.68
C	**Sub Total (A+B)**				**76,74,862.38**
D	Contingency @ 3 % of C				2,30,245.87
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				5,75,614.68
G	Erection Charges @ 10% of earthing items				751.12
H	**Total (C+D+E+F+G)**				**84,81,624.27**

I	Sub Total (Erection Portion + Civil Portion)	89,36,533.10
J	**Total Cost (H+I)**	**1,74,18,157.37**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	10,45,089.44
L	**Total Estimated Capital Cost i.e. (J+K)**	1,84,63,246.81
M	GST @ 18% of L	33,23,384.43
M1	CESS @ 1% of L	1,84,632.47
N	**Grand Total (L+M)**	**2,19,71,263.71**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**2,19,75,513.71**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2) Mitigation of Overloading issue with load growth of 5 years.
3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

24.To mitigate 11KV Badagada Lingraj Feeder Overloading issue :

Proposal: Construction of New 11 kV linking line from Badagada PSS to Proposed 4 way RMU with laying of 3Cx400sqmm UG XLPE CABLE of length 0.2 kM to divert load on Rajarani feeder.

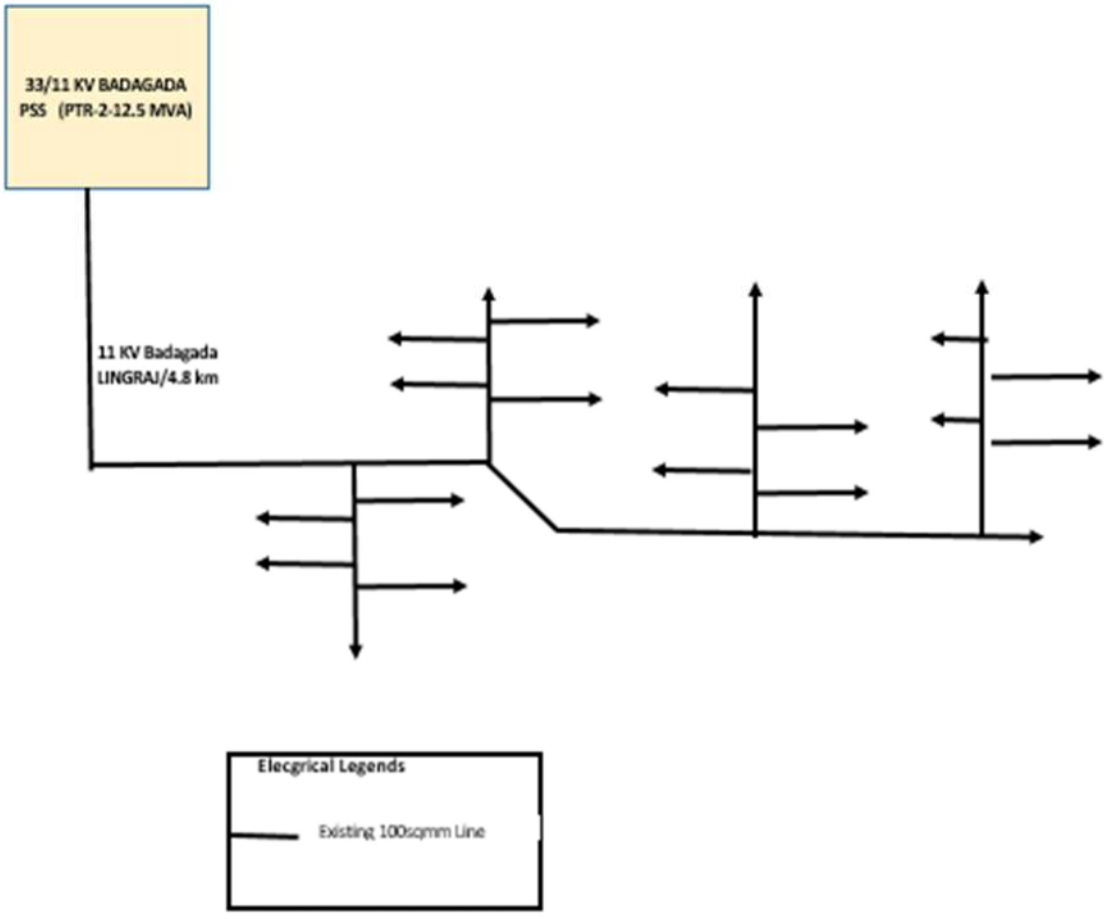
Objective: To Mitigate Overloading issue of 11 kV Badagada Lingraj feeder by bifurgation of load into two feeder.

Existing Scenario:

- At present, 11 KV Badagada Lingraj feeder is emanating from 33/11 KV Badagada PSS. Urban consumers are connected from this feeder. Total length of this feeder is 8 KM and the peak load is 4.91 MVA. Existing trunk size is 100sqmm of Badagada Lingraj feeder & the feeder loading has reached 94.8% in the existing scenario and 114.7% of loading with load growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

EXISTING LOADING OF Badagada Lingraj FEEDER							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 2 years LG**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
BADAGADA LINGRAJ	5.18	4.91	94.8	OK	5.9	114.7	OVERLOAD
RAJARANI	5.18	3.3	63.7	OK	4.0	77.1	OK

Existing SLD :

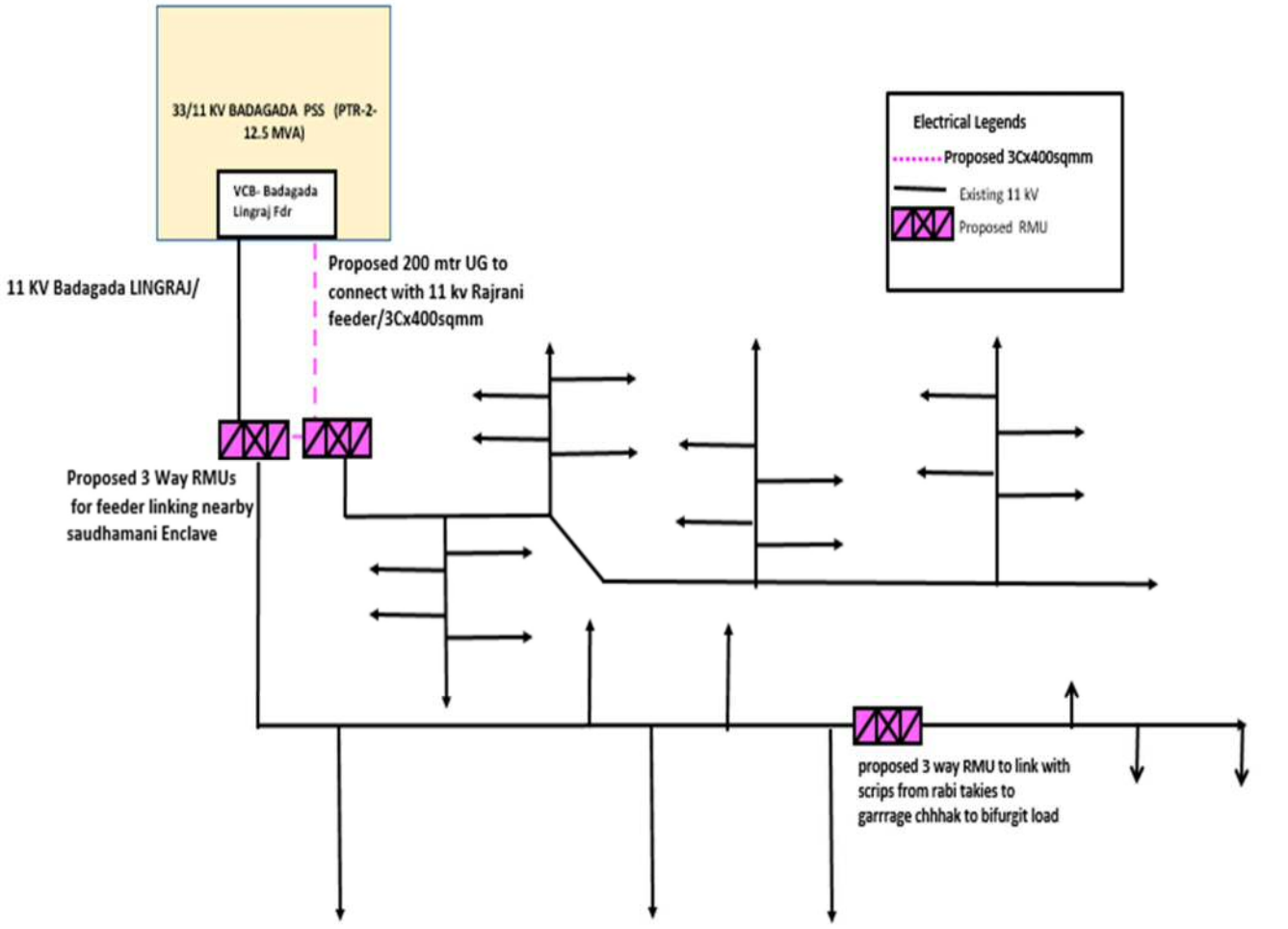


Proposed Scenario:

- Laying of UG Cable of length 0.2 km from PSS to proposed 4W RMU to bifurcate load on two feeder to mitigate Overloading issue.
- Installation of 3 Nos of RMU for feeder connectivity and bifurcation of load.

LOADING OF BADAGADA LINGRAJ FEEDER w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
BADAGADA LINGRAJ	5.18	3.50	67.6	OK	4.2	81.7	OK
RAJARANI	5.75	4.7	81.9	OK	5.7	99.1	OK

Proposed SLD:



Detailed Scope of Work:

- Laying of UG Cable of length 0.2 km from PSS to Proposed RMU and installation of 3 nos of 3 Way RMU for linking and load bifurcation of feeder load.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BED**
	Name of the Sub-Division : -	TEMPLE
	Name of the Section : -	BADAGADA

	Name of the Work :-	Part- A :Construction of U/G Cable - 0.2 Km with 1Run Spare in HDD Method (from Badagada PSS to Rajararani fdr link) with 3 nos of 3 way RMU.
	Scope of work:-	Part- A :Construction of U/G Cable - 0.2 Km with 1Run Spare in HDD Method (from Badagada PSS to Rajararani fdr link) with 3 nos of 3 way RMU.
	Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A :Construction of U/G Cable - 0.2 Km with 1Run Spare in HDD Method (from Badagada PSS to Rajararani fdr link) with 3nos of 3WRMU.	₹ 72,14,433.26
3	**Total Amount**	**₹ 72,14,433.26**
4	**Total Amount (In Cr.)**	**0.72**

Part- A :Construction of U/G Cable - 0.2 Km with 1Run Spare in HDD Method (from Badagada PSS to Rajarani fdr link) with 3nos of 3way RMU.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***	***0.2***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.40	17,70,000.00	7,08,000.00
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***3***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	3	3,99,034.00	11,97,102.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	39.60	88.50	3,504.60
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	6	1,239.00	7,434.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	0.2	56,515.00	11,303.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	0.2	77,990.00	15,598.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	6	7,535.00	45,210.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3	4,35,542.00	13,06,626.00
	Sub Total (Supply Portion) (in Rs.)				**35,61,712.48**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)

1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0.4	28,00,000.00	11,20,000.00
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	3	15,000.00	45,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	0.2	27,296.35	5,459.27
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	0.2	1,22,488.27	24,497.65
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	6.0	1,225.07	7,350.42
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3.0	6,124.36	18,373.08
	Sub Total (Erection Portion) (in Rs.)				**12,58,696.42**

Civil Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	3	23,145.30	69,435.90
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	60	3,600.00	2,16,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	6	2,407.00	14,442.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	7	1,012.00	7,084.00
	Sub Total (Civil Portion) (in Rs.)				**4,00,619.50**
A	**Sub Total (Supply Portion)**				**35,61,712.48**
B	Stock, Storage & Insurance @ 3 % of A				1,06,851.37
C	**Sub Total (A+B)**				**36,68,563.85**
D	Contingency @ 3 % of C				1,10,056.92
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				225.34
F	Transportation @ 7.5% of C				2,75,142.29
G	Erection Charges @ 10% of earthing items				1,126.68
H	**Total (C+D+E+F+G)**				**40,55,115.07**
I	Sub Total (Erection Portion + Civil Portion)				16,59,315.92

J	**Total Cost (H+I)**	**57,14,430.99**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	3,42,865.86
L	**Total Estimated Capital Cost i.e. (J+K)**	60,57,296.85
M	GST @ 18% of L	10,90,313.43
M1	CESS @ 1% of L	60,572.97
N	**Grand Total (L+M)**	**72,08,183.26**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	6000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**72,14,433.26**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2) Mitigation of Overloading issue with load growth of 2 years.
3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

25.Refurbishment of 11kV Mancheswar Feeder -3 to mitigate Overloading:

Proposal: Augmentation of Existing 80 sqmm AAAC Trunk Conductor to 100sqmm of length 2.5 kM from Mancheswar PSS to trunk line of Samagadia area and Linking with Bhotapada feeder to divert load for mitigation of Overloading Issue.

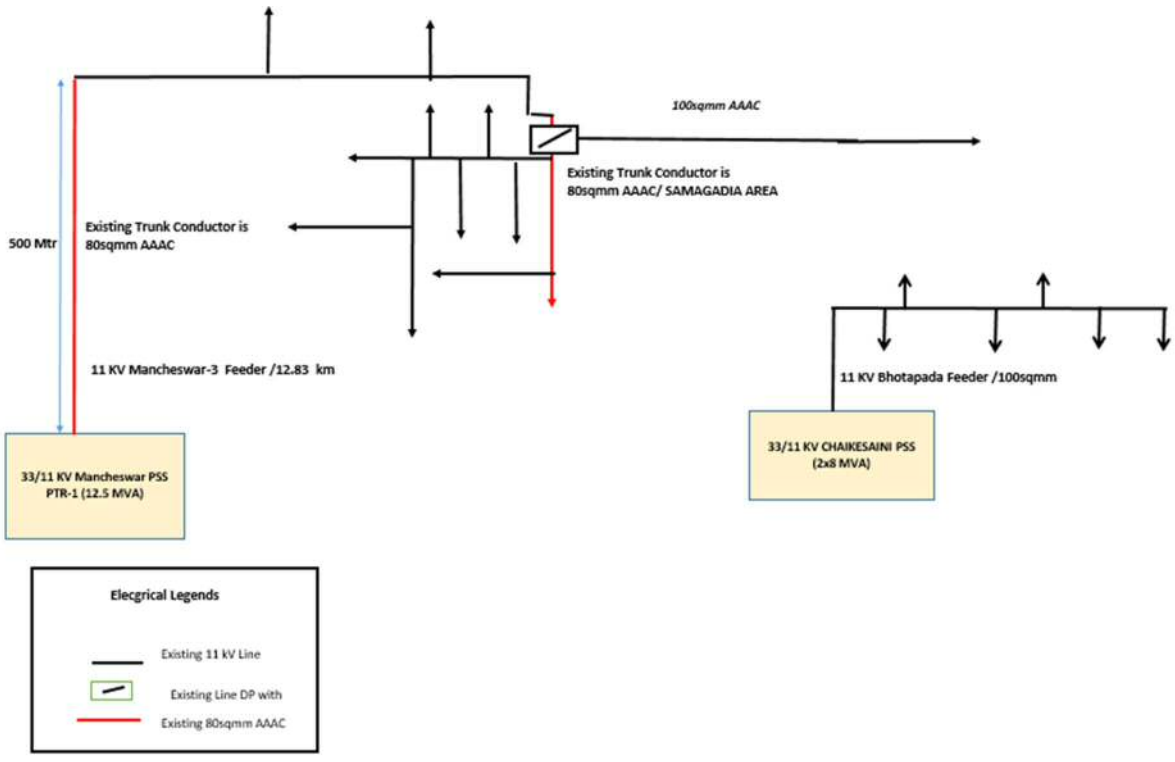
Objective: To Mitigate Overloading of 11 kV Mancheswar feeder-3 by augmentation of Trunk Conductor Conductor Size from 80 sqmm to 100sqmm to enhance capacity of Conductor and linking with Bhotapada feeder of Chaikesaini PSS to divert load.

Existing Scenario:

- At present, 11 KV Mancheswar feeder-3 is emanating from 33/11 KV Mancheswar PSS. Urban consumers are connected from this feeder. Total length of this feeder is 12.8 KM. Existing trunk size is 80 sqmm of Mancheswar feeder & the feeder loading has reached 114.5% in existing and 138.6% of loading with load growth against its circuit capacity.
- This feeder is feeding both Urban and Industrial consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

EXISTING LOADING OF Mancheswar FEEDER-3							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 2 years LG**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
MANCHESWAR FDR-3	4.51	5.17	114.5	OVERLOAD	6.3	138.6	OVERLOAD

Existing SLD :



Proposed Scenario:

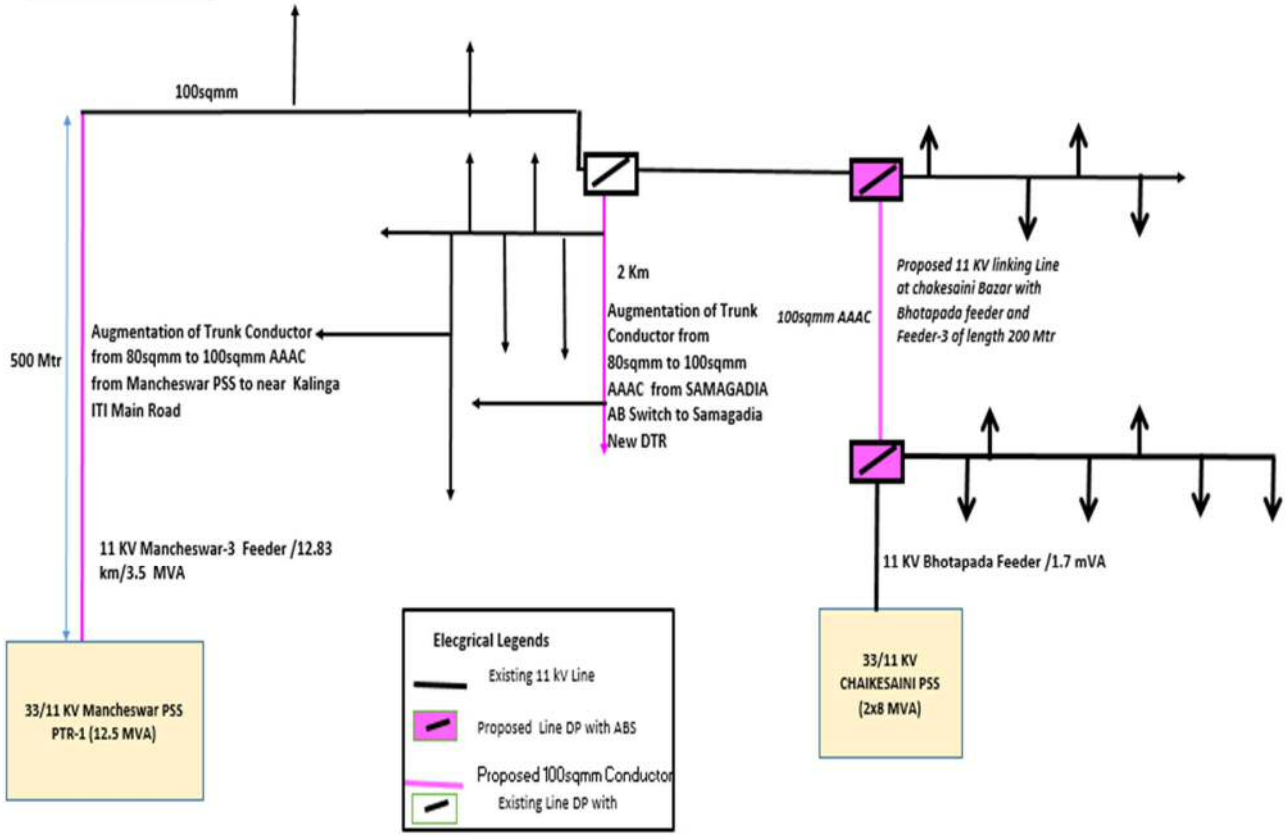
- Augmentation of existing trunk size from 80 sqmm to 100sqmm of length 2.5 km from Mancheswar PSS to Samagadia Area. And linking of 11 KV line with existing Bhotapada feeder

emanated from Chaieksaini PSS with 200 Mtr connectivity of linking line along with DP AB switch to bifurcate load of feeder.

- After proposal of New feeder approx. 1.7 MVA load to be diverted on new feeder.

LOADING OF MANCHESWAR FEEDER-3 w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
MANCHESWAR FDR-3	5.18	3.50	67.6	OK	4.2	81.7	OK
BHOTAPADA	5.18	1.7	32.2	OK	2.0	39.0	OK

Proposed SLD:



Detailed Scope of Work:

- Augmentation of 11kV Trunk line of length 2.5 KM from Mancheswar PSS to Samagadia Area from 80sqmm to 100sqmm AAAC .
- Linking of Mancheswar Feeder-3 to Bhotapada feeder of Chakeisiani PSS using 100sqmm AAAC conductor of length 200 Mtr and 2 nos of DP with AB Switch for connectivity and load bifurcation.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	**BED**
Name of the Sub-Division : -	RASULGARH
Name of the Section : -	MANCHESWAR
FEEDER Name	MANCHESWAR FEEDER-3
Name of the Work :-	Part- A- Augmentation of Conductor for 11kv Mancheswar feeder-3 From 80 mm2 to 100 mm2 of length-2.5 Km and 2 no of Line DP with AB switch .

	Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor For connectivity of fdr -3 with Botapada feeder of length-0.2 Km
Scope of work:-	Part- A- Augmentation of Conductor for 11kv Mancheswar feeder-3 From 80 mm2 to 100 mm2 of length-2.5 Km and 2 no of Line DP with AB switch . Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor For connectivity of fdr -3 with Botapada feeder of length-0.2 Km
Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	Part- A- Augmentation of Conductor for 11kv RASULGARH feeder From 55 mm2 to 100 mm2 of length-1.5 Km with 8 no. Interposing poles and 1no of Line DP with AB switch .	₹ 19,78,473.36
2	Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor For connectivity of fdr -3 with Botapada feeder of length-0.2 Km	₹ 2,16,843.84
3	**Total Amount**	**₹ 21,95,317.21**
4	**Total Amount (In Cr.)**	**0.22**

Part- A- Augmentation of Conductor for 11kv Mancheswar feeder-3 From 80 mm2 to 100 mm2 of length-2.5 Km and 2 no of Line DP with AB switch .

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	2

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80

18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
O1				Total CESS @ 1% of (N)	3,863.65
P				**Gross Total Material +Services (N+O+O1) for DP With AB Switch**	**4,59,774.48**
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		2.5		

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	13.0	3,44,720.35
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	13	12,425.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	13	2,301.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	13	1,227.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	3.91	346.19
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	39.00	3,681.60

7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	15.65	1,384.74
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	39	9,204.00
9	Earthing of Support (Coil Type)	No.	195.88	13	2,546.44
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.41	301.43
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	18.85	1,734.95
12	100 mm2 AAAC	K.M.	64,900.00	7.73	5,01,352.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	13.0	3,374.80
15	Yellow Colour Paint for Background	Ltr	259.60	26.0	6,749.60
A				**Total Cost of materials**	**8,91,350.20**
B				Stock, Storage & Insurance i.e 3% of A	26,740.51
C				**Sub Total (A+B)**	**9,18,090.71**
D				Contigency @ 3% of C	27,542.72
E				Tools & Plants @ 2% of C	18,361.81
F				Transportation @ 7.5% of C	68,856.80
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	17,753.10
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	56,302.87
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**11,06,908.02**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	5.85	38,025.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.46	9,506.25
3	Dismantling of 55sqmm AAAC	KM	6,300.00	7.73	48,667.50
K				**Total Civil & Services**	**96,198.75**
L				**Total Material+Services (I+K)**	**12,03,106.77**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	72,186.41
N				**Sub Total (L+M)**	**12,75,293.18**
O				Total GST @ 18% of (N)	2,29,552.77
O1				Total CESS @ 1% of (N)	12,752.93
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**15,17,598.88**
	6% Supervision Charges Summary				
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	72,186.41
				Total (6% supervision charges)	**94,056.13**
	Gross Total Summary				
2				Gross Total Material +Services (N+O+O1) for DP With AB Switch	4,59,774.48
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	15,17,598.88
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**19,78,473.36**

Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor For connectivity of fdr -3 with Botapada feeder of length-0.2 Km					
11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor					
11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)		0.2			
MATERIALS FOR 11 KV Pin Points With WPB					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	3	79,550.85
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	3	2,867.40

3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	3	531.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	3	283.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.90	79.89
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	9.00	849.60
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	3.61	319.56
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	9	2,124.00
9	Earthing of Support (Coil Type)	No.	195.88	3	587.64
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.79	69.56
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	4.35	400.37
12	100 mm2 AAAC	K.M.	64,900.00	0.62	40,108.20
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	3.0	778.80
15	Yellow Colour Paint for Background	Ltr	259.60	6.0	1,557.60
A				**Total Cost of materials**	**1,30,107.67**
B				Stock, Storage & Insurance i.e 3% of A	3,903.23
C				**Sub Total (A+B)**	**1,34,010.90**
D				Contigency @ 3% of C	4,020.33
E				Tools & Plants @ 2% of C	2,680.22
F				Transportation @ 7.5% of C	10,050.82
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	4,096.87
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	5,207.35
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,60,066.48**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.35	8,775.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.34	2,193.75
K				**Total Civil & Services**	**10,968.75**
L				**Total Material+Services (I+K)**	**1,71,035.23**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	10,262.11
N				**Sub Total (L+M)**	**1,81,297.35**
O				Total GST @ 18% of (N)	32,633.52
O1				Total CESS @ 1% of (N)	1,812.97
P				**Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB**	**2,15,743.84**
	6% Supervision Charges Summary				
1				Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	-
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	-
3				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	-
4				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	-
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	10,262.11
				Total (6% supervision charges)	**10,262.11**
	Gross Total Summary				
5				Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	2,15,743.84
Q				Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R				Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S				Inspection Fee of Drawing Checking and Approval	400.00
T				Final decision by electrical Inspector	500.00
U				**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**2,16,843.84**

Benefit:

1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2) Mitigation of Overloading issue with load growth of 2 years.
3) Faulty part of feeder can be isolate through proposed DP to provide reliable supply.

26.Refurbishment of 11KV Mancheswar Feeder -2 to mitigate Overloading :

Proposal: Installation of 11 KV 4Way RMU for linking and bigurcation of load into two parts.

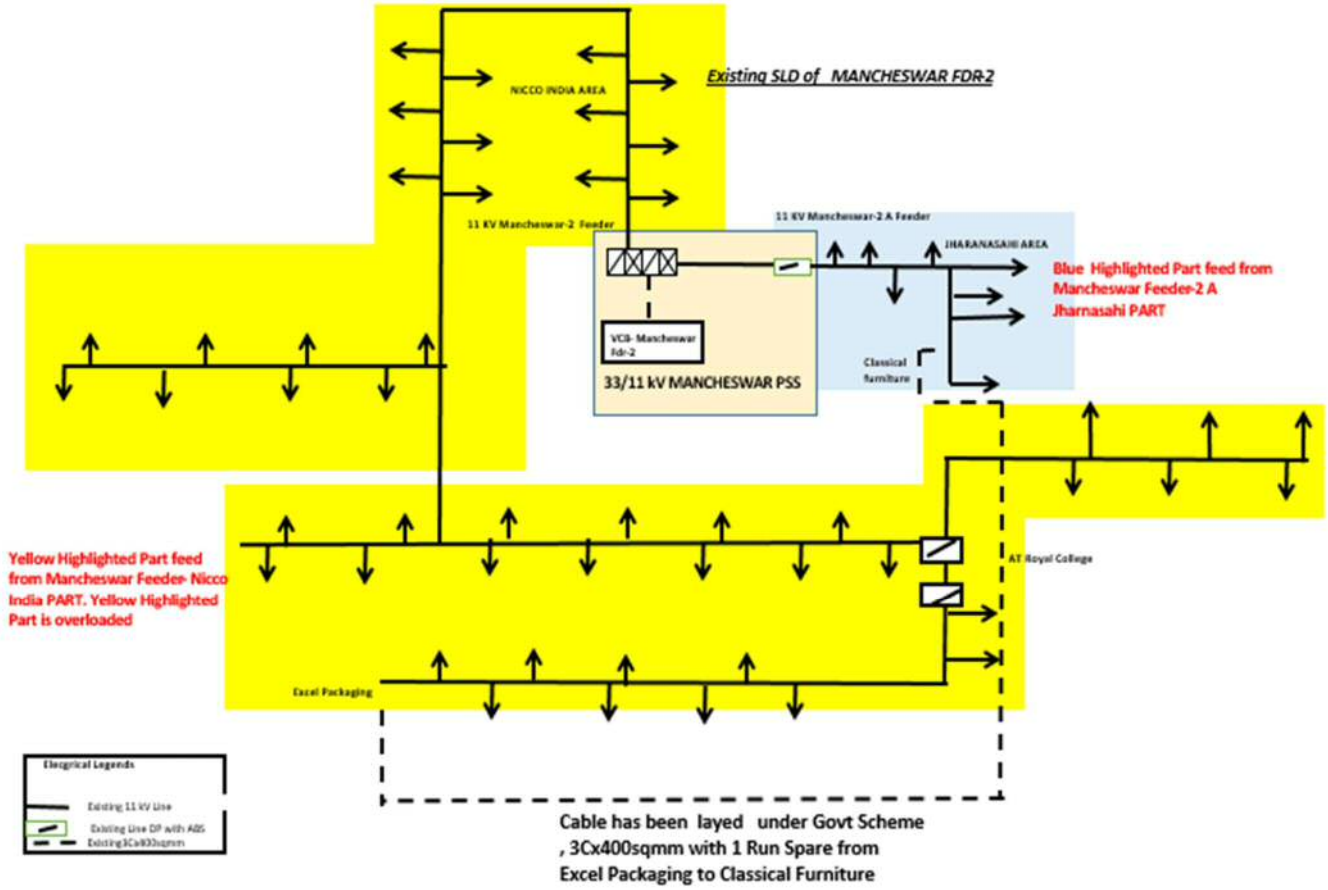
Objective: To Mitigate Overloading issue of 11 kV Mancheswar feeder -2 by bifurgation of load into two parts through connectivity with RMU.

Existing Scenario:

- At present, 11 KV Mancheswar feeder-2 is emanating from 33/11 KV Mancheswar PSS. Urban consumers are connected from this feeder. Total length of this feeder is 10.36 KM .Existing trunk size is 100 sqmm of Mancheswar feeder & the feeder loading has reached 89% in the existing scenario and 133.1% of loading with load growth against its circuit capacity.
- This feeder is feeding both Urban and Industrial consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.
- Cable is already laying at site of 3Cx400sqmm with spare to be used for Bifurcation of load.

EXISTING LOADING OF Mancheswar FEEDER-2							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
MANCHESWAR FDR-2	5.18	4.61	89.0	OK	6.9	133.1	OVERLOAD

Existing SLD:



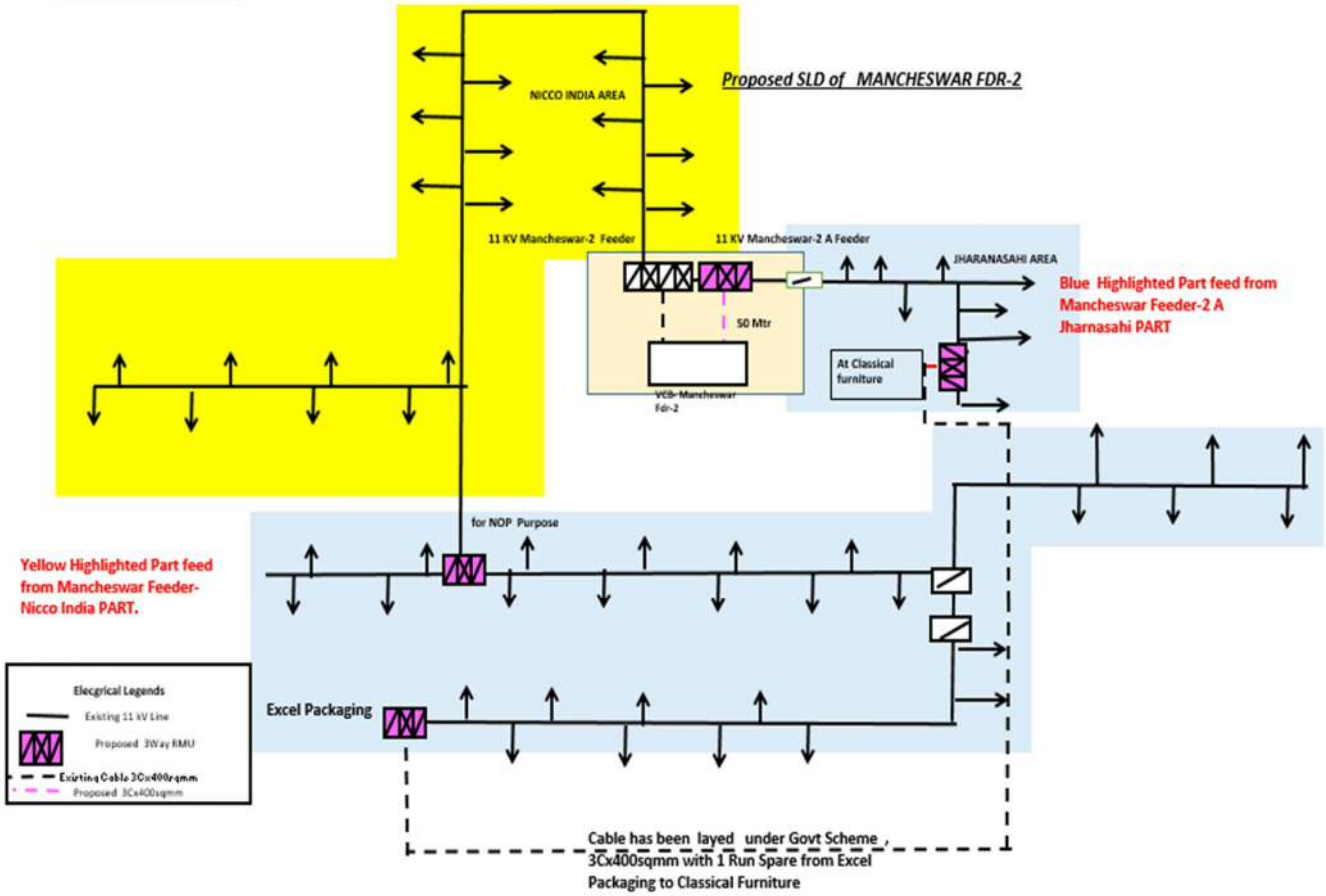
Proposed Scenario:

- Installation of 11 KV 4 way RMU at Royal College to connect Mancheswar Fdr-2 and Mancheswar feeder -2A through proposed RMU to bifurcate load of feeder into two parts. And 2 Nos of DP with AB switch is proposed for isolation.

- After proposal ,approx. 2 MVA load to be diverted on other feeder.
- Cable is already laying at site for linking .

LOADING OF MANCHESWAR FEEDER-2 w.r.t Proposal							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
MANCHESWAR FDR-2	5.18	2.60	50.2	OK	4.2	80.5	OK
MANCHESWAR FDR-2 A	5.18	2.0	38.8	OK	3.2	62.2	OK

Proposed SLD:



Detailed Scope of Work:

- Linking of Mancheswar Feeder-2 and Mancheswar Feeder -2A through existing cable from Excel packaging to Classical Furniture with proposed 4 Nos of 3Way RMU for bifurcation of load and isolation of Faulty parts.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	**BED**
Name of the Sub-Division : -	RASULGARH
Name of the Section : -	MANCHESWAR
Name of feeder	MANCHESWAR -2
Name of the Work :-	Installation of 4nos of - 3 Way RMU for linking of line and laying of UG Cable of 50 mtr from VCB to proposed RMU.
Scope of work:-	PART A-Installation of 4nos of - 3 Way RMU for linking of line and laying of UG Cable of 50 mtr from VCB to proposed RMU.

Names of Schemes: -	TPCODL CAPEX Scheme

ABSTRACT OF ESTIMATE

Sl. No.	Description	Amount
1	PART A-Installation of 4nos of - 3 Way RMU for linking of line and laying of UG Cable of 50 mtr from VCB to proposed RMU.	₹ 66,01,816.98
2	**Total Amount**	**₹ 66,01,816.98**
3	**Total Amount (In Cr.)**	**0.66**

PART A_Installation of 4nos of - 3 Way RMU for linking of line and laying of UG Cable of 50 mtr from VCB to proposed RMU.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.05***		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.05	17,70,000.00	88,500.00
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.05	6,94,910.00	34,745.50
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***4***		
b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***0***		
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	5,57,710.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	52.80	88.50	4,672.80
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	8	1,239.00	9,912.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	8	7,535.00	60,280.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4	4,35,542.00	17,42,168.00
	Sub Total (Supply Portion) (in Rs.)				**38,10,074.43**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.05	94,500.00	4,725.00

1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	4	15,000.00	60,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	8.0	1,225.07	9,800.56
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4.0	6,124.36	24,497.44
	Sub Total (Erection Portion) (in Rs.)				**1,49,733.96**

Civil Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	35	700.00	24,500.00
1.1.b	Earth work excavation of **hard rock**	Cum	15	1,720.00	25,800.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	30	171.55	5,146.50
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	20	2,500.00	50,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	30	202.00	6,060.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.05	26,43,670.63	1,32,183.53
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	4	23,145.30	92,581.20
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	80	3,600.00	2,88,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	8	2,407.00	19,256.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	2	1,012.00	2,024.00
	Sub Total (Civil Portion) (in Rs.)				**7,39,208.83**
A	**Sub Total (Supply Portion)**				**38,10,074.43**
B	Stock, Storage & Insurance @ 3 % of A				1,14,302.23
C	**Sub Total (A+B)**				**39,24,376.66**
D	Contingency @ 3 % of C				1,17,731.30
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				300.45
F	Transportation @ 7.5% of C				2,94,328.25
G	Erection Charges @ 10% of earthing items				1,502.23
H	**Total (C+D+E+F+G)**				**43,38,238.89**
I	Sub Total (Erection Portion + Civil Portion)				8,88,942.80

J	**Total Cost (H+I)**	**52,27,181.69**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	3,13,630.90
L	**Total Estimated Capital Cost i.e. (J+K)**	55,40,812.59
M	GST @ 18% of L	9,97,346.27
M1	CESS @ 1% of L	55,408.13
N	**Grand Total (L+M)**	**65,93,566.98**
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	8000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
T	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**66,01,816.98**

Benefit:

1)To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.

2) Mitigation of Overloading issue with load growth of 5 years.

3.Faulty part of feeder can be isolate through proposed DP to provide reliable supply.

27. Refurbishment of 11KV OTM feeder and Manguli feeder for Mitigation of Overloading of Manguli feeder

Proposal:

Proposal for Refurbishment of 11KV OTM feeder and Manguli feeder for Mitigation of Overload of Manguli feeder.

Objective: To mitigation of Overloading issue of 11KV Manguli feeder.

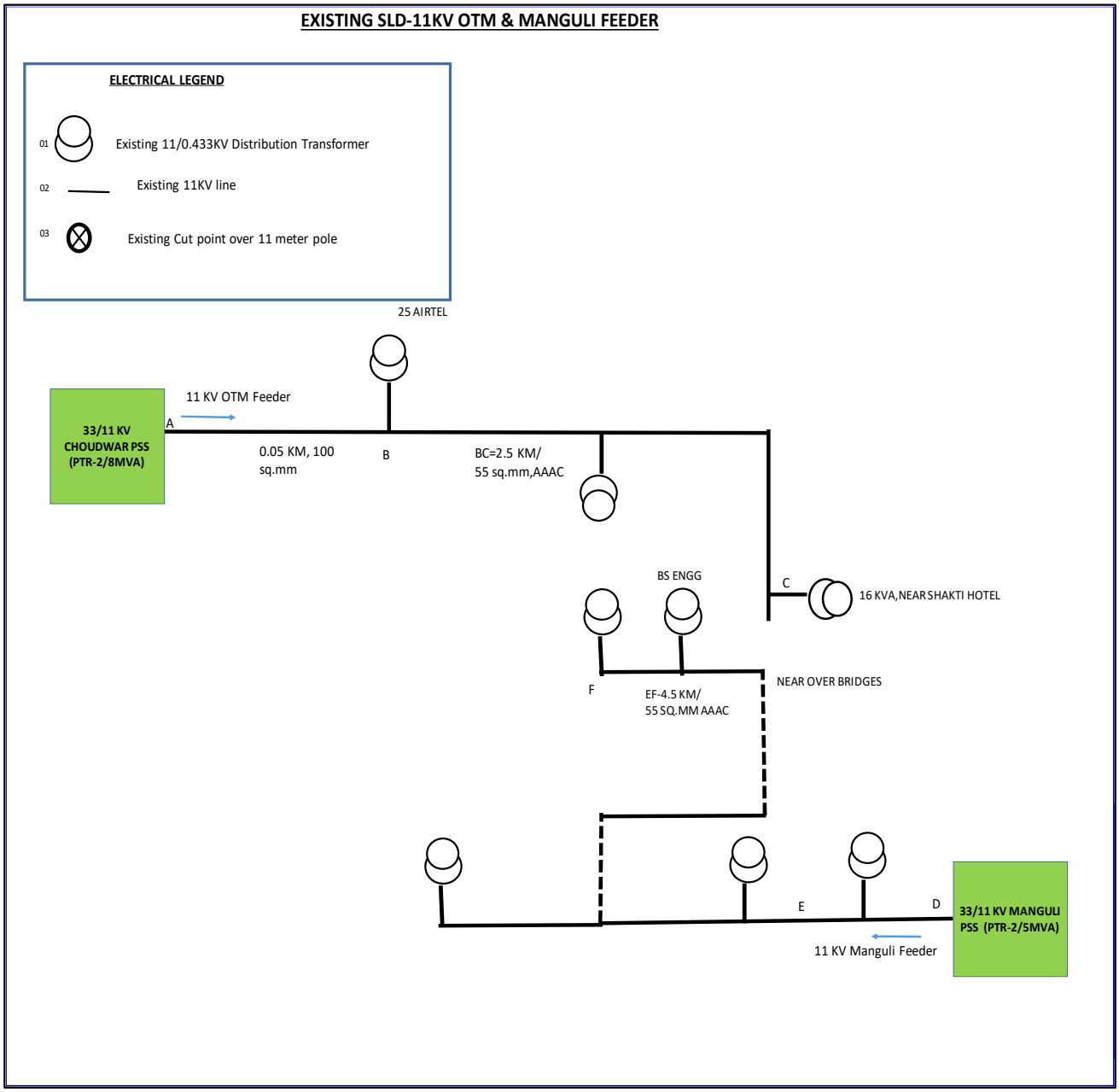
Existing Scenario:

- At present, 11 KV Manguli feeder is emanating from 33/11 KV Tangi PSS. Rural and Urban consumers are connectred from this feeder. Total length of this feeder is approx.45 KM and the peak load is 3.58 MVA. In existing scenrio, 11 KV Manguli feeder, which having minimum trunk conductor size is 55 sq.mm. Loading of 11 KV Manguli feeder was 3.58 MVA w.r.to feeder capacity of 3.54 MVA. Considering load growth, projected loading would be 4.33 MVA for year 24-25 . And 11 KV OTM feeder which having minimum trunk conductor size is 55 sq.mm. Loading of 11 KV OTM feeder was 1.41 MVA w.r.to feeder capacity of 3.54 MVA. Considering load growth, projected loading would be 1.706 MVA for year 24-25.
- Frequenty faults are observed due to lengthy feeder and over loaded.
- This feeder is mainly feeding Semi-Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth, augmentation of this feeder is proposed for providing continuous power supply to consumers in semi-urban areas.

EXISTING LOADING OF 11 KV MANGULI FEEDER (FED FROM TANGI PSS)							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 2 years LG**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
MANGULI	3.54	3.58	101.12	OVERLOAD	4.33	122.32	OVERLOAD

EXISTING LOADING OF 11 KV OTM FEEDER (FED FROM CHOUDWAR PSS)							
11 kV kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 2 years LG**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
OTM	3.54	1.41	39.83	OK	1.706	48.19	OK

Existing SLD (Summer:



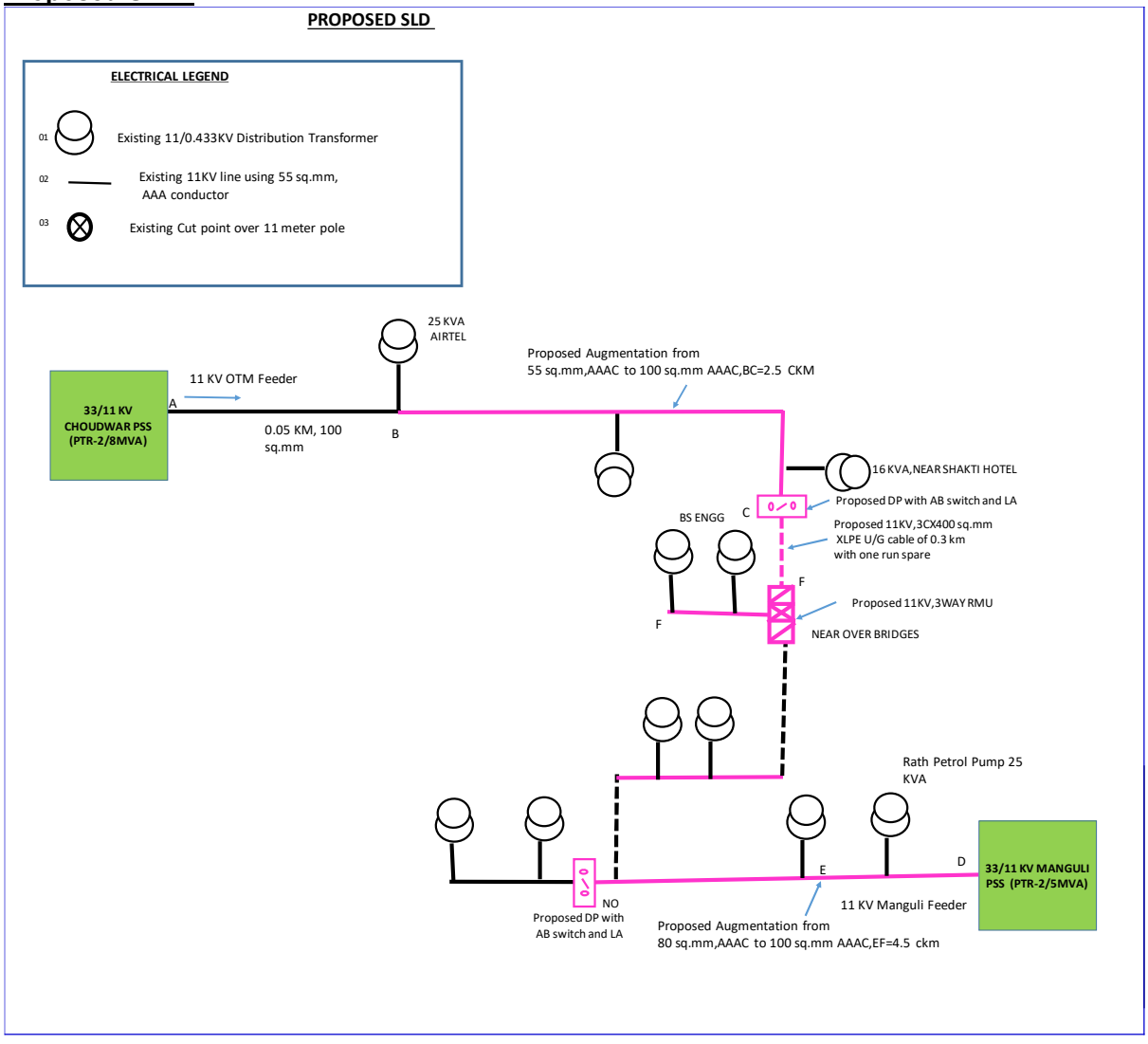
Proposed Scenario:

- Augmentation of O/H line of 4.5 Ckm length of 11 KV Manguli feeder of Tangi PSS is proposed from near Tangi PSS to near Over Bridge from 55 sq.mm to 100 sq.mm, AAAC conductor for mitigating over loading condition.
- To avoid frequent faults in 11 KV Manguli feeder due to lengthy networks, part load of Manguli feeder will be transferred to OTM feeder of Choudwar PSS.
- Hence Augmentation of O/H line of 2.5 CKM length of 11 KV OTM feeder of Choudwar PSS is proposed from near Choudwar PSS to near Shakti hotel. And linking line of 0.3 km U/G of 3CX400 sq.mm XLPE U/G with installation of 1 no of 11kv 3 WAY RMU proposed.
- Under proposed scenario, 11 KV Manguli feeder of Tangi PSS will be able to feed continuous power supply to consumers of semi urban areas. And proposed loading would be 2.24 MVA with respect to feeder capacity 5.18 MVA.
- Under proposed scenario, 11 KV OTM feeder of Choudwar PSS will be able to feed continuous power supply to consumers of semi urban areas. And proposed loading would be 2.24 MVA with respect to feeder capacity 5.18 MVA.

PROPOSED LOADING SCENARIO AFTER PROPOSAL							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
MANGULI	5.18	2.24	43.40	OK	2.71	52.32	OK

PROPOSED LOADING SCENARIO AFTER PROPOSAL							
11 kV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**10% Load Growth Considering 2 Yrs.**	**% Loading of feeder after 2 years LG**	**Feeder Overloading Status**
OTM	5.18	2.74	52.97	OK	3.31	63.91	OK

Proposed SLD :



Detailed Scope of Work:

- Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sq.mm XLPE cable from near Shakti hotel of 11 KV OTM feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load transfer from Manguli feeder to OTM feeder.
- Installation of 1 No of 11 KV, 3 WAY at linking point near Over Bridge.
- Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm AAAC.
- Dismantling of conductor of 55 sq.mm AAAC for 4.5 CKM for Manguli feeder and 2.5 KM for OTM feeder

BOQ:

TPCODL		
Name of the Division :-		CED,CUTTACK
Name of the Sub-Division : -		CHOUDWAR
Name of the Section : -		TANGI
Name of the Work :-		Refurbishment of 11KV OTM feeder and Manguli feeder for Mitigation of Overloading of Manguli feeder
Scope of work:-		1. Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sqmm XLPE cable from near shakti hotel of 11 KV OTM feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load trasfer from Manguli feeder to OTM feeder. 2. Installation of 1 No of 11 KV, 3 WAY RMU at linking point near Over Bridge. 3. Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm AAAC. 4. Dismantling of conductor of 55 sq.mm AAAC for 4.5 CKM for Manguli feeder and 2.5 KM for OTM feeder
Names of Schemes: -		CAPEX-22-23
Abstract of Estimate		
Sl. No.	**Description**	**Gross**
1	Part - A: 1. Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sqmm XLPE cable from near shakti hotel of 11 KV OTM feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load trasfer from Manguli feeder to OTM feeder. 2. Installation of 1 No of 11 KV, 3 WAY RMU at linking point near Over Bridge.	**50,40,640.55**
2	Part-B: 1. Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm. 2. Dismantling of conductor of 55 sq.mm AAAC for 4.5 CKM for Mnguli feeder and for 2.5 KM for OTM feeder	**49,81,493.0**
3	Total Estimated cost	**1,00,22,133.53**

Part:A
1. Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sqmm XLPE cable from near shakti hotel of 11 KV OTM feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load trasfer from Manguli feeder to OTM feeder.
2. Installation of 1 No of 11 KV, 3 WAY RMU at linking point near Over Bridge.

Supply Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.3***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***			
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.60	17,70,000.00	10,62,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	6	11,306.76	67,840.56
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.57	6,94,910.00	3,94,708.88
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***1***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	13.20	88.50	1,168.20
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,239.00	2,478.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of end Connector and accessories for OFC connection at RMU,	Set	1	7,535.00	7,535.00
4.2	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	4,35,542.00	4,35,542.00
	Sub Total (Supply Portion) (in Rs.)				**24,95,681.64**

Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.60	94,500.00	56,700.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	6	1,900.80	11,404.80
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.57	1,04,114.67	59,137.13
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Erection of end Connector and accessories for OFC connection at RMU,	Set	1	1,225.07	1,225.07

3.2	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	6,124.36	6,124.36
	Sub Total (Erection Portion) (in Rs.)				**1,61,994.56**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**		0.292		
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	204.4	700.00	1,43,080.00
1.1.b	Earth work excavation of **hard rock**	Cum	87.6	1,720.00	1,50,672.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	175.2	171.55	30,055.56
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	116.8	2,500.00	2,92,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	175.2	202.00	35,390.40
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.07	26,43,670.63	1,85,056.94
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	20	3,600.00	72,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	10	1,012.00	10,120.00
	Sub Total (Civil Portion) (in Rs.)				**9,93,163.00**
A	**Sub Total (Supply Portion)**				**24,95,681.64**
B	Stock, Storage & Insurance @ 3 % of A				74,870.45
C	**Sub Total (A+B)**				**25,70,552.09**
D	Contingency @ 3 % of C				77,116.56
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				75.11
F	Transportation @ 7.5% of C				1,92,791.41
G	Erection Charges @ 10% of earthing items				375.56
H	**Total (C+D+E+F+G)**				**28,40,910.73**
I	Sub Total (Erection Portion + Civil Portion)				11,55,157.57
J	**Total Cost (H+I)**				**39,96,068.30**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				2,39,764.10
L	**Total Estimated Capital Cost i.e. (J+K)**				42,35,832.39
M	GST @ 18% of L				7,62,449.83
N	CESS@1% OF (N)				42,358.32
O	**Grand Total (L+M+N)**				**50,40,640.55**

Part:B:
Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm AAAC.

No. of DP required Without AB switch (Ref. Drawing No.- TPCODL-MVD-0012)		2			
MATERIALS OF DP Without AB Switch					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 2.3 mtr., 2 no's channel required =(2x9.56x2.3)	KG	88.50	87.952	7,783.75
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.66 Mtr., 4 no's channel required =(7.14x1.66x4)	KG	88.50	94.8192	8,391.50
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 2.671 mtr., 4 nos angle required = (4.5x2.671x4)	KG	88.50	96.156	8,509.81
6	Danger Plate, 2 no's.	No.	94.40	4	377.60
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
9	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
10	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
11	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	23.6	2,088.60
14	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
16	11 KV pin insulator polymer	No.	236.00	6	1,416.00
17	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
18	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	K.g.	92.04	24.522	2,257.00
21	Black Paint	Ltr	259.60	2	519.20
22	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**1,83,839.62**
B				Stock, Storage & Insurance i.e 3% of A	5,515.19
C				**Sub Total (A+B)**	**1,89,354.81**
D				Contigency @ 3% of C	5,680.64
E				Tools & Plants @ 2% of C	3,787.10
F				Transportation @ 7.5% of C	14,201.61
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	6,868.02
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**2,25,354.68**
Civil & Services					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00

3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K				**Total Civil & Services**	**28,439.00**
L				**Total (J+K)**	2,53,793.68
M	Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)				15,227.62
N				**Sub Total (L+M)**	**2,69,021.30**
O				Total GST @ 18% of (N)	48,423.83
P				Total CESS @ 1% of (N)	2,690.21
Q	**Gross Total Material +Services (N+O+P) for DP Without AB Switch**				**3,20,135.35**
	No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)		2		

MATERIALS OF DP With AB Switch

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
P				Total CESS @ 1% of (N)	3,863.65
Q				**Gross Total Material +Services (N+O+P) for DP With AB Switch**	**4,59,774.48**

No. of Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0004)	2

MATERIALS FOR 11 KV Cut Point with 180 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2)	KG	88.50	45.888	4,061.09
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	10.5728	935.69
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	11.70144	1,035.58
5	Danger Plate, 1 no's.	No.	94.40	2	188.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.6018	53.26
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	6	566.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	2.4072	213.04
9	11 KV pin insulator polymer	No.	236.00	6	1,416.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
12	Earthing of Support (Coil Type)	EA	195.88	2	391.76

13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.524	46.37
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	7.1	653.48
16	Black Paint	Ltr	259.60	1	259.60
17	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**93,346.17**
B				Stock, Storage & Insurance i.e 3% of A	2,800.39
C				**Sub Total (A+B)**	**96,146.56**
D				Contigency @ 3% of C	2,884.40
E				Tools & Plants @ 2% of C	1,922.93
F				Transportation @ 7.5% of C	7,210.99
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	4,152.16
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,15,048.29**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
K				**Total Civil & Services**	**7,312.50**
L				**Total (J+K)**	**1,22,360.79**
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				7,341.65
N				**Sub Total (L+M)**	**1,29,702.43**
O				Total GST @ 18% of (N)	23,346.44
P				Total CESS @ 1% of (N)	1,297.02
Q	**Gross Total Material +Services (N+O+P) for 11 KV Cut Point with 180 Degree Angle**				**1,54,345.90**

No. of Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0005)	2

MATERIALS FOR 11 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required =(4x9.56x1.2)	KG	88.50	91.776	8,122.18
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	21.1456	1,871.39
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required =(4x9.56x0.306)	KG	88.50	23.40288	2,071.15
5	Danger Plate, 1 no's.	No.	94.40	2	188.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.6018	53.26
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	6	566.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	2.4072	213.04
9	11 KV pin insulator polymer	No.	236.00	6	1,416.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
12	Earthing of Support (Coil Type)	EA	195.88	2	391.76
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.524	46.37
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80

15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
16	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
17	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
18	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
19	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	K.g.	92.04	14.866	1,368.27
20	Black Paint	Ltr	259.60	1	259.60
21	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**1,11,185.31**
B				Stock, Storage & Insurance i.e 3% of A	3,335.56
C				**Sub Total (A+B)**	**1,14,520.87**
D				Contigency @ 3% of C	3,435.63
E				Tools & Plants @ 2% of C	2,290.42
F				Transportation @ 7.5% of C	8,589.07
G				Erection Charges @ 5% on Trf/Breaker/Joist	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	4,847.12
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,36,414.35**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.9	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.2	1,462.50
K				**Total Civil & Services**	**16,312.50**
L				**Total (J+K)**	**1,52,726.85**
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)				9,163.61
N				**Sub Total (L+M)**	**1,61,890.46**
O				Total GST @ 18% of (N)	29,140.28
P				Total CESS @ 1% of (N)	1,618.90
Q	**Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle**				**1,92,649.65**

11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)	7

MATERIALS FOR 11 KV Pin Points With WPB

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No.	26,516.95	32	8,48,542.40
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	32	30,585.60
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	32	5,664.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	32	3,020.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	9.63	852.15
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	96.00	9,062.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	38.52	3,408.60
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	96	22,656.00
9	Earthing of Support (Coil Type)	No.	195.88	32	6,268.16

10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	8.38	741.98
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	46.40	4,270.66
12	100 mm2 AAAC	K.M.	64,900.00	21.63	14,03,787.00
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	32.0	8,307.20
15	Yellow Colour Paint for Background	Ltr	259.60	64.0	16,614.40
A				**Total Cost of materials**	**23,63,781.34**
B				Stock, Storage & Insurance i.e 3% of A	70,913.44
C				**Sub Total (A+B)**	**24,34,694.78**
D				Contigency @ 3% of C	73,040.84
E				Tools & Plants @ 2% of C	48,693.90
F				Transportation @ 7.5% of C	1,82,602.11
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	43,699.93
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,56,069.61
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**29,38,801.18**
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	14.40	93,600.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.60	23,400.00
K				**Total Civil & Services**	**1,17,000.00**
L				**Total Material+Services (I+K)**	**30,55,801.18**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,83,348.07
N				**Sub Total (L+M)**	**32,39,149.25**
O				Total GST @ 18% of (N)	5,83,046.86
P				Total CESS @ 1% of (N)	32,391.49
Q				**Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB**	**38,54,587.60**
	6% Supervision Charges Summary				
1				Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	15,227.62
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
3				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	7,341.65
4				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	9,163.61
5				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,83,348.07
				Total (6% supervision charges)	**2,36,950.67**
	Gross Total Summary				
1				Gross Total Material +Services (N+O+P) for DP Without AB Switch	3,20,135.35
2				Gross Total Material +Services (N+O+P) for DP With AB Switch	4,59,774.48
3				Gross Total Material +Services (N+O+P) for 11 KV Cut Point with 180 Degree Angle	1,54,345.90
4				Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	1,92,649.65
5				Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB	38,54,587.60
6				**Gross Total Material, Services**	**49,81,492.98**

Benefits:

1) To maintain reliability of Power Supply to semi-urban consumers by strengthening the line & mitigation of overloading issue.
2) The above arrangement will help to release power supply to upcoming potential consumers.
3) Annual Reduction in energy losses in year can be saved.
4) Voltage Regulation can be improved.

28. Bifurcation of 11KV Old Industry Feeder for mitigation of Overload

Proposal: Bifurcation of existing 11 KV Old Industry Feeder emanating from 33/11 KV Jagatpur PSS by constructing 1 No. of new feeder from 33/11 KV Jagatpur PSS through RMU .

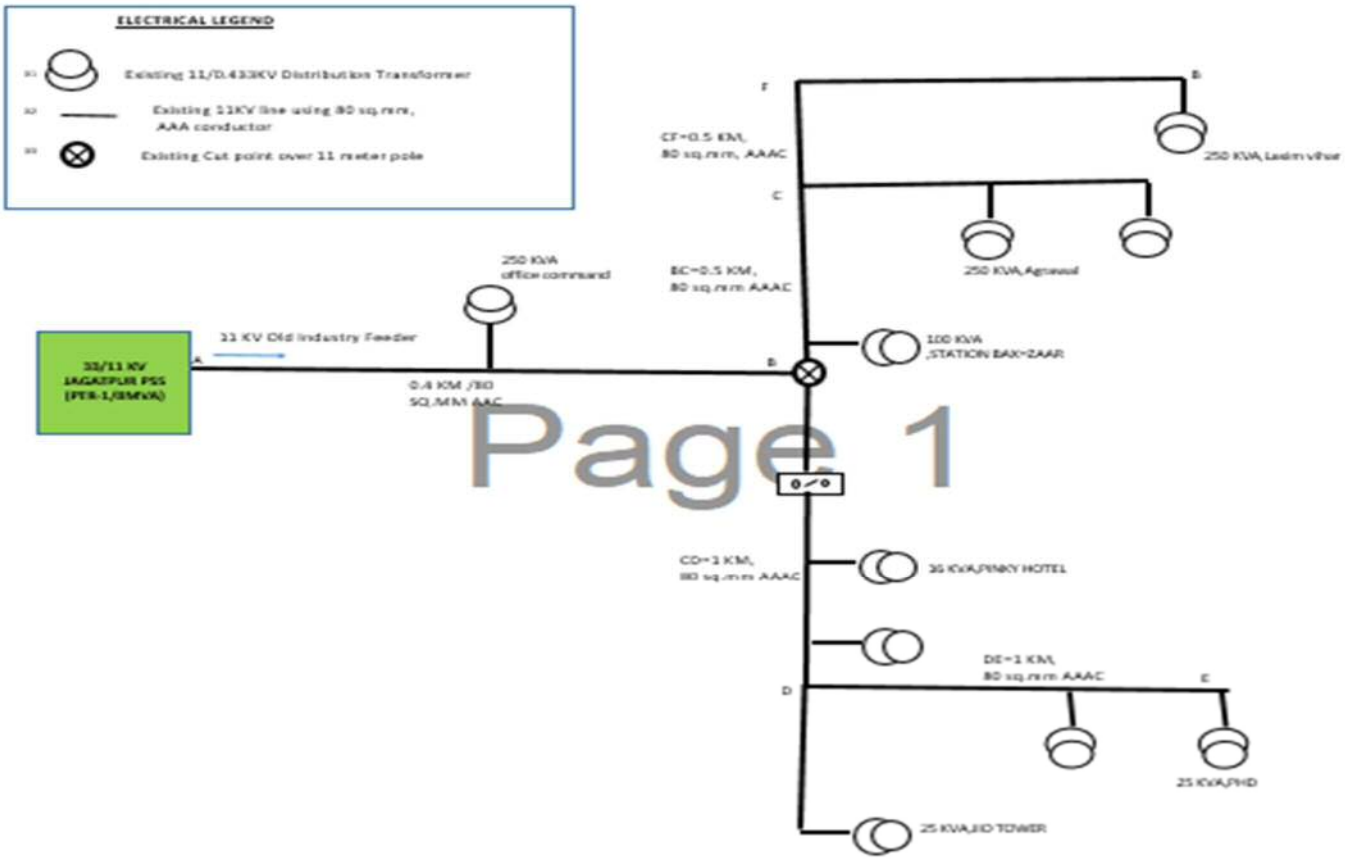
Objective: To mitigation of Overloading issue of feeder.

Existing Scenario:

- At present, 11 KV Old Industry feeder is emanating from 33/11 KV Jagatpur PSS.Total length of this feeder is approx.32KM.In existing scenrio, 11 KV Old Industry feeder, which having minimum trunk conductor size is 80 sq.mm. Loading of 11 KV Old Industry feeder was 4.28 MVA w.r.to feeder capacity of 4.51 MVA. Considering load growth, projected loading would be 6.4 MVA for YEAR 27.
- Frequenty faults are observed due to lengthy feeder and over loaded.
- This feeder is mainly feeding Semi-Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth , bifurcation of this feeder and conductor augmentation are proposed for providing continuous power supply to consumers in urban areas and mitigation of overload.

EXISTING LOADING OF 11 KV OLD INDUSTRY FEEDER							
11 KV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**Loading of feeder after 5 years LG**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
OLD I.E	4.51	4.53	100.55	OVERLOAD	6.77	150.21	OVERLOAD

Existing SLD (Summer'21):



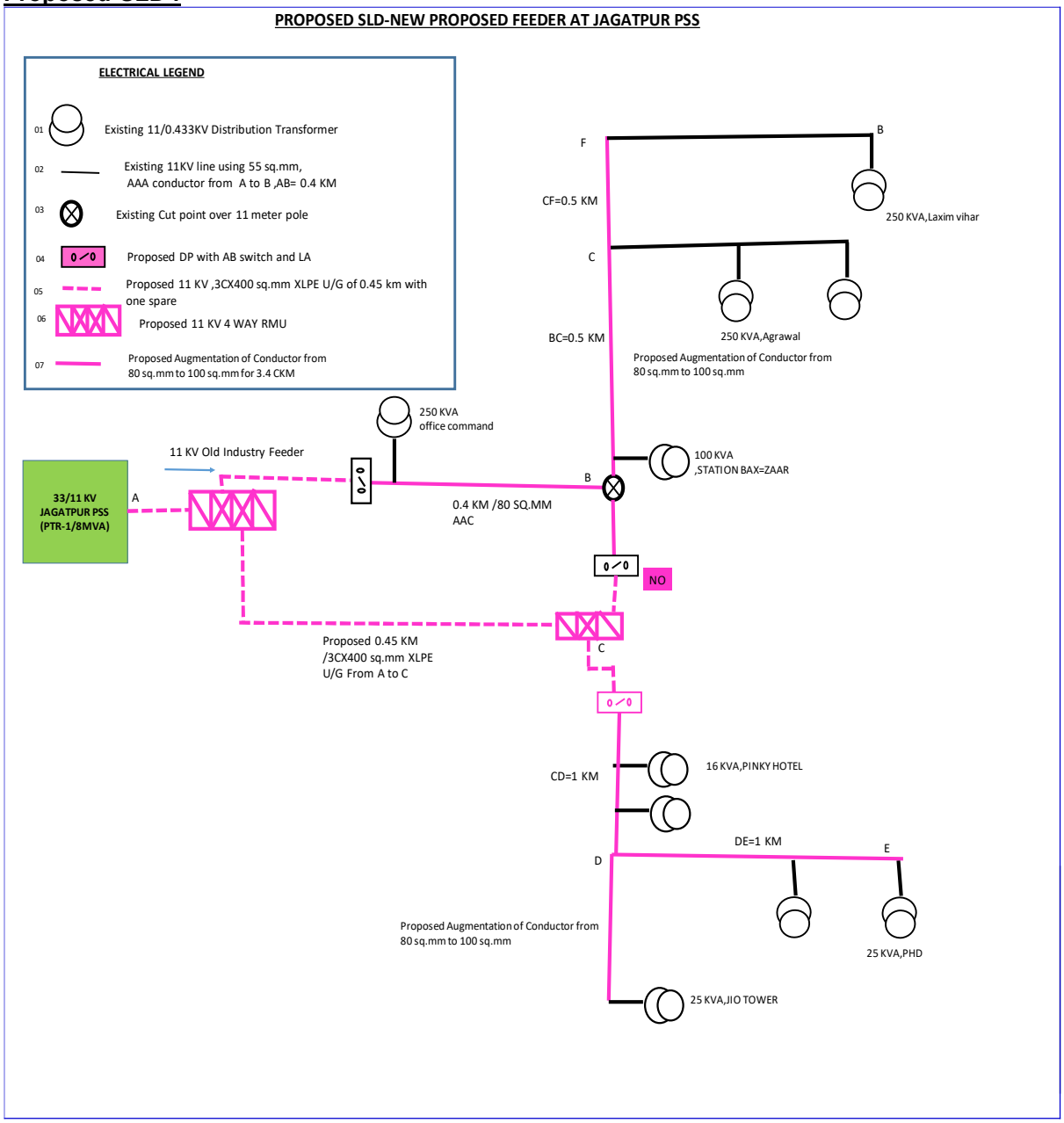
Proposed Scenario:

- Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sq.mm XLPE cable from Jagatpur PSS to near Pinky Hotel are proposed for 11 KV Old Industry feeder Bifurcation.
- Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.
- Augmentation of O/H line of 3.4 Ckm length of 11 KV Old Industry feeder of Jagatpur PSS is proposed from 80 sq.mm to 100 sq.mm, AAAC conductor for mitigating over loading condition.
- To avoid frequent faults in 11 KV Manguli feeder due to lengthy networks and overloaded, hence a new feeder is proposed .And approx.100 Amp load of old industry feeder will be diverted to new proposed feeder. Under proposed scenario, both old and proposed new feeder of Choudwar PSS will be able to feed continuous power supply to consumers of urban areas. And proposed loading of new proposed feeder would be 2.84 MVA with respect to feeder capacity 5.18 MVA.
- Proposed loading Old industry feeder would be 3.55 MVA with respect to feeder capacity 5.18 MVA.

PROPSED LOADING OF 11 KV NEW PROPOSED FEEDER							
11 KV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
OLD I.E	5.18	1.90	36.78	OK	2.84	54.85	OK

PROPOSED LOADING OF 11 KV OLD INUDSTRY FEEDER							
11 KV Feeder Name	**Feeder Capacity (MVA)**	**Peak Loading FY' 22-23 (MVA)**	**% Existing Loading of feeder**	**Feeder Overloading Status**	**% Load Growth Considering 5 Yrs.**	**% Loading of feeder after 5 years LG**	**Feeder Overloading Status**
OLD I.E	5.18	2.62	50.76	OK	3.91	75.64	OK

Proposed-SLD :



Detailed Scope of Work:

- Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sq.mm XLPE cable from Jagatpur PSS to near Pinky Hotel for 11 KV Old Industry feeder Bifurcation.
- Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.
- Augmentation of 11 KV O/H line of 3.4 CKM from 80 sq.mm to 100 sq.mm AAAC.
- Dismantling of conductor of 80 sq.mm AAAC for 3.4 CKM,

BOQ:

TPCODL	
Name of the Division :-	CDD-II,CUTTACK
Name of the Sub-Division : -	JOBRA
Name of the Section : -	JAGATPUR

Name of the Work :-	Bifurcation of existing 11 KV Old Industry Feeder emanating from 33/11 KV Jagatpur PSS by constructing 1 No. of new feeder from 33/11 KV Jagatpur PSS through RMU .
Scope of work:-	1. Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sqmm XLPE cable from Jagatpur PSS to near Pinky Hotel for 11 KV Old Industry feeder Bifurcation. 2. Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively. 3. Augmentation of 11 KV O/H line of 3.4 CKM from 80 sq.mm to 100 sq.mm AAAC. 4. Dismantling of conductor of 80 sq.mm AAAC for 3.4 CKM,
Names of Schemes: -	CAPEX-22-23

Abstract of Estimate

Sl. No.	Description	Gross
1	Part - A: 1.Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sqmm XLPE cable from Jagatpur PSS to near Pinky Hotel. 2. Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.	83,32,803.46
2	Part-B: 1. 3. Augmentation of 11 KV O/H line of 3.4 CKM from 80 sq.mm to 100 sq.mm AAAC.	23,84,898.6
3	Part-C: 1. Dismantling of conductor of 80 sq.mm AAAC for 3CKM,	1,15,796.5
4	Total Estimated cost	1,08,33,498.62

Part:A
1. Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sqmm XLPE cable from Jagatpur PSS to near Pinky Hotel.
2. Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.

Supply Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories**				
a	***Length of 11kV 3C, 400sqmm cable (open trench)***	***km***	***0.45***		
b	***Length of 11kV 3C, 400sqmm cable (HDD)***	***km***			
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.90	17,70,000.00	15,93,000.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	6	16,406.72	98,440.32
1.5	Supply of **HDPE** PE 80-PN8 pipe of **160mm** diameter (for 400sqmm HT cable laying)	km	0.85	6,94,910.00	5,92,063.32
2	**Supply of 11kV RMU**				
a	***No. of 11kV 3Way RMU (LLV)***	***nos.***	***1***		

b	***No. of 11kV 4Way RMU (LLVV)***	***nos.***	***1***		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of end Connector and accessories for OFC connection at RMU,	Set	2	7,535.00	15,070.00
4.2	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**43,29,123.28**

Erection Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method**				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	0.90	94,500.00	85,050.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60
1.4	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	6	1,900.80	11,404.80
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in **HDD method with HDPE pipe** (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of **160mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.85	1,04,114.67	88,705.70
2	**Erection, Commissioning, Wiring and Testing of 11kV RMU**				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
3	**FRTU and OFC for RMU SCADA Automation**				
3.1	Erection of end Connector and accessories for OFC connection at RMU,	Set	2	1,225.07	2,450.14
3.2	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**2,57,468.96**

Civil Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**		0.426		
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	298.2	700.00	2,08,740.00
1.1.b	Earth work excavation of **hard rock**	Cum	127.8	1,720.00	2,19,816.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	255.6	171.55	43,848.18
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	170.4	2,500.00	4,26,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	255.6	202.00	51,631.20

1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.07	26,43,670.63	1,85,056.94
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	48	1,463.40	70,243.20
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	15	1,012.00	15,180.00
	Sub Total (Civil Portion) (in Rs.)				**14,20,434.12**
A	**Sub Total (Supply Portion)**				**43,29,123.28**
B	Stock, Storage & Insurance @ 3 % of A				1,29,873.70
C	**Sub Total (A+B)**				**44,58,996.98**
D	Contingency @ 3 % of C				1,33,769.91
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				3,34,424.77
G	Erection Charges @ 10% of earthing items				751.12
H	**Total (C+D+E+F+G)**				**49,28,093.00**
I	Sub Total (Erection Portion + Civil Portion)				16,77,903.08
J	**Total Cost (H+I)**				**66,05,996.08**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				3,96,359.77
L	**Total Estimated Capital Cost i.e. (J+K)**				70,02,355.85
M	GST @ 18% of L				12,60,424.05
N	CESS@1% OF (N)				70,023.56
O	**Grand Total (L+M+N)**				**83,32,803.46**
P	**Gross Total Material and Services**				**83,32,803.46**

Part:B:
Augmentation of 11 KV O/H line of 3.4 KM from 80 sq.mm to 100 sq.mm AAAC

No. of DP required Without AB switch (Ref. Drawing No.- TPCODL-MVD-0012)	1

MATERIALS OF DP Without AB Switch

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 2.3 mtr., 2 no's channel required =(2x9.56x2.3)	KG	88.50	43.976	3,891.88
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.66 Mtr., 4 no's channel required =(7.14x1.66x4)	KG	88.50	47.4096	4,195.75

5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 2.671 mtr., 4 nos angle required = (4.5x2.671x4)	KG	88.50	48.078	4,254.90
6	Danger Plate, 2 no's.	No.	94.40	2	188.80
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
9	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
10	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
11	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	1	1,239.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	11.8	1,044.30
14	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
16	11 KV pin insulator polymer	No.	236.00	3	708.00
17	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
18	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	K.g.	92.04	12.261	1,128.50
21	Black Paint	Ltr	259.60	1	259.60
22	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**91,919.81**
B				Stock, Storage & Insurance i.e 3% of A	2,757.59
C				**Sub Total (A+B)**	**94,677.41**
D				Contigency @ 3% of C	2,840.32
E				Tools & Plants @ 2% of C	1,893.55
F				Transportation @ 7.5% of C	7,100.81
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	2,731.25
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	3,434.01
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**1,12,677.34**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	1	2,407.00
K				**Total Civil & Services**	**14,219.50**
L				**Total (J+K)**	1,26,896.84

M	Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	7,613.81
N	**Sub Total (L+M)**	**1,34,510.65**
O	Total GST @ 18% of (N)	24,211.92
P	Total CESS @ 1% of (N)	1,345.11
Q	**Gross Total Material +Services (N+O+P) for DP Without AB Switch**	**1,60,067.67**

No. of DP required With AB Switch (Ref. Drawing No.- TPCODL-MVD-0001)	2

MATERIALS OF DP With AB Switch

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**2,67,760.93**
B				Stock, Storage & Insurance i.e 3% of A	8,032.83
C				**Sub Total (A+B)**	**2,75,793.76**
D				Contigency @ 3% of C	8,273.81
E				Tools & Plants @ 2% of C	5,515.88
F				Transportation @ 7.5% of C	20,684.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	5,462.49
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	15,511.92
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**3,31,242.39**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K				**Total Civil & Services**	**33,253.00**
L				**Total (J+K)**	**3,64,495.39**
M				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72
N				**Sub Total (L+M)**	**3,86,365.11**
O				Total GST @ 18% of (N)	69,545.72
P				Total CESS @ 1% of (N)	3,863.65
Q				**Gross Total Material +Services (N+O+P) for DP With AB Switch**	**4,59,774.48**

No. of Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0004)	1

MATERIALS FOR 11 KV Cut Point with 180 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2)	KG	88.50	22.944	2,030.54
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	5.2864	467.85
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	5.85072	517.79
5	Danger Plate, 1 no's.	No.	94.40	1	94.40
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20

8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support (Coil Type)	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	3.55	326.74
16	Black Paint	Ltr	259.60	0.5	129.80
17	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**46,673.09**
B				Stock, Storage & Insurance i.e 3% of A	1,400.19
C				**Sub Total (A+B)**	**48,073.28**
D				Contigency @ 3% of C	1,442.20
E				Tools & Plants @ 2% of C	961.47
F				Transportation @ 7.5% of C	3,605.50
G				Erection Charges @ 5% on Trf/Breaker/Joist	1,365.62
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	2,076.08
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**57,524.14**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.45	2,925.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.11	731.25
K				**Total Civil & Services**	**3,656.25**
L				**Total (J+K)**	**61,180.39**
M				Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	3,670.82
N				**Sub Total (L+M)**	**64,851.22**
O				Total GST @ 18% of (N)	11,673.22
P				Total CESS @ 1% of (N)	648.51
Q				**Gross Total Material +Services (N+O+P) for 11 KV Cut Point with 180 Degree Angle**	**77,172.95**
No. of Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-MVD-0005)		1			

MATERIALS FOR 11 KV Cut Point with 90 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required =(4x9.56x1.2)	KG	88.50	45.888	4,061.09
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	10.5728	935.69
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required =(4x9.56x0.306)	KG	88.50	11.70144	1,035.58
5	Danger Plate, 1 no's.	No.	94.40	1	94.40

6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support (Coil Type)	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
16	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
17	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
18	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
19	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	K.g.	92.04	7.433	684.13
20	Black Paint	Ltr	259.60	0.5	129.80
21	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
A				**Total Cost of materials**	**55,592.66**
B				Stock, Storage & Insurance i.e 3% of A	1,667.78
C				**Sub Total (A+B)**	**57,260.44**
D				Contigency @ 3% of C	1,717.81
E				Tools & Plants @ 2% of C	1,145.21
F				Transportation @ 7.5% of C	4,294.53
G				Erection Charges @ 5% on Trf/Breaker/Joist	1,365.62
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	2,423.56
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**68,207.17**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.5	2,925.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.1	731.25
K				**Total Civil & Services**	**8,156.25**
L				**Total (J+K)**	**76,363.42**
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)				4,581.81
N				**Sub Total (L+M)**	**80,945.23**
O				Total GST @ 18% of (N)	14,570.14
P				Total CESS @ 1% of (N)	809.45
Q	**Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle**				**96,324.82**

11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)			3.4		
MATERIALS FOR 11 KV Pin Points With WPB					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No.	26,516.95	10	2,65,169.50
2	11 KV V cross Arm (10.2 K.g. each)	No.	955.80	10	9,558.00
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	10	1,770.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	10	944.00
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	3.01	266.30
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	30.00	2,832.00
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	12.04	1,065.19
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	30	7,080.00
9	Earthing of Support (Coil Type)	No.	195.88	10	1,958.80
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	2.62	231.87
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	14.50	1,334.58
12	100 mm2 AAAC	K.M.	64,900.00	10.51	6,81,839.40
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	10.0	2,596.00
15	Yellow Colour Paint for Background	Ltr	259.60	20.0	5,192.00
A				**Total Cost of materials**	**9,81,837.63**
B				Stock, Storage & Insurance i.e 3% of A	29,455.13
C				**Sub Total (A+B)**	**10,11,292.76**
D				Contigency @ 3% of C	30,338.78
E				Tools & Plants @ 2% of C	20,225.86
F				Transportation @ 7.5% of C	75,846.96
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	13,656.23
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	73,816.82
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**12,25,177.40**
Civil & Services					
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	4.50	29,250.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.13	7,312.50
K				**Total Civil & Services**	**36,562.50**
L				**Total Material+Services (I+K)**	**12,61,739.90**
M				Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	75,704.39
N				**Sub Total (L+M)**	**13,37,444.30**
O				Total GST @ 18% of (N)	2,40,739.97
P				Total CESS @ 1% of (N)	13,374.44
Q				**Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB**	**15,91,558.71**
6% Supervision Charges Summary					
1				Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	7,613.81
2				Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72

3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	3,670.82
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	4,581.81
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	75,704.39
	Total (6% supervision charges)	**1,13,440.56**
Gross Total Summary		
1	Gross Total Material +Services (N+O+P) for DP Without AB Switch	1,60,067.67
2	Gross Total Material +Services (N+O+P) for DP With AB Switch	4,59,774.48
3	Gross Total Material +Services (N+O+P) for 11 KV Cut Point with 180 Degree Angle	77,172.95
4	Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	96,324.82
5	Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB	15,91,558.71
6	**Gross Total Material, Services**	**23,84,898.64**

Part-C:- Dismantling of conductor of 80 sq.mm AAAC for 3.4 CKM,

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	Dismantling of 80 mm2 AAAC Conductor.	Mtr	10200	9.00	91,800.00
A	**Total Cost of materials**				**91,800.00**
B	Other overheads (Including 6% supervision charges)				5,508.00
C	**SubTotal (A+B)**				**97,308.00**
D	Total GST @ 18% of **(C)**				17,515.44
E	Total CESS @ 1% of **(C)**				973.08
F	**Gross Total Material (C+D+E)**				**1,15,796.52**

Benefit:

1. To maintain reliability of Power Supply to semi-urban consumers by strengthening the line & mitigation of overloading issue.
2. The above arrangement will help to release power supply to upcoming potential consumers.
3. Annual Reduction in energy losses in year can be saved.
4. Voltage Regulation can be improved.

ANNEXURE-2

Summary of Proposal Details to mitigate overloading in 33KV Network				
Sl. No.	***Division***	***Proposal Details***	***Mitigation Type***	***Costing in Cr.***
1	**BCDD-II**	**Proposal for laying of 1CX630sqmm UG cable from Godisahi GSS to proposed RMU at 33kV Naraj feeder, conductor augmentation of Barang and Naraj feeder for providing reliable power supply and improving N-1 contingency condition of both Naraj and Barang 33kV feeders.**	**Overloading, Low Voltage and N-1**	**11.20**
2	**BED**	**Proposal for conductor augmentation of Kesura_ Laxmisagar feeder - I & II from 148 sq.mm OH conductor to 232sqmm conductor to mitigate overloading issue and improving N-1 contingency condition.**	**Overloading and N-1**	**2.96**
3	**BED**	**Proposals to mitigate overloading issue of 33kV Bhimtangi, Badagada and Lingipur feeders (Since there is a delay in commissioning of Proposed Badagada OPTCL GSS)** **a) Proposal for conductor augmentation of Balakati feeder - 0.5km, interlinking of Badagada PSS to Uttra PSS with 232sqmm OH conductor - 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS.** **b) Proposal for construction of new 33kv fdr from Pratpasashan Grid to Siula PSS.** **c) Installation of 2No's 33KV RMU at Uttara & Lingipur** **d) Proposal for augmentation of interlinking 400Sqmm cable with 630sqmm near T-off to Lingipur PSS.**	**Overloading and N-1**	**7.77**
4	**BED**	**Proposal for replacement of existing lower size 33kv (300Sqmm/400sqmm) HT cable inside Mancheswar-B GSS to mitigate overloading issue**	**Overloading**	**0.78**
Total Amount				**22.71**

FDR-1 (Proposed Cable from Godisahi GSS to Naraj 33kV feeder along with augmentation of Barang and Naraj 33kV feeders)

Proposal:
Proposal for providing reliable power supply and improving N-1 contingency and mitigate overloading issue of Naraj and Barang 33kV feeders.

Objective:

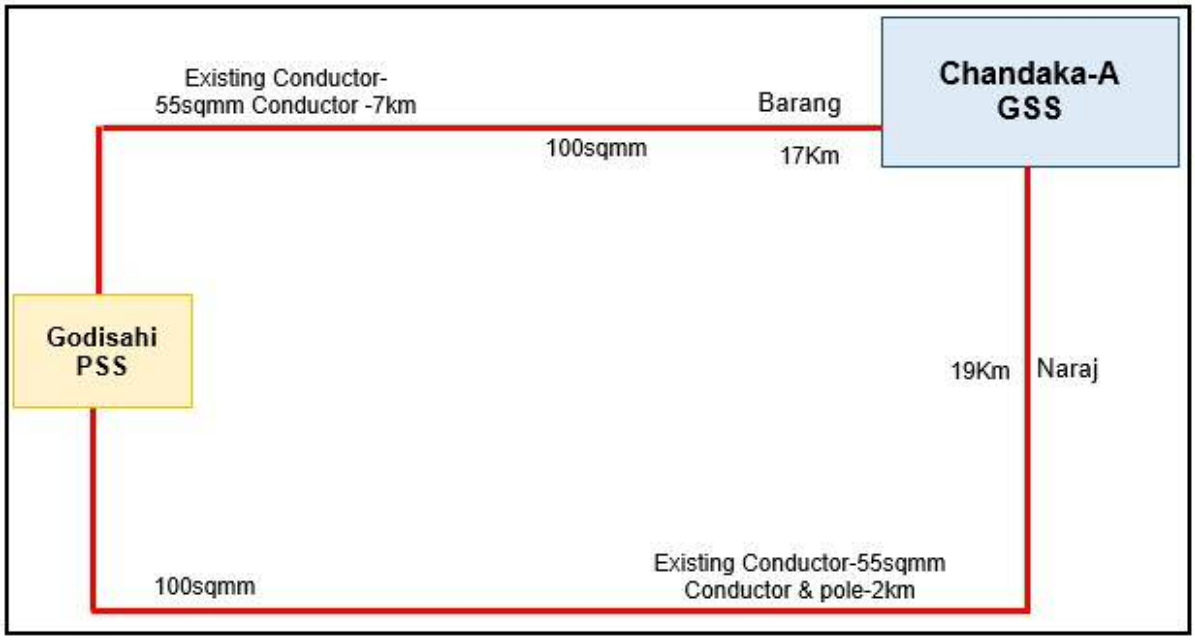
- Power evacuation from upcoming Godisahi Grid.
- To maintain reliable power supply along with improving N-1 connectivity, mitigate overload, low voltage issue and strengthening the existing network.

Existing Scenario:

- At present, Naraj and Barang 33kV feeders are emanating from Chandaka-A Grid, having mixed type conductor (55/100) with a length of 19km and 17km respectively.
- Present peak load of Barang 33kV feeder is 14.1 MVA and Naraj 33kV feeder is 4.23MVA.
- Considering present scenario, there is no N-1 reliability at both the feeders. In addition, both the feeders are not capable to meet the future load demand in the area.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Naraj	10.63	4.23	40%	OK	Not OK
Barang	15.54	14.1	91%	Partial Overload	Not OK

Existing SLD (FY' 22-23):



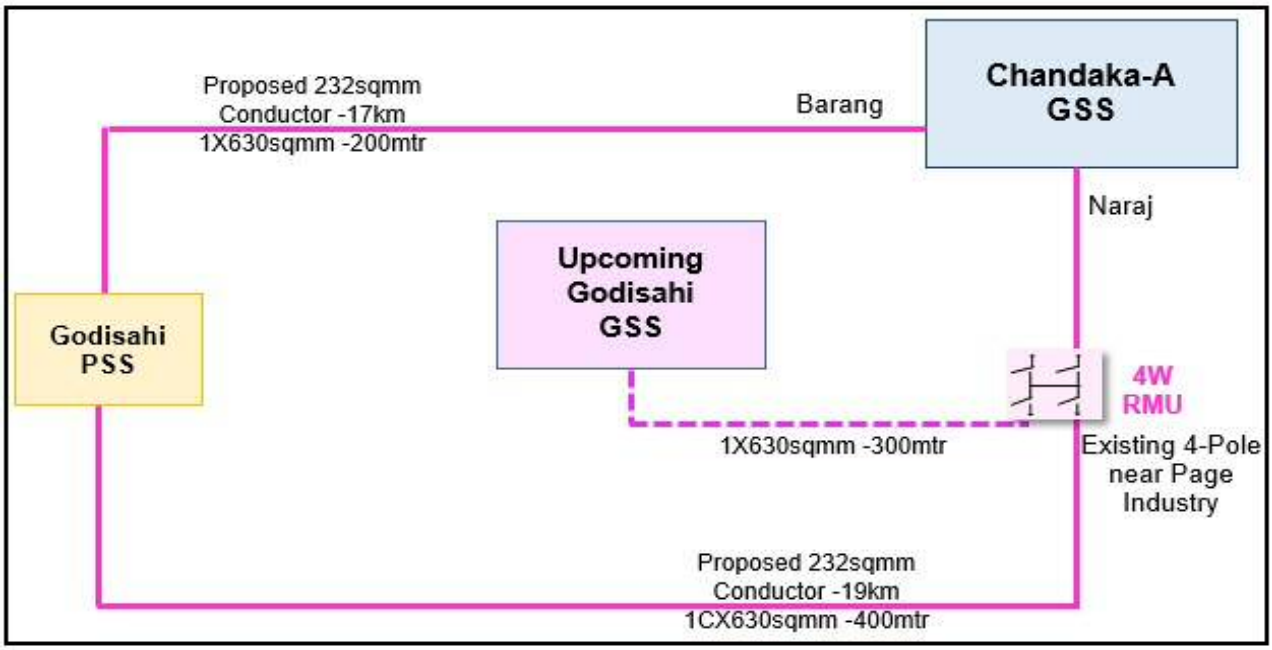
Proposed Scenario:

- After linking new feeder from Godisahi GSS and augmentation of Naraj and Barang 33kV feeders, the feeders will be, deliver reliable power supply to the consumers.
- Overloading, low voltage and N-1 issue of network will mitigate.

- Considering 68% load growth, the feeder will capable to feed the load demand for next 7 to 8 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 29-30 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Naraj	26.51	4.2	68%	7.06	27%	OK	OK
Barang	26.51	10.1	68%	16.97	64%	OK	OK
New Fdr.	26.51	4.1	68%	6.89	26%	OK	OK

Proposed SLD (FY' 23-24):



Detailed Scope of Work:
Laying of 1CX630sqmm UG cable from Godisahi GSS to proposed RMU at 33kV Naraj feeder, conductor augmentation of Barang and Naraj feeder for providing reliable power supply and improving N-1 contingency condition of both Naraj and Barang 33kV feeders.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	Periphery
	Name of the Section : -	Godisahi
	Name of the Work :-	Proposal for laying of 1CX630sqmm UG cable from Godisahi GSS to proposed RMU at 33kV Naraj feeder, conductor augmentation of Barang and Naraj feeder for providing reliable power supply and improving N-1 contingency condition of both Naraj and Barang 33kV feeders.
	Scope of work:-	33kV, 1C 630sqmm UG Cable -0.3Ckm with 4- Way RMU (LLVV) -1no. Replacement of conductor along with poles from 232sqmm conductor at 33kV Naraj feeder -19Ckm Conductor augmentation of Barang feeder with 232sqmm conductor

		along with interposing poles -17Ckm 0.6Km Cable Augmentation with 1Cx630sq.mm. 4 No's Cable DP.	
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - 0.3km cable and 1nos 4 Way (LLVV) RMU.	94,73,668.56
2	B	Estimate for replacement of existing (55/100/148) sqmm conductor along with poles to 232sqmm conductor at 33kV Naraj feeder - 19Ckm	4,87,39,691.03
3	C	Estimate for conductor augmentation of Barang feeder from existing (55/100/148)sqmm OH conductor to 232sqmm conductor along with interposing poles -17Ckm	4,21,05,474.16
	D	Estimate for 33kV, 1C 630sqmm UG Cable - 0.6km cable.	97,05,508.76
4	E	Estimate for construction of 33KV DP With Isolator - 4 No's	20,02,770.76
		Total Amount	**11,20,27,113.28**
		Total Amount (In Cr)	**11.20**
Total estimated cost is Rs. 11.2 Crore. (On TPCODL Capex Scheme)			

Part-A

Standard BoQ and Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - 0.3km cable and 1nos 4 Way (LLVV) RMU.

Supply Portion

	Feeder Length		**0**		
Sl. No.	**Description of items**	**Unit**	**Total Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (along with 1core spare cable) with accessories**		**0.3**		
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***km***	***0.3***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***km***	***0***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	km	***1.2***	13,37,130.00	16,04,556.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	***4***	9,726.50	38,906.02
1.3	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***0***	9,726.50	-
1.4	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***12***	7,409.93	88,919.14
1.5	Supply of materials for High Density Polyethylene **(HDPE) pipe 110mm**	km	***0.9***	5,20,436.00	4,68,392.40

	diameter, PE 80- PN8 for laying of 33kV UG cable				
2	**Supply of 33kV RMU**				
a	***No. of 33kV 3Way RMU (LLV+M)***	***nos.***	***0***		
b	***No. of 33kV 4Way RMU (LLVV+M)***	***nos.***	***0***		
c	***No. of 33kV 3Way RMU (LLV)***	***nos.***	***0***		
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***1***		
e	***No. of 33kV 3Way RMU (LLL)***	***nos.***	***0***		
f	***No. of 33kV 4Way RMU (LLLL)***	***nos.***	***0***		
2.1	Supply of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M)	Nos.	0	22,93,723.00	-
2.2	Supply of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M)	Nos.	0	31,74,874.00	-
2.3	Supply of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	17,87,101.00	-
2.4	Supply of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	23,35,264.00	23,35,264.00
2.5	Supply of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	14,46,210.00	-
2.6	Supply of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	19,59,421.00	-
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	13.20	88.50	1,168.20
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,239.00	2,478.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along 11kV UG cable.	km	1	56,515.00	56,515.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	0	77,990.00	-
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0	6,766.00	-
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	0	7,535.00	-
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along with associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	4,35,542.00	4,35,542.00
	Sub Total (Supply Portion) (in Rs.)				**50,31,740.75**

Erection Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	km	1.2	94,500.00	1,13,400.00

1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	4	3,480.00	13,920.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	0	3,480.00	-
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	12	3,480.00	41,760.00
1.5	Supply, Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	23,00,000.00	-
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.90	1,04,114.67	93,703.20
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.1	Erection of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M)	Nos.	0	15,000.00	-
2.2	Erection of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M)	Nos.	0	15,000.00	-
2.3	Erection of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	15,000.00	-
2.4	Erection of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	15,000.00	15,000.00
2.5	Erection of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	15,000.00	-
2.6	Erection of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	15,000.00	-
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables. Laid along 11kV UG cable. through open trench	km	1	27,296.35	27,296.35
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables. Laid along 11kV UG cable. through HDD.	km	0	1,22,488.27	-
3.3	Erection of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0	612.54	-
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	0	1,225.07	-
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along with associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	6,124.36	6,124.36
	Sub Total (Erection Portion) (in Rs.)				**3,11,203.91**

Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	252	700.00	1,76,400.00
1.1.b	Earth work excavation of **hard rock**	Cum	108	1,720.00	1,85,760.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	***0***	171.55	-
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	***0***	2,500.00	-
1.4	Back filling with excavated soil outside and above the trench	Cum	360	202.00	72,720.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	***0.15***	26,43,670.63	3,96,550.59
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	20	3,600.00	72,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	0	1,463.40	-
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	10	1,012.00	10,120.00
	Sub Total (Civil Portion) (in Rs.)				**9,41,509.89**
A	**Sub Total (Supply Portion)**				**50,31,740.75**
B	Stock, Storage & Insurance @ 3 % of A				1,50,952.22
C	**Sub Total (A+B)**				**51,82,692.97**
D	Contingency @ 3 % of C				1,55,480.79
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				75.11
F	Transportation @ 7.5% of C				3,88,701.97
G	Erection Charges @ 10% of earthing items				375.56
H	**Total (C+D+E+F+G)**				**57,27,326.41**
I	Sub Total (Erection Portion + Civil Portion)				12,52,713.81
J	**Total Cost (H+I)**				**69,80,040.21**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				4,18,802.41
L	**Total Estimated Capital Cost i.e. (J+K)**				**73,98,842.63**
M	GST @ 18% of L				13,31,791.67

N	GST @ 1% of L	7,39,884.26
O	**Grand Total (L+M+N)**	**94,70,518.56**
P	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	2000
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**94,73,668.56**

Part-B

33kV Naraj feeder - 19km Aug.

	No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				
	MATERIALS FOR 33 KV DP Without Isolator				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	60	34,04,142.86
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	88.50	1864.2	1,64,981.70
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	118.944	10,526.54
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	88.50	2099.16	1,85,775.66
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	1853.28	1,64,015.28
6	Danger Plate, 2 no's.	No.	94.40	60	5,664.00
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	18.054	1,597.78
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	60	8,850.00
9	H.T. Stay set (Complete)	Set	1,239.00	60	74,340.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	120	7,080.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	900	79,650.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	30	37,170.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	354	31,329.00
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	180	16,992.00
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	72.216	6,391.12

16	33KV pin insulator polymer	No.	566.40	90	50,976.00
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	180	1,06,200.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	180	2,44,260.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	180	2,44,260.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	367.83	33,855.07
21	Black Paint	Ltr	259.60	30	7,788.00
22	Yellow Colour Paint for Background	Ltr	259.60	60	15,576.00
A				**Total Cost of materials**	**49,01,421.01**
B				Stock, Storage & Insurance i.e 3% of A	1,47,042.63
C				**Sub Total (A+B)**	**50,48,463.64**
D				Contigency @ 3% of C	1,51,453.91
E				Tools & Plants @ 2% of C	1,00,969.27
F				Transportation @ 7.5% of C	3,78,634.77
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	1,75,313.36
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,36,717.89
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**59,91,552.84**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	60	1,35,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	33	2,14,500.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	6.75	43,875.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	30	72,210.00
K				**Total Civil & Services**	**4,65,585.00**
L				**Total (J+K)**	64,57,137.84
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	3,87,428.27
N				**Sub Total (L+M)**	**68,44,566.11**
O				Total GST @ 18% of (N)	12,32,021.90

P	Total GST @ 1% of (N)				68,445.66
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**				**81,45,033.67**
.					
	No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				
	MATERIALS FOR 33 KV DP With Isolator				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	16	9,07,771.43
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	88.50	657.728	58,208.93
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	31.7184	2,807.08
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	88.50	245.616	21,737.02
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	88.50	491.232	43,474.03
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	88.50	982.464	86,948.06
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	709.488	62,789.69
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	88.50	45.696	4,044.10
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	13.968	1,236.17
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	12.24	1,083.24
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	88.50	76.48	6,768.48
12	Danger Plate, 2 no's.	No.	94.40	16	1,510.40
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	4.8144	426.07
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	16	2,360.00
15	H.T. Stay set (Complete)	Set	1,239.00	16	19,824.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	32	1,888.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	240	21,240.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	16	19,824.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	453.12	40,101.12
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	48	4,531.20

21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	19.2576	1,704.30
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	24	2,93,112.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	84,464.40	8	6,75,715.20
24	33KV pin insulator polymer	No.	566.40	24	13,593.60
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	48	28,320.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	48	65,136.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	48	65,136.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	177.2	16,309.49
29	Black Paint	Ltr	259.60	8	2,076.80
30	Yellow Colour Paint for Background	Ltr	259.60	16	4,153.60
A				**Total Cost of materials**	**24,73,830.00**
B				Stock, Storage & Insurance i.e 3% of A	74,214.90
C				**Sub Total (A+B)**	**25,48,044.90**
D				Contigency @ 3% of C	76,441.35
E				Tools & Plants @ 2% of C	50,960.90
F				Transportation @ 7.5% of C	1,91,103.37
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	46,750.23
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,56,636.90
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**30,69,937.64**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	16	36,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	8.8	57,200.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.8	11,700.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	16	38,512.00
K				**Total Civil & Services**	**1,43,412.00**
L				**Total (J+K)**	32,13,349.64

M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	1,92,800.98
N	**Sub Total (L+M)**	**34,06,150.61**
O	Total GST @ 18% of (N)	6,13,107.11
P	Total GST @ 1% of (N)	34,061.51
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**40,53,319.23**

,.					
	No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)				
	MATERIALS FOR 33 KV Cut Point with 180 Degree Angle				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	30	17,02,071.43
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	975.12	86,298.12
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	158.592	14,035.39
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	175.5216	15,533.66
5	Danger Plate, 1 no's.	No.	94.40	30	2,832.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	9.027	798.89
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	90	8,496.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	36.108	3,195.56
9	33KV pin insulator polymer	No.	566.40	90	50,976.00
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	180	1,06,200.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	180	2,44,260.00
12	Earthing of Support (Coil Type)	EA	195.88	30	5,876.40
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	7.86	695.61
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	180	2,44,260.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	146.37	13,471.89
16	Black Paint	Ltr	259.60	30	7,788.00
17	Yellow Colour Paint for Background	Ltr	259.60	60	15,576.00

A	**Total Cost of materials**	**25,22,364.95**
B	Stock, Storage & Insurance i.e 3% of A	75,670.95
C	**Sub Total (A+B)**	**25,98,035.90**
D	Contigency @ 3% of C	77,941.08

E	Tools & Plants @ 2% of C	51,960.72
F	Transportation @ 7.5% of C	1,94,852.69
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	87,656.68
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	84,490.23
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**30,94,937.30**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	16.5	1,07,250.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.375	21,937.50
K	**Total Civil & Services**				**1,29,187.50**
L	**Total (J+K)**				**32,24,124.80**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				1,93,447.49
N	**Sub Total (L+M)**				**34,17,572.29**
O	Total GST @ 18% of (N)				6,15,163.01
P	Total GST @ 1% of (N)				34,175.72
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**40,66,911.03**
.					
	No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)				

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	88.50	520.064	46,025.66
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	84.5824	7,485.54
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	88.50	93.61152	8,284.62
5	Danger Plate, 1 no's.	No.	94.40	8	755.20
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	2.4072	213.04
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	24	2,265.60
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	9.6288	852.15
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	566.40	32	18,124.80

10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	48	28,320.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	48	65,136.00
12	Earthing of Support (Coil Type)	No.	195.88	8	1,567.04
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	2.096	185.50
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	48	65,136.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	8	1,180.00
16	H.T. Stay set (Complete)	Set	1,239.00	8	9,912.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	8	472.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	90.48	8,327.78
20	Black Paint	Ltr	259.60	8	2,076.80
21	Yellow Colour Paint for Background	Ltr	259.60	16	4,153.60
A				**Total Cost of materials**	**7,34,979.04**
B				Stock, Storage & Insurance i.e 3% of A	22,049.37
C				**Sub Total (A+B)**	**7,57,028.41**
D				Contigency @ 3% of C	22,710.85
E				Tools & Plants @ 2% of C	15,140.57
F				Transportation @ 7.5% of C	56,777.13
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	23,375.11
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	26,667.66
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**9,01,699.74**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
K				**Total Civil & Services**	**52,450.00**
L				**Total (J+K)**	9,54,149.74

M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	57,248.98
N	**Sub Total (L+M)**	**10,11,398.72**
O	Total GST @ 18% of (N)	1,82,051.77
P	Total GST @ 1% of (N)	10,113.99
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**	**12,03,564.48**

.					
	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-HVD-0001)				
	MATERIALS FOR 33 KV Pin Points				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	114	64,67,871.43
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	114	2,12,541.60
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	177.00	114	20,178.00
4	Danger Plate, 1 no's.	No.	94.40	114	10,761.60
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	34	3,035.78
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	342	32,284.80
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	137	12,143.12
8	33KV pin insulator polymer	No.	566.40	342	1,93,708.80
9	Earthing of Support (Coil Type)	No.	195.88	114	22,330.32
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	30	2,643.32
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	165	15,214.21
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	59	1,08,41,975.70
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	114	29,594.40
15	Yellow Colour Paint for Background	Ltr	259.60	228	59,188.80

A	**Total Cost of materials**	**1,79,23,471.88**
B	Stock, Storage & Insurance i.e 3% of A	5,37,704.16
C	**Sub Total (A+B)**	**1,84,61,176.04**
D	Contigency @ 3% of C	5,53,835.28
E	Tools & Plants @ 2% of C	3,69,223.52
F	Transportation @ 7.5% of C	13,84,588.20
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	3,33,095.38
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	11,79,926.85

I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				-
J	**Sum of (C to I)**				**2,22,81,845.26**
	Civil & Services				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	219.45	14,26,425.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	44.8875	2,91,768.75
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	180	2,43,000.00
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.40	114	4,719.60
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	1200	9,504.00
6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	342	2,770.20
7	Dismantling of Disc Insulator with Hardware including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	120	972.00
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	58.71	5,28,390.00
K	**Total Civil & Services**				**25,07,549.55**
L	**Total (J+K)**				**2,47,89,394.81**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)				14,87,363.69
N	**Sub Total (L+M)**				**2,62,76,758.50**
O	Total GST @ 18% of (N)				47,29,816.53
P	Total GST @ 1% of (N)				2,62,767.59
Q	**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**				**3,12,69,342.62**
.					
	6% Supervision Charges Summary				
1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)				3,87,428.27
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)				1,92,800.98
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				1,93,447.49
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				57,248.98
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)				14,87,363.69
.	**Total (6% supervision charges)**				**23,18,289.41**

Gross Total Summary		
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	81,45,033.67
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	40,53,319.23
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	40,66,911.03
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	12,03,564.48
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	3,12,69,342.62
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	**420.00**
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**4,87,39,691.03**

Part-C

33kV Barang feeder - 17km Aug.

	No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				
	MATERIALS FOR 33 KV DP Without Isolator				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	54	30,63,728.57
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	88.50	1677.78	1,48,483.53
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	107.0496	9,473.89
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	88.50	1889.244	1,67,198.09
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	1667.952	1,47,613.75
6	Danger Plate, 2 no's.	No.	94.40	54	5,097.60
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	16.2486	1,438.00
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	54	7,965.00
9	H.T. Stay set (Complete)	Set	1,239.00	54	66,906.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	108	6,372.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	810	71,685.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	27	33,453.00

13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	318.6	28,196.10
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	162	15,292.80
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	64.9944	5,752.00
16	33KV pin insulator polymer	No.	566.40	81	45,878.40
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	162	95,580.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	162	2,19,834.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	162	2,19,834.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	331.047	30,469.57
21	Black Paint	Ltr	259.60	27	7,009.20
22	Yellow Colour Paint for Background	Ltr	259.60	54	14,018.40
A				**Total Cost of materials**	**44,11,278.91**
B				Stock, Storage & Insurance i.e 3% of A	1,32,338.37
C				**Sub Total (A+B)**	**45,43,617.28**
D				Contigency @ 3% of C	1,36,308.52
E				Tools & Plants @ 2% of C	90,872.35
F				Transportation @ 7.5% of C	3,40,771.30
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	1,57,782.02
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,23,046.10
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**53,92,397.56**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	54	1,21,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	29.7	1,93,050.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	6.075	39,487.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	27	64,989.00
K				**Total Civil & Services**	**4,19,026.50**
L				**Total (J+K)**	58,11,424.06

M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	3,48,685.44
N	**Sub Total (L+M)**	**61,60,109.50**
O	Total GST @ 18% of (N)	11,08,819.71
P	Total GST @ 1% of (N)	61,601.10
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**73,30,530.31**

.					
	No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	14	7,94,300.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	88.50	575.512	50,932.81
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	27.7536	2,456.19
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	88.50	214.914	19,019.89
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	88.50	429.828	38,039.78
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	88.50	859.656	76,079.56
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	620.802	54,940.98
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	88.50	39.984	3,538.58
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	12.222	1,081.65
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	10.71	947.84
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	88.50	66.92	5,922.42
12	Danger Plate, 2 no's.	No.	94.40	14	1,321.60
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	4.2126	372.82
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	14	2,065.00
15	H.T. Stay set (Complete)	Set	1,239.00	14	17,346.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	28	1,652.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	210	18,585.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	14	17,346.00

19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	396.48	35,088.48
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	42	3,964.80
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	16.8504	1,491.26
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	21	2,56,473.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	84,464.40	7	5,91,250.80
24	33KV pin insulator polymer	No.	566.40	21	11,894.40
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	42	24,780.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	42	56,994.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	42	56,994.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	155.05	14,270.80
29	Black Paint	Ltr	259.60	7	1,817.20
30	Yellow Colour Paint for Background	Ltr	259.60	14	3,634.40
A				**Total Cost of materials**	**21,64,601.25**
B				Stock, Storage & Insurance i.e 3% of A	64,938.04
C				**Sub Total (A+B)**	**22,29,539.29**
D				Contigency @ 3% of C	66,886.18
E				Tools & Plants @ 2% of C	44,590.79
F				Transportation @ 7.5% of C	1,67,215.45
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	40,906.45
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	1,37,057.28
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**26,86,195.43**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	14	31,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	7.7	50,050.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.575	10,237.50

4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	14	33,698.00
K	**Total Civil & Services**				**1,25,485.50**
L	**Total (J+K)**				28,11,680.93
M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)				1,68,700.86
N	**Sub Total (L+M)**				**29,80,381.79**
O	Total GST @ 18% of (N)				5,36,468.72
P	Total GST @ 1% of (N)				29,803.82
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**				**35,46,654.33**
,.					
	No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)				

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	27	15,31,864.29
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	877.608	77,668.31
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	142.7328	12,631.85
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	157.9694	13,980.30
5	Danger Plate, 1 no's.	No.	94.40	27	2,548.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	8.1243	719.00
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	81	7,646.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	32.4972	2,876.00
9	33KV pin insulator polymer	No.	566.40	81	45,878.40
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	162	95,580.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	162	2,19,834.00
12	Earthing of Support (Coil Type)	EA	195.88	27	5,288.76
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	7.074	626.05
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	162	2,19,834.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	131.733	12,124.71
16	Black Paint	Ltr	259.60	27	7,009.20
17	Yellow Colour Paint for Background	Ltr	259.60	54	14,018.40

A	**Total Cost of materials**	**22,70,128.46**
B	Stock, Storage & Insurance i.e 3% of A	68,103.85
C	**Sub Total (A+B)**	**23,38,232.31**
D	Contigency @ 3% of C	70,146.97
E	Tools & Plants @ 2% of C	46,764.65
F	Transportation @ 7.5% of C	1,75,367.42
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	78,891.01
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	76,041.21
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**27,85,443.57**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	14.85	96,525.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.0375	19,743.75
K	**Total Civil & Services**				**1,16,268.75**
L	**Total (J+K)**				**29,01,712.32**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				1,74,102.74
N	**Sub Total (L+M)**				**30,75,815.06**
O	Total GST @ 18% of (N)				5,53,646.71
P	Total GST @ 1% of (N)				30,758.15
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**36,60,219.92**
.					
	No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)				

MATERIALS FOR 33 KV Cut Point with 90 Degree Angle

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	7	3,97,150.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	88.50	455.056	40,272.46
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	74.0096	6,549.85
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	88.50	81.91008	7,249.04
5	Danger Plate, 1 no's.	No.	94.40	7	660.80

6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	2.1063	186.41
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	21	1,982.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	8.4252	745.63
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	566.40	28	15,859.20
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	42	24,780.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	42	56,994.00
12	Earthing of Support (Coil Type)	No.	195.88	7	1,371.16
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.834	162.31
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	42	56,994.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	7	1,032.50
16	H.T. Stay set (Complete)	Set	1,239.00	7	8,673.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	7	413.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	105	9,292.50
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	79.17	7,286.81
20	Black Paint	Ltr	259.60	7	1,817.20
21	Yellow Colour Paint for Background	Ltr	259.60	14	3,634.40
A				**Total Cost of materials**	**6,43,106.66**
B				Stock, Storage & Insurance i.e 3% of A	19,293.20
C				**Sub Total (A+B)**	**6,62,399.86**
D				Contigency @ 3% of C	19,872.00
E				Tools & Plants @ 2% of C	13,248.00
F				Transportation @ 7.5% of C	49,679.99
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	20,453.23
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	23,334.20
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**7,88,987.27**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	3.85	25,025.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.7875	5,118.75

3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	7	15,750.00
K				**Total Civil & Services**	**45,893.75**
L				**Total (J+K)**	8,34,881.02
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				50,092.86
N				**Sub Total (L+M)**	**8,84,973.88**
O				Total GST @ 18% of (N)	1,59,295.30
P				Total GST @ 1% of (N)	8,849.74
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**10,53,118.92**
.					
	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-HVD-0001)				
	MATERIALS FOR 33 KV Pin Points				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	102	57,87,042.86
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	102	1,90,168.80
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	177.00	102	18,054.00
4	Danger Plate, 1 no's.	No.	94.40	102	9,628.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	31	2,716.22
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	306	28,886.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	123	10,864.90
8	33KV pin insulator polymer	No.	566.40	306	1,73,318.40
9	Earthing of Support (Coil Type)	No.	195.88	102	19,979.76
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	27	2,365.07
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	148	13,612.72
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	53	97,00,715.10
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	102	26,479.20
15	Yellow Colour Paint for Background	Ltr	259.60	204	52,958.40
A				**Total Cost of materials**	**1,60,36,790.63**
B				Stock, Storage & Insurance i.e 3% of A	4,81,103.72

C	**Sub Total (A+B)**	**1,65,17,894.35**
D	Contigency @ 3% of C	4,95,536.83
E	Tools & Plants @ 2% of C	3,30,357.89
F	Transportation @ 7.5% of C	12,38,842.08
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	2,98,032.71
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	10,55,724.02
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**1,99,36,387.87**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	56.1	3,64,650.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	11.475	74,587.50
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	119	1,60,650.00
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.4	90	3,726.00
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	400	3,168.00
6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	270	2,187.00
7	Dismantling of Disc Insulator with Hardware including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	120	972.00
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	52.53	4,72,770.00
K	**Total Civil & Services**				**10,82,710.50**
L	**Total (J+K)**				**2,10,19,098.37**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)				12,61,145.90
N	**Sub Total (L+M)**				**2,22,80,244.27**
O	Total GST @ 18% of (N)				40,10,443.97
P	Total GST @ 1% of (N)				2,22,802.44
Q	**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**				**2,65,13,490.68**
.					

6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	3,48,685.44
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	1,68,700.86
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	1,74,102.74
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	50,092.86
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	12,61,145.90
.	**Total (6% supervision charges)**	**20,02,727.80**
	Gross Total Summary	
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	73,30,530.31
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	35,46,654.33
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	36,60,219.92
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	10,53,118.92
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	2,65,13,490.68
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	**360.00**
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**4,21,05,474.16**

Part-D

Standard BoQ and Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - 0.6km cable.

Supply Portion

	Feeder Length		**0**		
Sl. No.	**Description of items**	**Unit**	**Total Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories**		**0.6**		
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***km***	***0.42***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***km***	***0.18***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	km	***1.8***	13,37,130.00	24,06,834.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	***8***	9,726.50	77,812.03
1.3	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***16***	9,726.50	1,55,624.06

1.5	Supply of materials for High Density Polyethelene **(HDPE) pipe 110mm** diameter, PE 80- PN8 for laying of 33kV UG cable	km	***1.26***	5,20,436.00	6,55,749.36
	Sub Total (Supply Portion) (in Rs.)				**32,96,019.46**
Erection Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	km	1.68	94,500.00	1,58,760.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	8	3,480.00	27,840.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	16	3,480.00	55,680.00
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	0	3,480.00	-
1.5	Supply, Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0.72	23,00,000.00	16,56,000.00
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	1.26	1,04,114.67	1,31,184.48
	Sub Total (Erection Portion) (in Rs.)				**20,29,464.48**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	352.8	700.00	2,46,960.00
1.1.b	Earth work excavation of **hard rock**	Cum	151.2	1,720.00	2,60,064.00

1.4	Back filling with excavated soil outside and above the trench	Cum	504	202.00	1,01,808.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	***0.21***	26,43,670.63	5,55,170.83
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	128	1,463.40	1,87,315.20
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	20	1,012.00	20,240.00
	Sub Total (Civil Portion) (in Rs.)				**13,71,558.03**
A	**Sub Total (Supply Portion)**				**32,96,019.46**
B	Stock, Storage & Insurance @ 3 % of A				98,880.58
C	**Sub Total (A+B)**				**33,94,900.04**
D	Contingency @ 3 % of C				1,01,847.00
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				2,54,617.50
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**37,51,364.54**
I	Sub Total (Erection Portion + Civil Portion)				34,01,022.52
J	**Total Cost (H+I)**				**71,52,387.06**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				4,29,143.22
L	**Total Estimated Capital Cost i.e. (J+K)**				**75,81,530.28**
M	GST @ 18% of L				13,64,675.45
N	GST @ 1% of L				7,58,153.03
O	**Grand Total (L+M+N)**				**97,04,358.76**
P	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
R	Inspection Fee of RMU - Rs. 2000/ RMU				0
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**				**97,05,508.76**

Part-D

DP with Iso - 4No's

	No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				
	MATERIALS FOR 33 KV DP With Isolator				

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	88.50	328.864	29,104.46
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	15.8592	1,403.54
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	88.50	122.808	10,868.51
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	88.50	245.616	21,737.02
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	88.50	491.232	43,474.03
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	354.744	31,394.84
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	88.50	22.848	2,022.05
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	6.984	618.08
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	6.12	541.62
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	88.50	38.24	3,384.24
12	Danger Plate, 2 no's.	No.	94.40	8	755.20
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	2.4072	213.04
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	8	1,180.00
15	H.T. Stay set (Complete)	Set	1,239.00	8	9,912.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	16	944.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	8	9,912.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	226.56	20,050.56
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	24	2,265.60
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	9.6288	852.15
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	12	1,46,556.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	84,464.40	4	3,37,857.60
24	33KV pin insulator polymer	No.	566.40	12	6,796.80
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	24	14,160.00

26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	24	32,568.00
27	PG Clamp for 148 sq.mm AAA conductor	NO.	731.60	24	17,558.40
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	88.6	8,154.74
29	Black Paint	Ltr	259.60	4	1,038.40
30	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80
A				**Total Cost of materials**	**12,21,905.40**
B				Stock, Storage & Insurance i.e 3% of A	36,657.16
C				**Sub Total (A+B)**	**12,58,562.56**
D				Contigency @ 3% of C	37,756.88
E				Tools & Plants @ 2% of C	25,171.25
F				Transportation @ 7.5% of C	94,392.19
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	23,375.11
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	76,772.46
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**15,16,030.46**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	8	19,256.00
K				**Total Civil & Services**	**71,706.00**
L				**Total (J+K)**	15,87,736.46
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	95,264.19
N				**Sub Total (L+M)**	**16,83,000.64**
O				Total GST @ 18% of (N)	3,02,940.12
P				Total GST @ 1% of (N)	16,830.01
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**20,02,770.76**

Benefit:

- Power evacuation from upcoming Godisahi GSS to present and future loads of 33kV Naraj feeder.
- Ensure reliable power supply, mitigate overloading, low voltage issue and improving N-1 connectivity.

Proposal-2 (Proposed for augmentation of 33kV Kesura Laxmisagar fdr. I & II)

Proposal:

Proposal for mitiagtion of overloading of 33 KV Laxmisagar fdr. I & II emanating from Kesura Grid and improving network reliablity at N-1 contingency condition.

Objective:

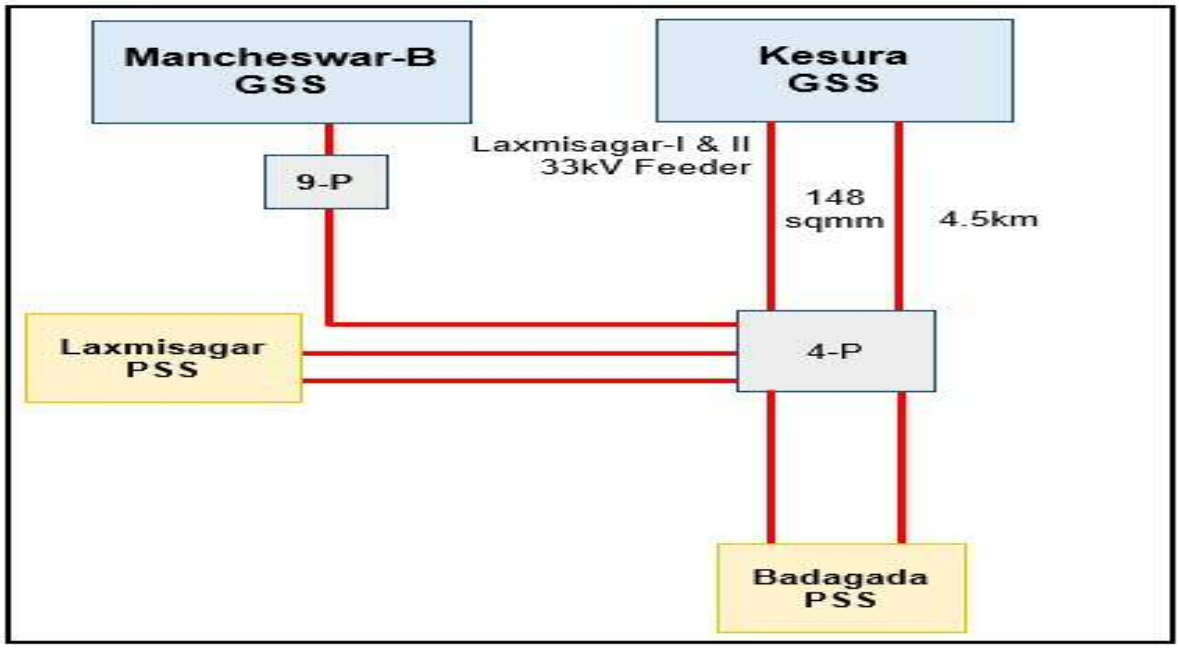
- To maintain reliability of power supply with improving N-1 connectivity, mitigate overload and strengthening the existing network.

Existing Scenario:

- At present, both 33kV Laxmisagar fdr. I and II are emanating from Kesura Grid.
- Present peak load of Laxmisagar - I 33kV feeder is 19.88 MVA and Laxmisagar - II 33kV feeder is 22.85MVA.
- Considering present scenario, there is overloading and no N-1 reliability at both the feeders. In addition, both the feeders are not capable to meet the future load demand in the area.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Laxmisagar - I	20	19.88	99%	Overload	Not OK
Laxmisagar - II	20	22.85	114%	Overload	Not OK

Existing SLD (FY' 22-23):

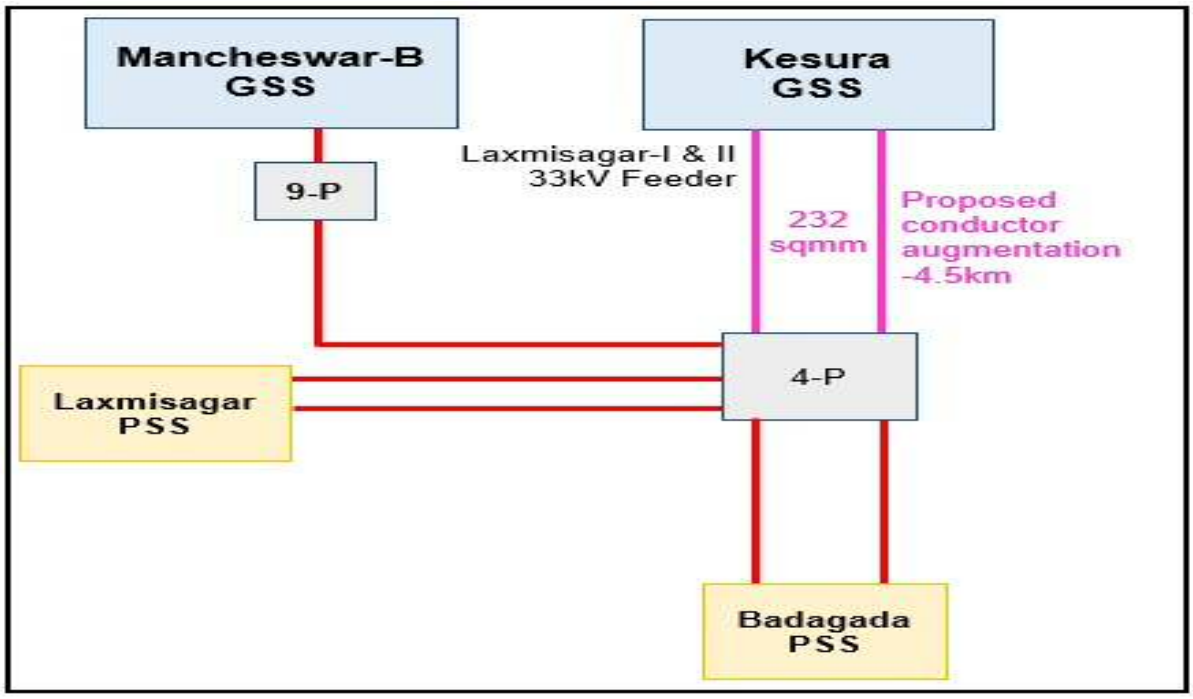


Proposed Scenario:

- After augmentation of Laxmisagar - I &II 33kV feeders, the feeders will deliver reliable power supply to the consumers.
- Overloading of 33kV feeders will be mitigate.
- Considering 33% load growth, the feeders will be capable to feed the load demand for next 2 to 3 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 25-26 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Laxmisagar – I	26.51	19.88	33%	26.44	100%	OK	OK
Laxmisagar – II	26.51	22.85	33%	30.39	115%	OK	OK

Proposed SLD (FY' 23-24):



Detailed Scope of Work:

Augmentation of Laxmisagar feeder - I & II from 148 sq.mm OH conductor to 232sqmm conductor in order to mitigate overloading issue and improving N-1 contingency condition.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	**BED**	
	Name of the Sub-Division : -	Rasulgarh	
	Name of the Section : -	Rasulgarh	
	Name of the Work :-	Proposal for conductor augmentation of Laxmisagar feeder - I & II from 148 sq.mm OH conductor to 232sqmm conductor to mitigate overloading issue and improving N-1 contingency condition.	
	Scope of work:-	Replacement of 148sqmm conductor along with poles to 232sqmm at 33kV Laxmisagar -I and II feeder on double ckt. line - 4.5 Ckm	
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)	
ABSTRACT OF ESTIMATE			
Sl. No.	**Part**	**Description**	**Amount**
1	A	Estimate for conductor augmentation of Kesura_Laxmisagar I and II feeder (Kesura GSS to 4Pole) from 148sqmm OH conductor to 232sqmm conductor double ckt line - 4.5Ckm	2,95,75,986.22
		Total Amount	**2,95,75,986.22**
		Total Amount (In Cr)	**2.96**
Total estimated cost is Rs. 2.96 Crore. (On TPCODL Capex Scheme)			

Part-A

33kV Laxmisagar-I & II feeder - 4.5km Double Ckt Aug.

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				
MATERIALS FOR 33 KV DP Without Isolator				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	28	15,88,600.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	88.50	869.96	76,991.46
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	55.5072	4,912.39
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	88.50	979.608	86,695.31
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	864.864	76,540.46
6	Danger Plate, 2 no's.	No.	94.40	28	2,643.20
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	8.4252	745.63
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	28	4,130.00
9	H.T. Stay set (Complete)	Set	1,239.00	28	34,692.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	56	3,304.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	420	37,170.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	14	17,346.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	165.2	14,620.20
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	84	7,929.60
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	33.7008	2,982.52
16	33KV pin insulator polymer	No.	566.40	42	23,788.80
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	84	49,560.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	84	1,13,988.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	84	1,13,988.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	171.654	15,799.03
21	Black Paint	Ltr	259.60	14	3,634.40
22	Yellow Colour Paint for Background	Ltr	259.60	28	7,268.80
A				**Total Cost of materials**	**22,87,329.80**

B	Stock, Storage & Insurance i.e 3% of A	68,619.89
C	**Sub Total (A+B)**	**23,55,949.70**
D	Contigency @ 3% of C	70,678.49
E	Tools & Plants @ 2% of C	47,118.99
F	Transportation @ 7.5% of C	1,76,696.23
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	81,812.90
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	63,801.68
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**27,96,057.99**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	28	63,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	15.4	1,00,100.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.15	20,475.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	14	33,698.00
K	**Total Civil & Services**				**2,17,273.00**
L	**Total (J+K)**				30,13,330.99
M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)				1,80,799.86
N	**Sub Total (L+M)**				**31,94,130.85**
O	Total GST @ 18% of (N)				5,74,943.55
P	Total GST @ 1% of (N)				31,941.31
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**				**38,01,015.71**
.					
	No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	88.50	328.864	29,104.46

3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	15.8592	1,403.54
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	88.50	122.808	10,868.51
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	88.50	245.616	21,737.02
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	88.50	491.232	43,474.03
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	354.744	31,394.84
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	88.50	22.848	2,022.05
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	6.984	618.08
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	6.12	541.62
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	88.50	38.24	3,384.24
12	Danger Plate, 2 no's.	No.	94.40	8	755.20
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	2.4072	213.04
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	8	1,180.00
15	H.T. Stay set (Complete)	Set	1,239.00	8	9,912.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	16	944.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	8	9,912.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	226.56	20,050.56
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	24	2,265.60
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	9.6288	852.15
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	12	1,46,556.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with Pl(Polymer)	Set	84,464.40	4	3,37,857.60
24	33KV pin insulator polymer	No.	566.40	12	6,796.80
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	24	14,160.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	24	32,568.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	24	32,568.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	88.6	8,154.74
29	Black Paint	Ltr	259.60	4	1,038.40

30	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80
A				**Total Cost of materials**	**12,36,915.00**
B				Stock, Storage & Insurance i.e 3% of A	37,107.45
C				**Sub Total (A+B)**	**12,74,022.45**
D				Contigency @ 3% of C	38,220.67
E				Tools & Plants @ 2% of C	25,480.45
F				Transportation @ 7.5% of C	95,551.68
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	23,375.11
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	78,318.45
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**15,34,968.82**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	8	19,256.00
K				**Total Civil & Services**	**71,706.00**
L				**Total (J+K)**	16,06,674.82
M				Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	96,400.49
N				**Sub Total (L+M)**	**17,03,075.31**
O				Total GST @ 18% of (N)	3,06,553.56
P				Total GST @ 1% of (N)	17,030.75
Q				**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**	**20,26,659.62**
,.					
No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)					

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***

1	13 Mtr. Long H-Pole	No	56,735.71	14	7,94,300.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)x3	K.g.	88.50	1365.168	1,20,817.37
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	222.0288	19,649.55
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	0	-
5	Danger Plate, 1 no's.	No.	94.40	14	1,321.60
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.2126	372.82
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	42	3,964.80
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	16.8504	1,491.26
9	33KV pin insulator polymer	No.	566.40	84	47,577.60
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	168	99,120.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	168	2,27,976.00
12	Earthing of Support (Coil Type)	EA	195.88	14	2,742.32
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.668	324.62
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	84	1,13,988.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	68.306	6,286.88
16	Black Paint	Ltr	259.60	14	3,634.40
17	Yellow Colour Paint for Background	Ltr	259.60	28	7,268.80
A				**Total Cost of materials**	**14,50,836.01**
B				Stock, Storage & Insurance i.e 3% of A	43,525.08
C				**Sub Total (A+B)**	**14,94,361.09**
D				Contigency @ 3% of C	44,830.83
E				Tools & Plants @ 2% of C	29,887.22
F				Transportation @ 7.5% of C	1,12,077.08
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	40,906.45
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	67,623.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**17,89,685.89**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	7.7	50,050.00

2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.575	10,237.50
K				**Total Civil & Services**	**60,287.50**
L				**Total (J+K)**	**18,49,973.39**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				1,10,998.40
N				**Sub Total (L+M)**	**19,60,971.79**
O				Total GST @ 18% of (N)	3,52,974.92
P				Total GST @ 1% of (N)	19,609.72
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**23,33,556.44**
	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-HVD-0001)				
	MATERIALS FOR 33 KV Pin Points				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	97	55,03,364.29
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	582	10,85,080.80
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 12 no's required = (12x2.36x0.280x)	K.g.	88.50	769	68,071.65
4	Danger Plate, 1 no's.	No.	94.40	97	9,156.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	29	2,583.08
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	291	27,470.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	117	10,332.30
8	33KV pin insulator polymer	No.	566.40	1164	6,59,289.60
9	Earthing of Support (Coil Type)	No.	195.88	97	19,000.36
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	25	2,249.14
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	141	12,945.43
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	28	51,35,672.70
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	97	25,181.20
15	Yellow Colour Paint for Background	Ltr	259.60	194	50,362.40
A				**Total Cost of materials**	**1,26,10,760.14**
B				Stock, Storage & Insurance i.e 3% of A	3,78,322.80
C				**Sub Total (A+B)**	**1,29,89,082.95**
D				Contigency @ 3% of C	3,89,672.49
E				Tools & Plants @ 2% of C	2,59,781.66

F	Transportation @ 7.5% of C	9,74,181.22
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	2,83,423.26
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,32,061.77
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**1,56,28,203.35**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	103.95	6,75,675.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	21.2625	1,38,206.25
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	180	2,43,000.00
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.40	540	22,356.00
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	800	6,336.00
6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	900	7,290.00
7	Dismantling of Disc Insulator with Hardware including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	360	2,916.00
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	28	2,52,000.00
K	**Total Civil & Services**				**13,47,779.25**
L	**Total (J+K)**				**1,69,75,982.60**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)				10,18,558.96
N	**Sub Total (L+M)**				**1,79,94,541.55**
O	Total GST @ 18% of (N)				32,39,017.48
P	Total GST @ 1% of (N)				1,79,945.42
Q	**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**				**2,14,13,504.45**
.					

6% Supervision Charges Summary

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	1,80,799.86
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	96,400.49
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	1,10,998.40

4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	10,18,558.96
.	**Total (6% supervision charges)**	**14,06,757.71**
Gross Total Summary		
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	38,01,015.71
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	20,26,659.62
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	23,33,556.44
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	-
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	2,14,13,504.45
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	**150.00**
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**2,95,75,986.22**

Benefit:

- Ensure reliable power supply, mitigate overload and improve N-1 connectivity.

Proposal-3 (Proposal for mitigating overloading issue of 33kV Bhimtangi and Badagada Fdr. and N-1 connectivaty of 33kV Lingipur Fdr.)

Proposal:

a) Proposal for mitiagtion of overloading of 33 KV Bhimtangi and Badagada emanating from Ransinghpur Grid and improve network reliablity.
b) Proposal for mitiagtion of Overloading and N-1 connectivity of 33 KV Lingipur fdr emanating from Kesura Grid.

Objective:

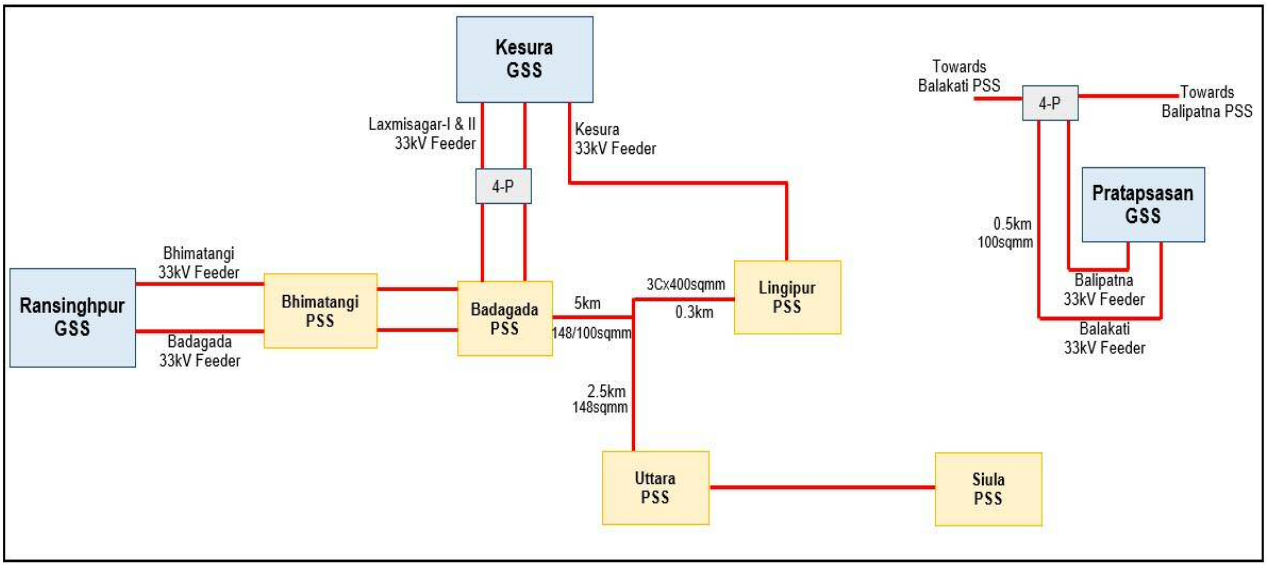
- To maintain reliable power supply, mitigation of overloading, improving N-1 connectivity and strengthening the existing network.

Existing Scenario:

- At present, both 33kV Bhimtangi and Badgada feeders are emanating from Ransinghpur Grid.
- Present peak load of Bhimtangi 33kV feeder is 27.43MVA and Badagada 33kV feeder is 22.85MVA.
- Considering present scenario, there is overloading of the 33kv feeder along with no N-1 reliability at both the feeders. In addition, both the feeders are not capable to meet the future load demand in the area.
- At present, 33kV Lingipur fdr is emanating from Kesura Grid having connectivity with Badagada and Uttra PSS with lower size of conductor/cable.
- Present peak load of Lingipur 33kV feeder is 15.65 MVA.
- Considering present scenario, there is overloading of the 33kV feeder along with N-1 reliability issue of the feeder.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Bhimtangi	26.51	27.43	103%	Overload	Not OK
Badagada	26.51	22.85	86%	OK	Not OK
Lingipur	15.54	15.65	101%	Overload	Not OK

Existing SLD (FY' 22-23):

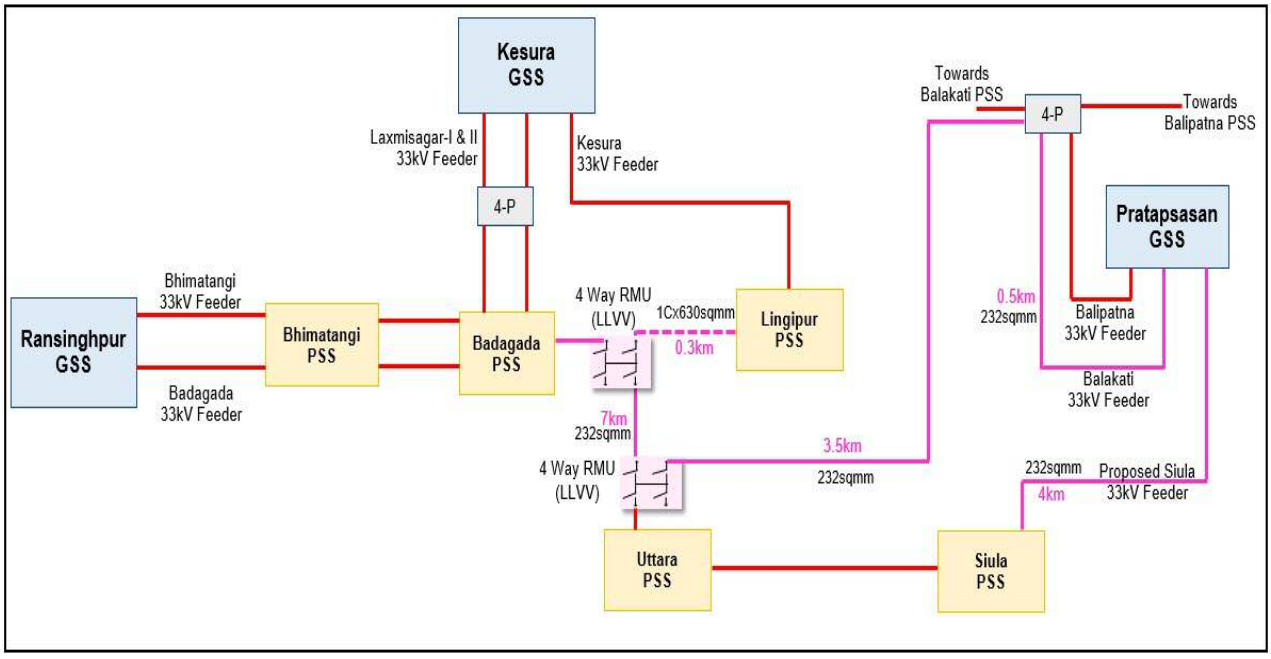


Proposed Scenario:

- After augmentation of Balakati 33kV feeder and interlinking to Uttra PSS along with proposed new feeder from Pratapsasan Grid to Siula PSS, the feeders will be deliver reliable power supply to the consumers.
- Overloading issue of network will mitigate.
- Considering 321% load growth, the feeder will capable to feed the load demand for next 2 to 3 years.
- After augmentation of interlinking line of Badagada T-off to Lingipur PSS, the feeder's N-1 connectivaty issue will improve.
- Overloading and N-1 issue of network will be mitigated.
- Considering 50% load growth, the feeder will be capable to feed the load demand for next 4 to 5 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 24-25 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Bhimtangi	26.51	20.43	21%	24.72	93%	OK	Not OK
Badgada	26.51	15.85	21%	19.18	72%	OK	Not OK
New Fdr.	26.51	14	21%	16.94	64%	OK	Not OK
Lingipur	25.71	15.65	50%	23.48	91%	OK	OK

Proposed SLD (FY' 23-24):



Detailed Scope of Work:

1) Augmentation of Balakati feeder - 0.5km, interlinking of Badagada PSS to Uttra PSS with 232sqmm OH conductor - 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS.
2) New 33kv fdr from Pratpasasan Grid to Siula PSS- 4kM.
3) Augmentation of UG cable from interlinking line near Lingipur PSS - 0.3km
4) 2 No's 33KV RMU at Uttara and Lingipur T-Off.

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	**BED**
Name of the Sub-Division : -	Pipli
Name of the Section : -	Balakati
Name of the Work :-	Proposal for conductor augmentation of Balakati feeder - 0.5km, interlinking of Badagada PSS to Uttra PSS with 232sqmm OH conductor - 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS to mitigate overloading issue and improving N-1 contingency condition. load growth of 33kv Bhimtangi and Badagada fdrs. Since there is a delay in commissioning of Proposed Badagada OPTCL GSS.
Scope of work:-	Replacement of 100sqmm. conductor along with poles to 232sqmm at 33kV Balakati feeder line - 0.5 Ckm Replacment of interlinking line of Badagada PSS to Uttra PSS with 232sqmm OH conductor - 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS 2 No's RMU at Uttara and Lingipur T-Off. Replacement 0.3Ckt U/G 400 sqmm cable to 1CX630Sqmm near Lingipur PSS
Names of Schemes: -	TPCODL CAPEX(FY 22-23)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	1) Estimate for conductor augmentation of Balakati, Siula and Badagada interlinking feeder from 100/148 sqmm OH conductor to 232sqmm conductor - 7.5Ckm 2) New interlinking line from Balakati 4-Pole to Uttra PSS - 4Ckm	4,39,11,777.42
2	B	Estimate for 2 No's RMU at Uttara and Siula T-Off.	1,32,69,769.11
3	C	Construction of new 33KV feeder from Pratapsan GSS to Uttara	1,58,41,920.56
4	D	Replacement 0.3Ckt U/G 400 sqmm cable to 1CX630Sqmm near Lingipur PSS	46,55,457.30
		Total Amount	**7,76,78,924.39**
		Total Amount (In Cr)	**7.77**
Total estimated cost is Rs. 7.77 Crore. (On TPCODL Capex Scheme)			

1) ***Part-A***
Estimate for conductor augmentation of Balakati, Siula and Badagada interlinking feeder from 100/148 sqmm OH conductor to 232sqmm conductor - 7.5Ckm
New interlinking line from Balakati 4-Pole to Uttra PSS - 4Ckm

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	36	20,42,485.71
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	88.50	1118.52	98,989.02
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	71.3664	6,315.93

4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	88.50	1259.496	1,11,465.40
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	1111.968	98,409.17
6	Danger Plate, 2 no's.	No.	94.40	36	3,398.40
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	10.8324	958.67
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	36	5,310.00
9	H.T. Stay set (Complete)	Set	1,239.00	36	44,604.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	72	4,248.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	540	47,790.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	18	22,302.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	212.4	18,797.40
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	108	10,195.20
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	43.3296	3,834.67
16	33KV pin insulator polymer	No.	566.40	54	30,585.60
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	108	63,720.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	108	1,46,556.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	108	1,46,556.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	220.698	20,313.04
21	Black Paint	Ltr	259.60	18	4,672.80
22	Yellow Colour Paint for Background	Ltr	259.60	36	9,345.60
A				**Total Cost of materials**	**29,40,852.61**
B				Stock, Storage & Insurance i.e 3% of A	88,225.58
C				**Sub Total (A+B)**	**30,29,078.18**
D				Contigency @ 3% of C	90,872.35
E				Tools & Plants @ 2% of C	60,581.56
F				Transportation @ 7.5% of C	2,27,180.86
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	1,05,188.01
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	82,030.73
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**35,94,931.70**
Civil & Services					

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	36	81,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	19.8	1,28,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	4.05	26,325.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	18	43,326.00
K				**Total Civil & Services**	**2,79,351.00**
L				**Total (J+K)**	38,74,282.70
M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)				2,32,456.96
N				**Sub Total (L+M)**	**41,06,739.67**
O				Total GST @ 18% of (N)	7,39,213.14
P				Total GST @ 1% of (N)	41,067.40
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**				**48,87,020.20**
.					
	No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-HVD-0004)				

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	88.50	328.864	29,104.46
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	15.8592	1,403.54
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	88.50	122.808	10,868.51
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	88.50	245.616	21,737.02
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	88.50	491.232	43,474.03
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	354.744	31,394.84
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	88.50	22.848	2,022.05

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	6.984	618.08
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	6.12	541.62
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	88.50	38.24	3,384.24
12	Danger Plate, 2 no's.	No.	94.40	8	755.20
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	2.4072	213.04
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	8	1,180.00
15	H.T. Stay set (Complete)	Set	1,239.00	8	9,912.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	16	944.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	8	9,912.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	226.56	20,050.56
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	24	2,265.60
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	9.6288	852.15
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	12	1,46,556.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	84,464.40	4	3,37,857.60
24	33KV pin insulator polymer	No.	566.40	12	6,796.80
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	24	14,160.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	24	32,568.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	24	32,568.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	88.6	8,154.74
29	Black Paint	Ltr	259.60	4	1,038.40
30	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80
A				**Total Cost of materials**	**12,36,915.00**
B				Stock, Storage & Insurance i.e 3% of A	37,107.45
C				**Sub Total (A+B)**	**12,74,022.45**
D				Contigency @ 3% of C	38,220.67
E				Tools & Plants @ 2% of C	25,480.45
F				Transportation @ 7.5% of C	95,551.68
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	23,375.11

H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	78,318.45
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**15,34,968.82**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	8	19,256.00
K	**Total Civil & Services**				**71,706.00**
L	**Total (J+K)**				16,06,674.82
M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)				96,400.49
N	**Sub Total (L+M)**				**17,03,075.31**
O	Total GST @ 18% of (N)				3,06,553.56
P	Total GST @ 1% of (N)				17,030.75
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**				**20,26,659.62**
,.					

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	18	10,21,242.86
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	585.072	51,778.87
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	95.1552	8,421.24
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	105.313	9,320.20
5	Danger Plate, 1 no's.	No.	94.40	18	1,699.20
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	5.4162	479.33

7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	54	5,097.60
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	21.6648	1,917.33
9	33KV pin insulator polymer	No.	566.40	54	30,585.60
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	108	63,720.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	108	1,46,556.00
12	Earthing of Support (Coil Type)	EA	195.88	18	3,525.84
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	4.716	417.37
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	108	1,46,556.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	87.822	8,083.14
16	Black Paint	Ltr	259.60	18	4,672.80
17	Yellow Colour Paint for Background	Ltr	259.60	36	9,345.60
A				**Total Cost of materials**	**15,13,418.97**
B				Stock, Storage & Insurance i.e 3% of A	45,402.57
C				**Sub Total (A+B)**	**15,58,821.54**
D				Contigency @ 3% of C	46,764.65
E				Tools & Plants @ 2% of C	31,176.43
F				Transportation @ 7.5% of C	1,16,911.62
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	52,594.01
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	50,694.14
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**18,56,962.38**
Civil & Services					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	9.9	64,350.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.025	13,162.50
K				**Total Civil & Services**	**77,512.50**
L				**Total (J+K)**	**19,34,474.88**
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	1,16,068.49
N				**Sub Total (L+M)**	**20,50,543.37**
O				Total GST @ 18% of (N)	3,69,097.81
P				Total GST @ 1% of (N)	20,505.43

Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**				**24,40,146.62**
.					
	No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)				
	MATERIALS FOR 33 KV Cut Point with 90 Degree Angle				
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	4	2,26,942.86
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	88.50	260.032	23,012.83
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	42.2912	3,742.77
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	88.50	46.80576	4,142.31
5	Danger Plate, 1 no's.	No.	94.40	4	377.60
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	1.2036	106.52
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	12	1,132.80
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	4.8144	426.07
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	566.40	16	9,062.40
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	24	14,160.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	24	32,568.00
12	Earthing of Support (Coil Type)	No.	195.88	4	783.52
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.048	92.75
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	24	32,568.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
16	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	4	236.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	45.24	4,163.89
20	Black Paint	Ltr	259.60	4	1,038.40
21	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80
A	**Total Cost of materials**				**3,67,489.52**
B	Stock, Storage & Insurance i.e 3% of A				11,024.69
C	**Sub Total (A+B)**				**3,78,514.21**
D	Contigency @ 3% of C				11,355.43

E	Tools & Plants @ 2% of C	7,570.28
F	Transportation @ 7.5% of C	28,388.57
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	11,687.56
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	13,333.83
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**4,50,849.87**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.2	14,300.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	4	9,000.00
K			**Total Civil & Services**		**26,225.00**
L			**Total (J+K)**		4,77,074.87
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				28,624.49
N			**Sub Total (L+M)**		**5,05,699.36**
O			Total GST @ 18% of (N)		91,025.89
P			Total GST @ 1% of (N)		5,056.99
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**6,01,782.24**
.					

33 Kv Line Length In KM with 40 Mtr. Span
(Ref. Drawing No.- TPCODL-HVD-0001)

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	231	1,31,05,950.00
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	231	4,30,676.40
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	177.00	231	40,887.00
4	Danger Plate, 1 no's.	No.	94.40	231	21,806.40
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	70	6,151.45
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	693	65,419.20

7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	278	24,605.80
8	33KV pin insulator polymer	No.	566.40	693	3,92,515.20
9	Earthing of Support (Coil Type)	No.	195.88	231	45,248.28
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	61	5,356.20
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	335	30,828.80
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	34	62,76,933.30
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	231	59,967.60
15	Yellow Colour Paint for Background	Ltr	259.60	462	1,19,935.20
A				**Total Cost of materials**	**2,06,26,280.82**
B				Stock, Storage & Insurance i.e 3% of A	6,18,788.42
C				**Sub Total (A+B)**	**2,12,45,069.25**
D				Contigency @ 3% of C	6,37,352.08
E				Tools & Plants @ 2% of C	4,24,901.38
F				Transportation @ 7.5% of C	15,93,380.19
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	6,74,956.43
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	7,74,594.07
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**2,53,50,253.40**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	127.05	8,25,825.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	25.9875	1,68,918.75
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	280	3,78,000.00
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.40	47	1,945.80
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	400	3,168.00

6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	141	1,142.10
7	Dismantling of Disc Insulator with Hardware including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	20	162.00
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	21	1,89,000.00
K	**Total Civil & Services**				**15,68,161.65**
L	**Total (J+K)**				**2,69,18,415.05**
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)				16,15,104.90
N	**Sub Total (L+M)**				**2,85,33,519.95**
O	Total GST @ 18% of (N)				51,36,033.59
P	Total GST @ 1% of (N)				2,85,335.20
Q	**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**				**3,39,54,888.74**
.					
6% Supervision Charges Summary					
1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)				2,32,456.96
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)				96,400.49
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				1,16,068.49
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				28,624.49
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)				16,15,104.90
.	**Total (6% supervision charges)**				**20,88,655.34**
Gross Total Summary					
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator				48,87,020.20
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator				20,26,659.62
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle				24,40,146.62
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle				6,01,782.24
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points				3,39,54,888.74
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				**180.00**
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**				**4,39,11,777.42**

Patr-B

Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - 2 Nos (LLVV) at Lingipur & Uttara

Supply Portion

	Feeder Length		**0**		
Sl. No.	**Description of items**	**Unit**	**Total Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories**		**0.2**		
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***km***	***0.2***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***km***	***0***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA-59.4kA and SC rating of Armour in kA-20kA)	km	***0.8***	13,37,130.00	10,69,704.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	***4***	9,726.50	38,906.02
1.3	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***32***	9,726.50	3,11,248.13
1.4	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***24***	7,409.93	1,77,838.27
1.5	Supply of materials for High Density Polyethelene **(HDPE) pipe 110mm** diameter, PE 80- PN8 for laying of 33kV UG cable	km	***0.8***	5,20,436.00	4,16,348.80
d	***No. of 33kV 4Way RMU (LLVV)***	***nos.***	***2***		
2.4	Supply of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	23,35,264.00	46,70,528.00
3	**Earthing**				
3.1	Earthing Conductor: **50X6 mm** (2.4kg./mtr.) **GI Flat** for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	**FRTU and OFC for RMU SCADA Automation**				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along 11kV UG cable.	km	2	56,515.00	1,13,030.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in Rs.)				**76,75,979.62**

Erection Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE	km	0.8	94,500.00	75,600.00

	cable as spare) in trefoil formation by **open trench method**.				
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	4	3,480.00	13,920.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	32	3,480.00	1,11,360.00
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	24	3,480.00	83,520.00
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.80	1,04,114.67	83,291.74
2	**Erection, Commissioning, Wiring and Testing of 33kV RMU**				
2.4	Erection of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	15,000.00	30,000.00
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2	27,296.35	54,592.70
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	6,124.36	12,248.72
	Sub Total (Erection Portion) (in Rs.)				**4,64,533.16**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
2	**Civil works for Prefabricated RCC foundation with supply of all materials**				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each **RMU**	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	256	1,463.40	3,74,630.40
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	7	1,012.00	
	Sub Total (Civil Portion) (in Rs.)				**5,74,549.00**
A	**Sub Total (Supply Portion)**				**76,75,979.62**
B	Stock, Storage & Insurance @ 3 % of A				2,30,279.39
C	**Sub Total (A+B)**				**79,06,259.00**
D	Contingency @ 3 % of C				2,37,187.77
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				150.22
F	Transportation @ 7.5% of C				5,92,969.43

G	Erection Charges @ 10% of earthing items	751.12
H	**Total (C+D+E+F+G)**	**87,37,317.54**
I	Sub Total (Erection Portion + Civil Portion)	10,39,082.16
J	**Total Cost (H+I)**	**97,76,399.70**
K	Other Overhead /(including Supervision Charges) @ 6 % of J	5,86,583.98
L	**Total Estimated Capital Cost i.e. (J+K)**	**1,03,62,983.68**
M	GST @ 18% of L	18,65,337.06
N	GST @ 1% of L	10,36,298.37
O	**Grand Total (L+M+N)**	**1,32,64,619.11**
P	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	4000
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BED**
	Name of the Sub-Division : -	Temple
	Name of the Section : -	Badagada
	Name of the Work :-	Proposal for construction of new 33kv fdr from Pratpasashan Grid to Siula PSS. To mitigate overloading issue and improving N-1 contingency of 33kv Lingipur, Bhimtangi and Badagada fdrs. Since there is a delay in comissioning of Proposed Badagada OPTCL GSS.
	Scope of work:-	Construction of new 33kv fdr from Pratpasashan Grid to Siula PSS - 4km
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)

ABSTRACT OF ESTIMATE

Sl. No.	**Part**	**Description**	**Amount**
1	C	Estimate for construction of new 33kv fdr from Pratpasashan Grid to Siula PSS - 4km	1,58,41,920.56
		Total Amount	**1,58,41,920.56**
		Total Amount (In Cr)	**1.58**
Total estimated cost is Rs. 1.58 Crore. (On TPCODL Capex Scheme)			

Construction of new 33KV feeder from Pratapsan GSS to Uttara

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)					

MATERIALS FOR 33 KV DP Without Isolator

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	12	6,80,828.57

2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =(2x9.56x3.25)	KG	88.50	372.84	32,996.34
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	23.7888	2,105.31
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =(5x7.14x1.96)	KG	88.50	419.832	37,155.13
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	370.656	32,803.06
6	Danger Plate, 2 no's.	No.	94.40	12	1,132.80
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	3.6108	319.56
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	12	1,770.00
9	H.T. Stay set (Complete)	Set	1,239.00	12	14,868.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	24	1,416.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	180	15,930.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	6	7,434.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	70.8	6,265.80
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	36	3,398.40
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	14.4432	1,278.22
16	33KV pin insulator polymer	No.	566.40	18	10,195.20
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	36	21,240.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	36	48,852.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	36	48,852.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	73.566	6,771.01
21	Black Paint	Ltr	259.60	6	1,557.60
22	Yellow Colour Paint for Background	Ltr	259.60	12	3,115.20
A	**Total Cost of materials**				**9,80,284.20**
B	Stock, Storage & Insurance i.e 3% of A				29,408.53
C	**Sub Total (A+B)**				**10,09,692.73**
D	Contigency @ 3% of C				30,290.78
E	Tools & Plants @ 2% of C				20,193.85
F	Transportation @ 7.5% of C				75,726.95
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				35,062.67
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				27,343.58

I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**11,98,310.57**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	12	27,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	6.6	42,900.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.35	8,775.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	6	14,442.00

K	**Total Civil & Services**	**93,117.00**
L	**Total (J+K)**	12,91,427.57
M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	77,485.65
N	**Sub Total (L+M)**	**13,68,913.22**
O	Total GST @ 18% of (N)	2,46,404.38
P	Total GST @ 1% of (N)	13,689.13
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator**	**16,29,006.73**

No. of 33 KV DP required With Isolator (Ref. Drawing No.- TPCODL-HVD-0004)

MATERIALS FOR 33 KV DP With Isolator

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	4	2,26,942.86
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =(2x9.56x4.3)	KG	88.50	164.432	14,552.23
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =(1x7.14x4.3)	KG	88.50	61.404	5,434.25
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =(2x7.14x4.3)	KG	88.50	122.808	10,868.51
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =(4x7.14x4.3)	KG	88.50	245.616	21,737.02

7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	177.372	15,697.42
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(1x7.14x0.8)	KG	88.50	11.424	1,011.02
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	3.492	309.04
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	3.06	270.81
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =(2x9.56x0.5)	KG	88.50	19.12	1,692.12
12	Danger Plate, 2 no's.	No.	94.40	4	377.60
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	4	590.00
15	H.T. Stay set (Complete)	Set	1,239.00	4	4,956.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	8	472.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	113.28	10,025.28
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	12	1,132.80
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	6	73,278.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	84,464.40	2	1,68,928.80
24	33KV pin insulator polymer	No.	566.40	6	3,398.40
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	12	7,080.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	12	16,284.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	12	16,284.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	44.3	4,077.37
29	Black Paint	Ltr	259.60	2	519.20
30	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A				**Total Cost of materials**	**6,18,457.50**
B				Stock, Storage & Insurance i.e 3% of A	18,553.72
C				**Sub Total (A+B)**	**6,37,011.22**

D	Contigency @ 3% of C	19,110.34
E	Tools & Plants @ 2% of C	12,740.22
F	Transportation @ 7.5% of C	47,775.84
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	11,687.56
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	39,159.22
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**7,67,484.41**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.2	14,300.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K	**Total Civil & Services**				**35,853.00**
L	**Total (J+K)**				8,03,337.41
M	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)				48,200.24
N	**Sub Total (L+M)**				**8,51,537.65**
O	Total GST @ 18% of (N)				1,53,276.78
P	Total GST @ 1% of (N)				8,515.38
Q	**Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator**				**10,13,329.81**
,.					

No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0002)

MATERIALS FOR 33 KV Cut Point with 180 Degree Angle

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	6	3,40,414.29
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	195.024	17,259.62
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	31.7184	2,807.08

4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	35.10432	3,106.73
5	Danger Plate, 1 no's.	No.	94.40	6	566.40
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	1.8054	159.78
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	18	1,699.20
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	7.2216	639.11
9	33KV pin insulator polymer	No.	566.40	18	10,195.20
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	36	21,240.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	36	48,852.00
12	Earthing of Support (Coil Type)	EA	195.88	6	1,175.28
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.572	139.12
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	36	48,852.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	29.274	2,694.38
16	Black Paint	Ltr	259.60	6	1,557.60
17	Yellow Colour Paint for Background	Ltr	259.60	12	3,115.20
A				**Total Cost of materials**	**5,04,472.99**
B				Stock, Storage & Insurance i.e 3% of A	15,134.19
C				**Sub Total (A+B)**	**5,19,607.18**
D				Contigency @ 3% of C	15,588.22
E				Tools & Plants @ 2% of C	10,392.14
F				Transportation @ 7.5% of C	38,970.54
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	17,531.34
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	16,898.05
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**6,18,987.46**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	3.3	21,450.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.675	4,387.50
K				**Total Civil & Services**	**25,837.50**
L				**Total (J+K)**	**6,44,824.96**

M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	38,689.50
N	**Sub Total (L+M)**	**6,83,514.46**
O	Total GST @ 18% of (N)	1,23,032.60
P	Total GST @ 1% of (N)	6,835.14
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle**	**8,13,382.21**

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No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No.- TPCODL-HVD-0003)					
MATERIALS FOR 33 KV Cut Point with 90 Degree Angle					
Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	13 Mtr. Long H-Pole	No	56,735.71	2	1,13,471.43
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	88.50	130.016	11,506.42
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	21.1456	1,871.39
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	88.50	23.40288	2,071.15
5	Danger Plate, 1 no's.	No.	94.40	2	188.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.6018	53.26
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	6	566.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	2.4072	213.04
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	566.40	8	4,531.20
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	12	7,080.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	12	16,284.00
12	Earthing of Support (Coil Type)	No.	195.88	2	391.76
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.524	46.37
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	12	16,284.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required (1 Pair)	Pair	147.50	2	295.00
16	H.T. Stay set (Complete)	Set	1,239.00	2	2,478.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	2	118.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	22.62	2,081.94
20	Black Paint	Ltr	259.60	2	519.20
21	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40

A	**Total Cost of materials**	**1,83,744.76**
B	Stock, Storage & Insurance i.e 3% of A	5,512.34
C	**Sub Total (A+B)**	**1,89,257.10**
D	Contigency @ 3% of C	5,677.71
E	Tools & Plants @ 2% of C	3,785.14
F	Transportation @ 7.5% of C	14,194.28
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	5,843.78
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	6,666.92
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J	**Sum of (C to I)**	**2,25,424.93**

Civil & Services

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	1.1	7,150.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.225	1,462.50
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	2	4,500.00
K	**Total Civil & Services**				**13,112.50**
L	**Total (J+K)**				2,38,537.43
M	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)				14,312.25
N	**Sub Total (L+M)**				**2,52,849.68**
O	Total GST @ 18% of (N)				45,512.94
P	Total GST @ 1% of (N)				2,528.50
Q	**Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle**				**3,00,891.12**

33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-HVD-0001)

MATERIALS FOR 33 KV Pin Points

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	13 Mtr. Long H-Pole	No	56,735.71	84	47,65,800.00
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	84	1,56,609.60
3	Top bracket 100x50x6mm GI channel (2kg each)	No.	177.00	84	14,868.00
4	Danger Plate, 1 no's.	No.	94.40	84	7,929.60

5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	25	2,236.89
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	252	23,788.80
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	101	8,947.56
8	33KV pin insulator polymer	No.	566.40	252	1,42,732.80
9	Earthing of Support (Coil Type)	No.	195.88	84	16,453.92
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	22	1,947.71
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	122	11,210.47
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	12	22,82,521.20
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	84	21,806.40
15	Yellow Colour Paint for Background	Ltr	259.60	168	43,612.80
A				**Total Cost of materials**	**75,00,465.75**
B				Stock, Storage & Insurance i.e 3% of A	2,25,013.97
C				**Sub Total (A+B)**	**77,25,479.73**
D				Contigency @ 3% of C	2,31,764.39
E				Tools & Plants @ 2% of C	1,54,509.59
F				Transportation @ 7.5% of C	5,79,410.98
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	2,45,438.70
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)	2,81,670.57
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kv	-
J				**Sum of (C to I)**	**92,18,273.96**

Civil & Services

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	46.2	3,00,300.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	9.45	61,425.00
K				**Total Civil & Services**	**3,61,725.00**
L				**Total (J+K)**	**95,79,998.96**
M				Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	5,74,799.94
N				**Sub Total (L+M)**	**1,01,54,798.90**
O				Total GST @ 18% of (N)	18,27,863.80
P				Total GST @ 1% of (N)	1,01,547.99

Q	**Gross Total Material +Services (N+O+P) for 33 KV Pin Points**	**1,20,84,210.69**
.		
	6% Supervision Charges Summary	
1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	77,485.65
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	48,200.24
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	38,689.50
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	14,312.25
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	5,74,799.94
.	**Total (6% supervision charges)**	**7,53,487.58**
	Gross Total Summary	
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	16,29,006.73
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	10,13,329.81
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	8,13,382.21
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	3,00,891.12
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	1,20,84,210.69
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)**	**1,58,41,920.56**

Part-D

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BED**
	Name of the Sub-Division : -	Temple
	Name of the Section : -	Badagada
	Name of the Work :-	Proposal for augmentation of interlinking line of Badgar T-off to Lingipur PSS. To mitigate overloading issue and improving N-1 contingency of 33kv Lingipur, Bhimtangi and Badagada fdrs. Since there is a delay in comissioning of Proposed Badagada OPTCL GSS.
	Scope of work:-	Replacement of UG cable from interlinking line of Badgada T-off to Lingipur PSS - 0.3km
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	D	Estimate for augmentation of UG cable from interlinking near Siula T-off - 0.3km	46,55,457.30
		Total Amount	**46,55,457.30**
		Total Amount (In Cr)	**0.47**

Total estimated cost is Rs. 0.47 Crore. (On TPCODL Capex Scheme)

Patr-A

Standard BoQ and Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU-0.3km

Supply Portion

	Feeder Length		**0**		
Sl. No.	**Description of items**	**Unit**	**Total Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories**		**0.3**		
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***km***	***0.21***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***km***	***0.09***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	km	***0.9***	13,37,130.00	12,03,417.00
1.2	Supply of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	***3***	9,726.50	29,179.51
1.3	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***3***	9,726.50	29,179.51
1.5	Supply of materials for High Density Polyethelene **(HDPE) pipe 110mm** diameter, PE 80- PN8 for laying of 33kV UG cable	km	***0.63***	5,20,436.00	3,27,874.68
	Sub Total (Supply Portion) (in Rs.)				**15,89,650.70**

Erection Portion

Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	km	0.84	94,500.00	79,380.00
1.2	Erection of **Straight through jointing kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	3	3,480.00	10,440.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	3	3,480.00	10,440.00
1.5	Supply, Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by **HDD method with** HDPE pipe (110mm dia, PN8 PE80) for laying of	km	0.36	23,00,000.00	8,28,000.00

	individual run of UG cable at main road and unaccessable place.				
1.6	Laying of **110mm dia** PE 80-PN8, **HDPE pipe** inside open trench.	km	0.63	1,04,114.67	65,592.24
	Sub Total (Erection Portion) (in Rs.)				**9,93,852.24**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench**				
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)				
1.1.a	Earth work excavation of **soil**	Cum	176.4	700.00	1,23,480.00
1.1.b	Earth work excavation of **hard rock**	Cum	75.6	1,720.00	1,30,032.00
1.4	Back filling with excavated soil outside and above the trench	Cum	252	202.00	50,904.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	***0.105***	26,43,670.63	2,77,585.42
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	24	1,463.40	35,121.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	10	1,012.00	10,120.00
	Sub Total (Civil Portion) (in Rs.)				**6,27,243.02**
A	**Sub Total (Supply Portion)**				**15,89,650.70**
B	Stock, Storage & Insurance @ 3 % of A				47,689.52
C	**Sub Total (A+B)**				**16,37,340.23**
D	Contingency @ 3 % of C				49,120.21
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				1,22,800.52
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**18,09,260.95**
I	Sub Total (Erection Portion + Civil Portion)				16,21,095.26
J	**Total Cost (H+I)**				**34,30,356.21**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				2,05,821.37
L	**Total Estimated Capital Cost i.e. (J+K)**				**36,36,177.58**
M	GST @ 18% of L				6,54,511.96
N	GST @ 1% of L				3,63,617.76
O	**Grand Total (L+M+N)**				**46,54,307.30**

P	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	0
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**46,55,457.30**

Benefit:

- Ensure reliable power supply, mitigate overload and improve N-1 connectivity.

Proposal-4 (Proposal for replacement of existing lower size 33kv (300Sqmm/400sqmm) HT cable inside Mancheswar-B GSS to mitigate overloading issue)

Proposal:

Proposal for mitiagtion of overloading of 33 KV fdr emanating from Mancheswar-B Grid.

Objective:

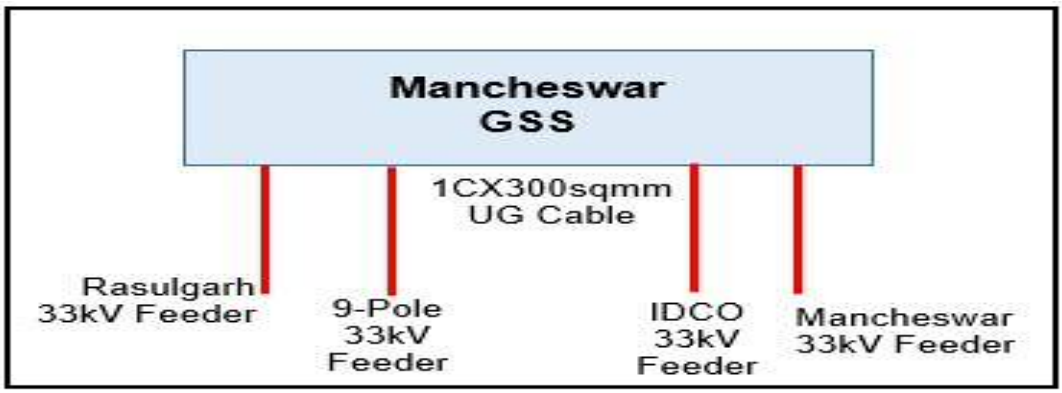
- To maintain reliability of power supply with improving N-1 connectivity and mitigate overloading issue of existing network.

Existing Scenario:

- At present, outgoing 33kV feeders of Mancheswar-B GSS are laid with lower size cables (1Cx 300sq.mm), however their connectivity is with higher capacity of network (1Cx630sq.mm, 232sqmm and 400sqmm cables) which restrict the complet utilization of network capacity and cause overloading of 33kV feeders and non-reliable network.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Mancheswar	17.37	16.50	95%	Overload	OK
Rasulgarh	17.37	15.32	88%	OK	OK
IDCO	17.37	2.50	14%	OK	Not OK
New Fdr (9 Pole)	17.37	0.00	0%	WIP	WIP

Existing SLD (FY' 22-23):

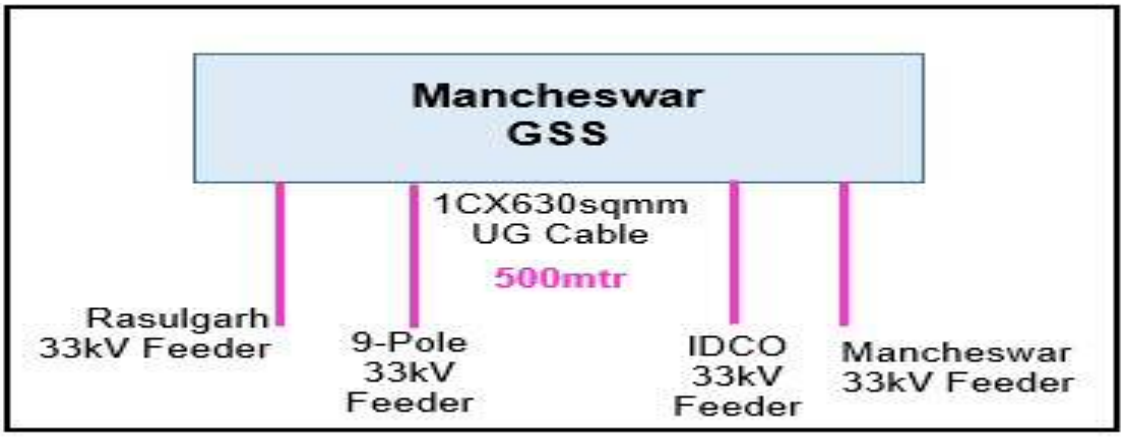


Proposed Scenario:

- After augmentation of all o/g feeders, reliability will improve and feeder can be operated at peak capacity.
- Overloading and N-1 issue of network will mitigate.
- Considering 41% load growth, the feeder will capable to feed the load demand for next 4 to 5 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 26-27 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Mancheswar	25.71	16.50	41%	23.26	90%	OK	OK
Rasulgarh	25.71	15.32	41%	21.60	84%	OK	OK
IDCO	25.71	2.50	41%	3.53	14%	OK	OK
New Fdr (9 Pole)	25.71	0.00	41%	0.00	0%	WIP	WIP

Proposed SLD (FY' 23-24):



Detailed Scope of Work:

Augmentation of UG cable 33kv o/g fdrs. from Mancheswar-B Grid- 0.5km (4 No's of 33kV Feeders)

BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BED**
	Name of the Sub-Division : -	Rasulgarh
	Name of the Section : -	Mancheswar

	Name of the Work :-	Proposal for replacment of existing 33kv outgoing fdr. from Mancheswar GSS for 33kv Mancheswar-B, 33KV -9Pole (Rasulgarh), Capex 21-22 9Pole and Idco Fdr.
	Scope of work:-	Construction of new 33kv o/g fdrs. from Mancheswar-B Grid to near by DP 4No's - 0.8km
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)

ABSTRACT OF ESTIMATE

Sl. No.	Part	Description	Amount
1	A	Estimate for construction of new 33kv o/g fdrs. from Mancheswar-B Grid to near by DP 4No's - 0.8km	78,47,620.61
		Total Amount	**78,47,620.61**
		Total Amount (In Cr)	**0.78**
Total estimated cost is Rs. 0.78 Crore. (On TPCODL Capex Scheme)			

Part-A

Standard BoQ and Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - Mancheswar-B, 33KV -9Pole, Capex 9Pole and Idco Fdr. (0.8km- All 4 No's O/G cables form Grid to be replaced till DP)

Supply Portion

	Feeder Length		**0**		
Sl. No.	**Description of items**	**Unit**	**Total Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
1	**Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories**		**0.8**		
a	***Length of 33kV 1C, 630sqmm cable (open trench)***	***km***	***0.8***		
b	***Length of 33kV 1C, 630sqmm cable (HDD)***	***km***	***0***		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	km	***3.2***	13,37,130.00	42,78,816.00
1.3	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***16***	9,726.50	1,55,624.06
1.4	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	***16***	7,409.93	1,18,558.85
	Sub Total (Supply Portion) (in Rs.)				**45,52,998.91**

Erection Portion

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	**Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare**				

1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by **open trench method**.	km	3.2	94,500.00	3,02,400.00
1.3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	16	3,480.00	55,680.00
1.4	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	16	3,480.00	55,680.00
	Sub Total (Erection Portion) (in Rs.)				**4,13,760.00**
Civil Portion					
Sl. No.	**Description of items**	**Unit**	**Quantity**	**Rate (in Rs.)**	**Amount (in Rs.)**
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	128	1,463.40	1,87,315.20
	Sub Total (Civil Portion) (in Rs.)				**1,87,315.20**
A	**Sub Total (Supply Portion)**				**45,52,998.91**
B	Stock, Storage & Insurance @ 3 % of A				1,36,589.97
C	**Sub Total (A+B)**				**46,89,588.88**
D	Contingency @ 3 % of C				1,40,687.67
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				-
F	Transportation @ 7.5% of C				3,51,719.17
G	Erection Charges @ 10% of earthing items				-
H	**Total (C+D+E+F+G)**				**51,81,995.71**
I	Sub Total (Erection Portion + Civil Portion)				6,01,075.20
J	**Total Cost (H+I)**				**57,83,070.91**
K	Other Overhead /(including Supervision Charges) @ 6 % of J				3,46,984.25
L	**Total Estimated Capital Cost i.e. (J+K)**				**61,30,055.17**
M	GST @ 18% of L				11,03,409.93
N	GST @ 1% of L				6,13,005.52
O	**Grand Total (L+M+N)**				**78,46,470.61**
P	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
R	Inspection Fee of RMU - Rs. 2000/ RMU				0
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00

U	**Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)**	**78,47,620.61**

Benefit:

- Ensure reliable power supply, mitigate overload and improve N-1 connectivity.

ANNEXURE-3

PTR Augmentation

Overloading of PTR is an alarming issue and need immediate attention for implementing mitigation proposals. PTR overloading issue can be mitigated by replacement of existing PTR with higher rating of PTR.

Since the priority of PTR, overloading is very high we have prioritized & considered wherein PTR loading is reaching near to 80% in AS IS condition and will be overloaded in 5years timeline since lot of unprecedented load growth is seen in summer 22.

Approx. costing is given below:

Summary of Proposal Details for PTR Augmentation:

Sl. No.	*Division*	*Proposal Details*	*Mitigation Type*	*Costing in Cr*
1.	**BCDD-II**	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25MVA at **Khandagiri** 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) along with modification and extension of Control Room with other civil works.	PTR Augmentation	**5.82**
2	**BCDD-II**	Supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) at **Infocity** along with modification and extension of Control Room with other civil works.	Switchgear Panel Board 11kV	**1.97**
3	**BED**	Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at **Laxmisagar** 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.	PTR Augmentation	**11.01**
4	**PED**	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at **Talabania** 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).	PTR Augmentation	**2.87**
5	**DED**	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at **College** 33/11kV PSS.	PTR Augmentation	**2.27**
			Total Amount (in cr.)	**23.94**

1. Augmentation of Power Transformer at KHANDAGIRI Substation

Proposal:

Augmentation of existing 1no. 33/11kV 12.5MVA Power Transformer to 20/25MVA along with new switchgear panel is proposed at Khandagiri 33/11kV Substation in BCDD-2 to mitigate overloading condition & future load growth..

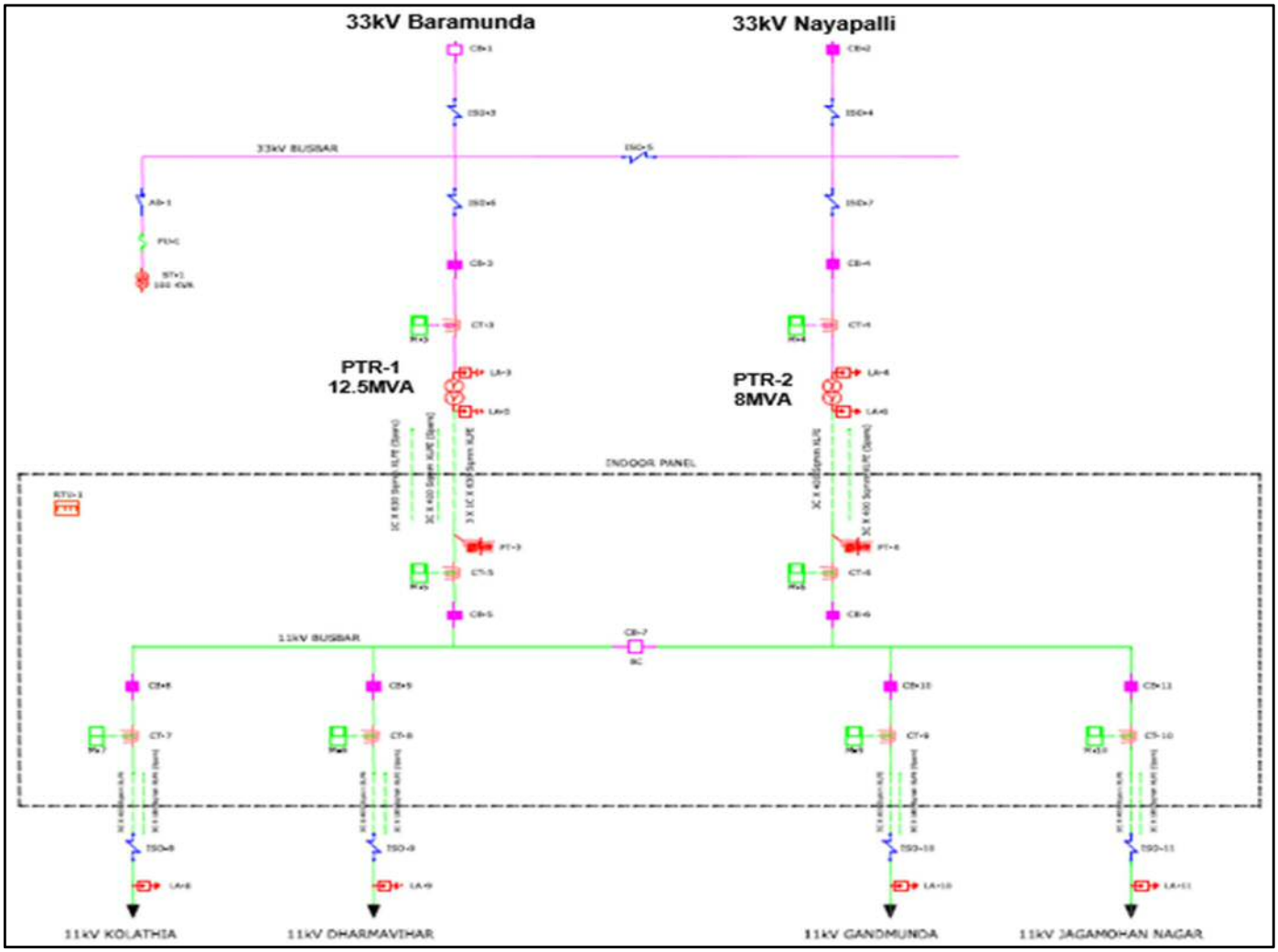
Existing Scenario:

- Loading of 33/11kV Khandagiri PTR-1 is 9.1MVA at peak load condition of FY' 22-23 which is approx. 76% of loaded. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 13.67MVA.The PTR-1 will be loaded 109% in FY' 27-28.

Existing FY' 22-23 Loading for PTR-1:

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KHANDAGIRI	PTR-1	12.5	9.1	13.67	109%	Overloaded

Existing SLD of KHANDAGIRI 33/11kV PSS:

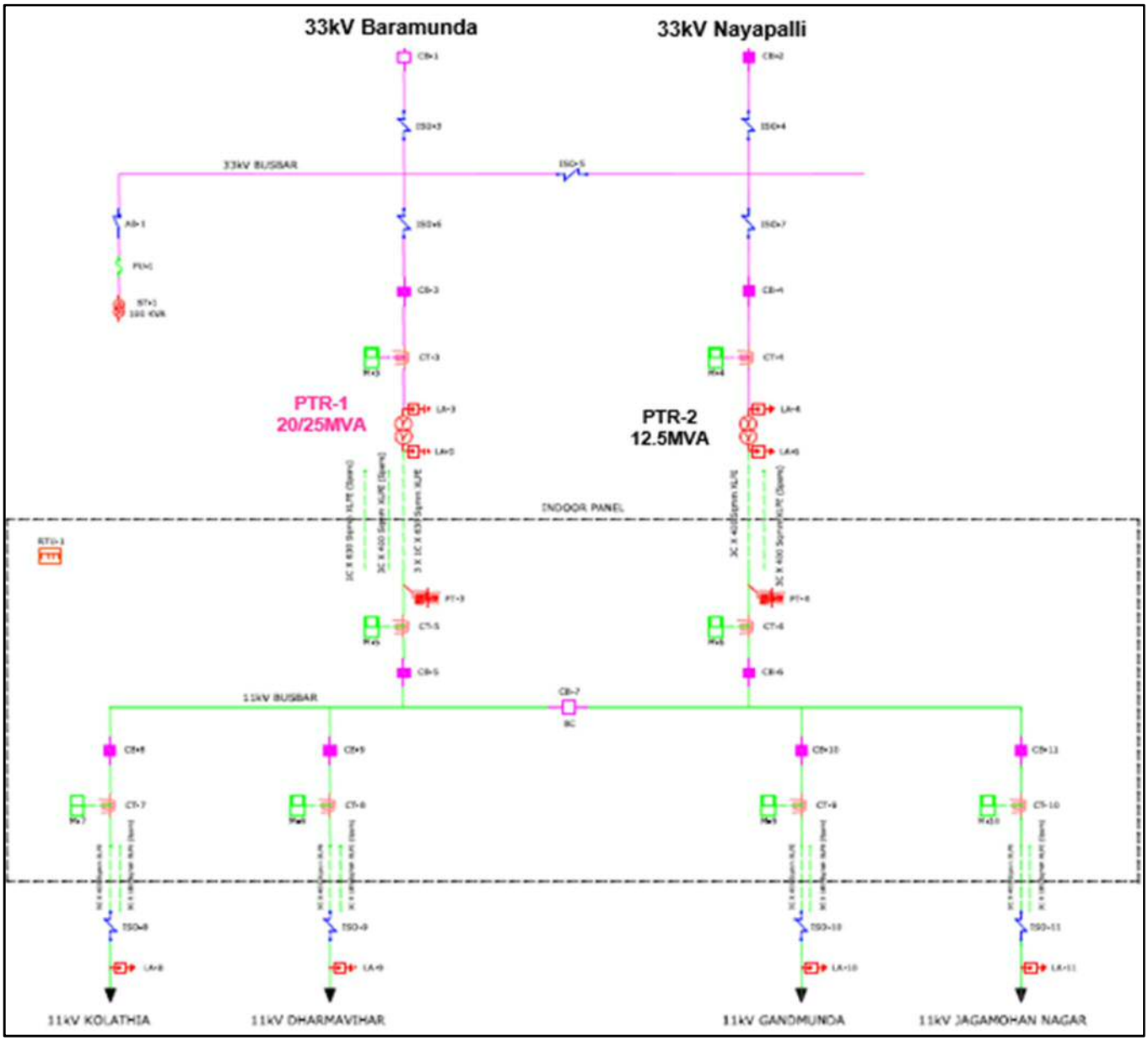


Proposed Scenario:

- It is proposed for augmentation of PTR-1 from 12.5 MVA to 20/25MVA at Khandagiri PSS to meet the full load of PTR-1 at peak load condition after 5years load growth .
- It is also proposed to install new 11KV switchgear panel to meet design requirement& evacuate additional power on 11KV from Khandagiri PSS to feed load nearby area.
- Since existing control room can not accommodate new switchgear it is proposed for extension of existing control room to accommodate the switchgear room.
-

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KHANDAGIRI	PTR-1	20/ 25	13.67	55%	OK

Proposed SLD of KHANDAGIRI 33/11kV PSS:



BOQ for Augmentation of PTR-1

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BCDD-II**
	Name of the Sub-Division : -	Khandagiri
	Name of the Section : -	Khandagiri
	Name of the Work :-	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25MVA at Khandagiri 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) along with modification and extension of Control Room with other civil works.
	Scope of work:-	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25MVA at Khandagiri 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) along with modification and extension of Control Room with other civil works.
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)

ABSTRACT OF ESTIMATE

Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25MVA at Khandagiri 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) along with modification and extension of Control Room with other civil works.	5,82,43,725.79
		Total Amount	**5,82,43,725.79**
		Total Amount (In Cr.)	**5.82**
Total estimated cost is Rs. 5.82 Crore. (On TPCODL Capex Scheme)			

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)					
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,37,90,354.98	1	2,37,90,354.98
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	200.00	17,700.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. Long	No	1,227.20	5	6,136.00
4	GI Nuts & Bolts of Assorted size	Kg	92.04	100.00	9,204.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,83,420.00	0.18	1,95,015.60
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,256.21	6	13,537.26
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,594.64	6	15,567.85
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	376.5	33,320.25

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing)	No.	63,49,155.20	1	63,49,155.20
A				**Total Cost of materials**	**3,04,29,991.14**
B				Stock, Storage & Insurance i.e 3% of A	9,12,899.73
C				**Sub Total (A+B)**	**3,13,42,890.88**
D				Contigency @ 3% of C	9,40,286.73
E				Tools & Plants @ 2% of C	6,26,857.82
F				Transportation @ 7.5% of C	23,50,716.82
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	15,52,184.77
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	6,835.11
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**3,68,19,772.12**

Civil and Services Works
(As per Technical Specification)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and	Cum	6,039.61	2	12,079.22

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
	all other machinaries required for the work etc., as directed by Engineer-in-Charge.				
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors, ground etc. as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	79,41,481.89	1	79,41,481.89
K				**Total Civil & Services**	**93,47,245.32**
L				**Total (J+K)**	**4,61,67,017.44**

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
M	Other overheads (Including 6% supervision charges) of L				27,70,021.05
N	**Sub Total (L+M)**				**4,89,37,038.48**
O	Total GST @ 18% of (N)				88,08,666.93
P	CESS 1% of N				4,89,370.38
Q	**Gross Total Material +Services (N+O+P)**				**5,82,35,075.79**
a	Inspection Fee of Drawing Checking and Approval				400.00
b	Final decision by electrical Inspector				500.00
c	Inspection Fee of PTR				5,500.00
d	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
e	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				-
f	Inspection Fee of Breaker				2,000.00
R	**Total Inspection Fees (a+b+c+d+e+f)**				**8,650.00**
S	**Gross Total Material, Services and Inspection Fees (Q+S)**				**5,82,43,725.79**

Benefits:

To help mitigating overloading condition on power transformer.

2. Supply and Installation of 11kV Switchgear Panel Board at INFOCITY Substation

Proposal:

Installation of 11kV switchgear panel board (8nos. Panels- 1 incomer and 7 outgoing) at Infosys 33/11kV Substation in BCDD-2 for new 11kV feeders proposed in order to mitigate the overloading of the existing 11kV feeders emanating from Kanan Vihar PSS.

Existing Scenario:

2nos. 11kV feeders (KIIT, Patia) emanating from Kanan Vihar 33/11kV PSS and 1no. 11kV feeder (Sri Vihar) emanating from C.s.pur-1 33/11kV PSS are overloaded in peak load condition. The 11kV feeders are namely KIIT, Patia and Sri Vihar having loading of 5.8MVA, 5.7MVA and 5.2MVA respectively during peak load condition.

Existing FY' 22-23 Loading:

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KANAN VIHAR	PTR-1	12.5	9.1	13.6	109%	Overloaded
	PTR-2	12.5/16	7.5	11.2	70%	Ok

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV C.s.Pur-1	PTR-2	8	4.9	7.3	92%	Overloaded

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV INFOCITY	PTR-1	12.5/16	1.2	1.8	11%	Ok
	PTR-2	8	4.4	6.6	82%	Ok
	PTR-3	7.5	3	4.5	60%	Ok

Proposed Scenario:

In order to mitigate this overloading of 11kV existing feeders it is proposed , 3nos. new 11kV feeders are to be extended from Infocity 33/11kV substation namely KIIT new, Patia new and Sri Vihar new to bifurcate the load of existing feeders and mitigate overloading issues.

For power evacuation in existing scenario there is no spare 11KV bay is available at Infocity PSS.11kV switchgear panel board is required to install at infocity PSS to facilitate power evacuation through proposed 11kV outgoing feeders from the 33/11kV substation.

- In order to mitigate the overloading of feeders, 3nos. 11kV new feeders are proposed in order to bifurcate the load from existing feeder. This proposal will resolve the overloading of feeders thereby improving reliability of power supply in the area. Since existing control room can not accommodate new switchgear it is proposed for extension of existing control room to accommodate the switchgear room.

Proposed Loading:

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KANAN VIHAR	PTR-1	12.5	6.3	9.4	75.4%	Ok
	PTR-2	12.5/16	4.8	7.2	44.9%	Ok

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV C.s.Pur-1	PTR-2	8	2.2	3.3	41.1%	Ok

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV INFOCITY	PTR-1	12.5/16	8.2	12.3	76.6%	Ok
	PTR-2	8	4.4	6.6	82.3%	Ok
	PTR-3	7.5	4.2	6.3	83.7%	Ok

BOQ

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)					
1	SWITCH GEAR PANEL BOARD 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing)	No.	63,49,155.20	1	63,49,155.20
A	**Total Cost of materials**				**63,49,155.20**
B	Stock, Storage & Insurance i.e 3% of A				1,90,474.66
C	**Sub Total (A+B)**				**65,39,629.86**
D	Contigency @ 3% of C				1,96,188.90
E	Tools & Plants @ 2% of C				1,30,792.60
F	Transportation @ 7.5% of C				4,90,472.24
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				3,26,981.49

H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)				-
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kV				-
J	**Sum of (C to I)**				**76,84,065.08**
Civil and Services Works (As per Technical Specification)					
1	Modification and extension of Control Room along with other civil works	Cum	79,41,481.89	1	79,41,481.89
K	**Total Civil & Services**				**79,41,481.89**
L	**Total (J+K)**				**1,56,25,546.97**
M	Other overheads (Including 6% supervision charges) of L				9,37,532.82
N	**Sub Total (L+M)**				**1,65,63,079.79**
O	Total GST @ 18% of (N)				29,81,354.36
P	CESS 1% of N				1,65,630.80
Q	**Gross Total Material +Services (N+O+P)**				**1,97,10,064.95**
A	Inspection Fee of Drawing Checking and Approval				400.00
B	Final decision by electrical Inspector				500.00
C	Inspection Fee of Breaker				2,000.00
R	**Total Inspection Fees (a+b+c)**				**2,900.00**
S	**Gross Total Material, Services and Inspection Fees (Q+R)**				**1,97,12,964.95**

Benefits:

1) To mitigate the overloading of the existing 11kV KIIT, Sreevihar & Patia feeders.
2) Low voltage issue will be resolved at Srivihar, patia & KIIT area.
3) Loading will be optimized at Kananvihar PSS & infocity PSS.

3. Augmentation of Power Transformer at Laxmisagar Substation

Proposal:

Augmentation of existing 2nos. 33/11kV 12.5MVA Power Transformers to 20/25MVA at Laxmisagar 33/11kV Substation in BED to mitigate overloading condition.

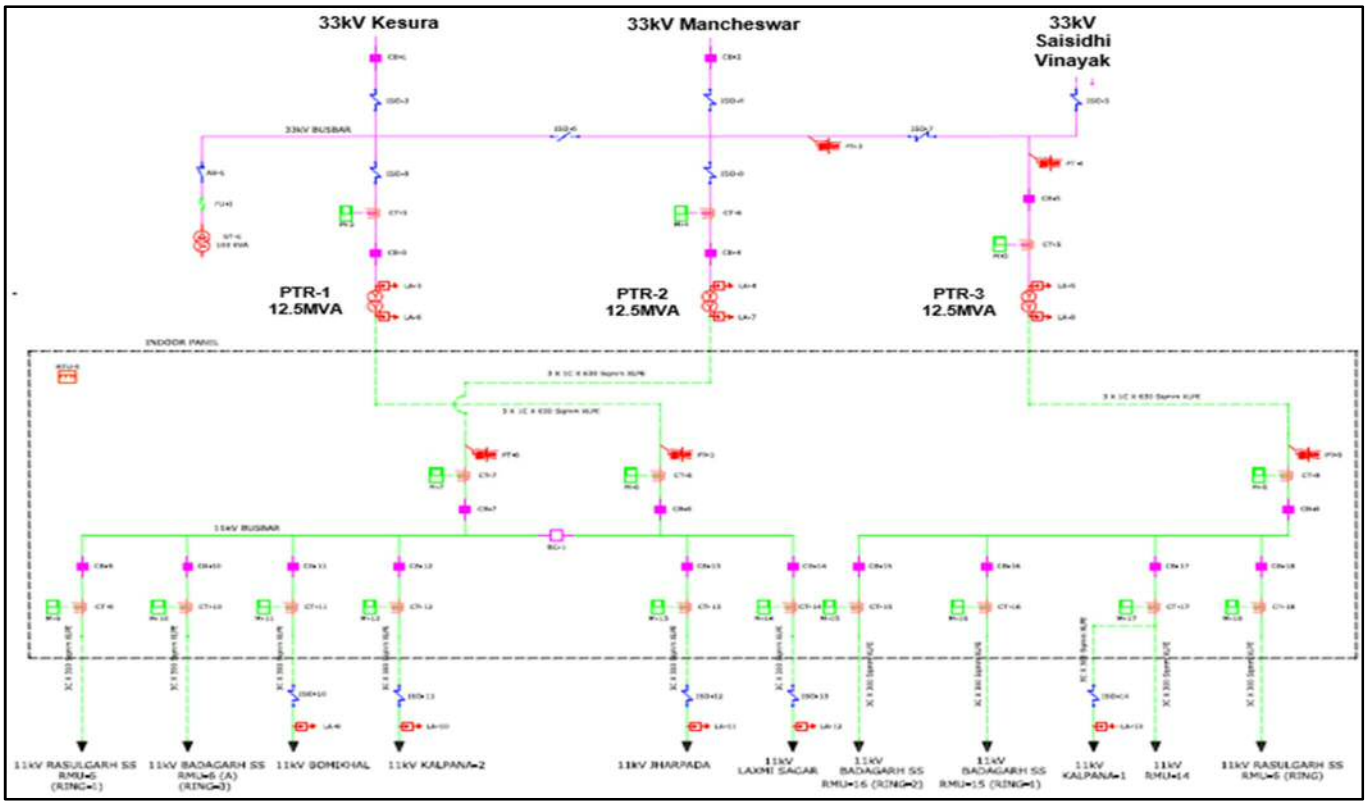
Existing Scenario:

- Loading of 33/11kV Laxmisagar PTR-2 is 9.6MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 14.32MVA.
- Loading of 33/11kV Laxmisagar PTR-3 is 9.2MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 13.83MVA.
- PTR-2 will be loaded 115% in FY' 27-28 and PTR-3 will be loaded 111% in FY' 27-28.
- Also, in the existing scenario, the 11kV Laxmisagar feeder is overloaded up to 5.67MVA, w,r t

Existing FY' 22-23 Loading for PTR-1:

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV LAXMISAGAR	PTR-2	12.5	9.6	14.32	115%	Overloaded
	PTR-3	12.5	9.2	13.83	111%	Overloaded

Existing SLD of LAXMISAGAR 33/11kV PSS:

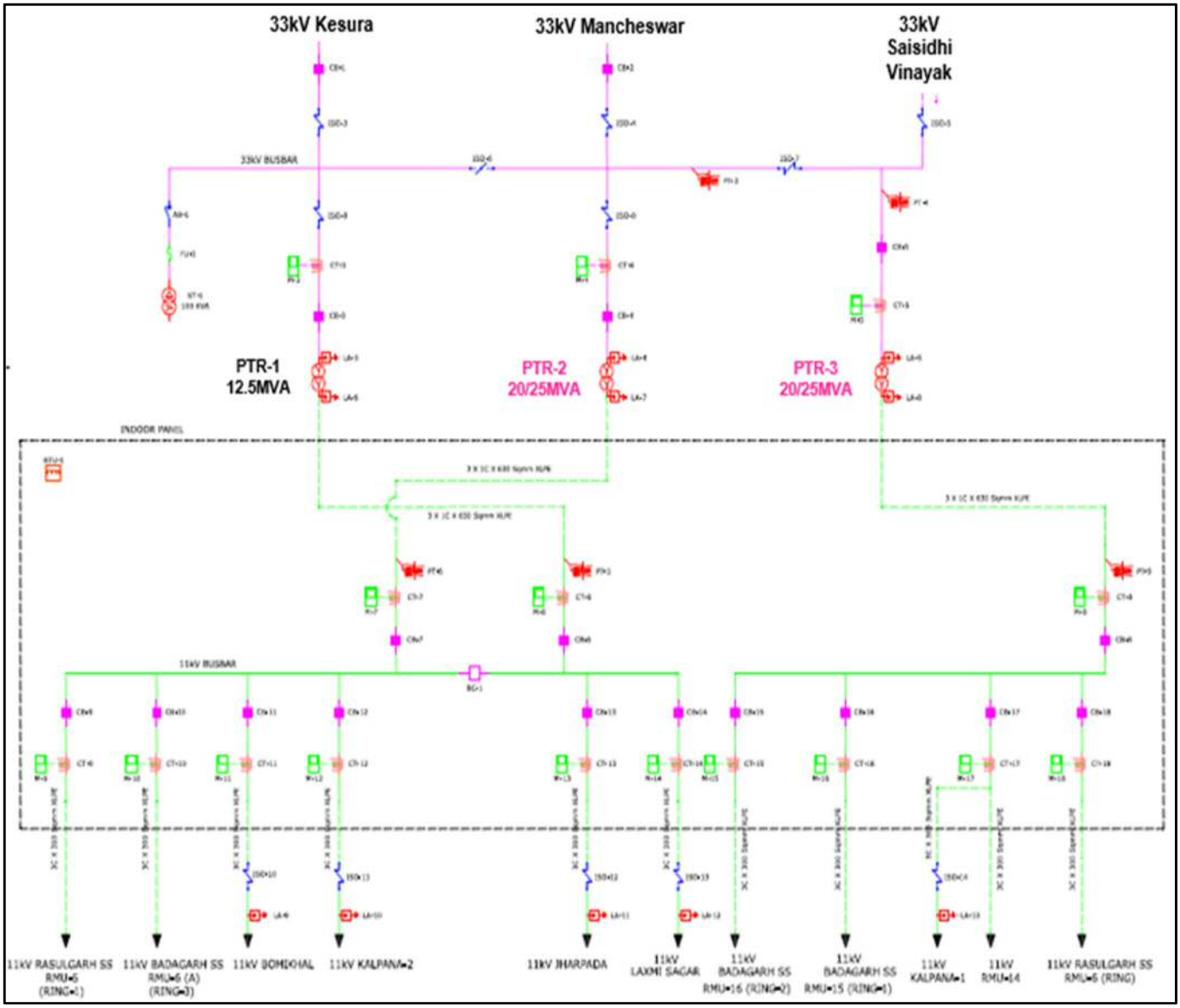


Proposed Scenario:

- It is proposed for augmentation of existing PTR-2 & PTR-3 from 12.5 MVA to 20/25MVA at Laxmisagar PSS is proposed to meet the full load of both PTR-2 and PTR-3 at peak load condition after 5years load growth.
- It is also proposed to install new 11KV switchgear panel to meet design requirement& evacuate additional power on 11KV from laxmisagar PSS to feed load nearby area.
- Since existing control room can not accommodate new switchgear it is proposed for extension of existing control room to accommodate the switchgear room.

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV LAXMISAGAR	PTR-2	20/25	14.32	57%	OK
	PTR-3	20/25	13.83	55%	OK

Proposed SLD of LAXMISAGAR 33/11kV PSS:


33kV Kesura
33kV Mancheswar
33kV Saisidhi Vinayak
33KV BUSBAR
PTR-1 12.5MVA
PTR-2 20/25MVA
PTR-3 20/25MVA
INDOOR PANEL
11kV BUSBAR
11kV RASULGARH SS RMU-6 (RING-1)
11kV BADAGARH SS RMU-6 (A) (RING-3)
11kV BOMIKHAL
11kV KALPANA-2
11kV JHARPADA
11kV LAXMI SAGAR
11kV BADAGARH SS RMU-16 (RING-2)
11kV BADAGARH SS RMU-15 (RING-1)
11kV KALPANA-1
11kV RMU-14
11kV RASULGARH SS RMU-6 (RING)

BOQ for Augmentation of PTR-2 and PTR-3

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**BED**
	Name of the Sub-Division : -	Rasulgarh
	Name of the Section : -	Laxmisagar
	Name of the Work :-	Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at Laxmisagar 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.
	Scope of work:-	Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at Laxmisagar 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)

ABSTRACT OF ESTIMATE

Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at Laxmisagar 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.	11,01,04,571.22
		Total Amount	**11,01,04,571.22**
		Total Amount (In Cr.)	**11.01**
Total estimated cost is Rs. 11.01 Crore. (On TPCODL Capex Scheme)			

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)					
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,37,90,354.98	2	4,75,80,709.97
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	400.00	35,400.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,227.20	10	12,272.00
4	GI Nuts & Bolts of Assorted size	Kg	92.04	200.00	18,408.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,83,420.00	0.36	3,90,031.20
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,256.21	12	27,074.52
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,594.64	12	31,135.70

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	753	66,640.50
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT)	No.	1,50,79,243.60	1	1,50,79,243.60
A				**Total Cost of materials**	**6,32,40,915.49**
B				Stock, Storage & Insurance i.e 3% of A	18,97,227.46
C				**Sub Total (A+B)**	**6,51,38,142.95**
D				Contigency @ 3% of C	19,54,144.29
E				Tools & Plants @ 2% of C	13,02,762.86
F				Transportation @ 7.5% of C	48,85,360.72
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	32,26,987.61
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	13,670.21
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**7,65,21,068.64**

Civil and Services Works
(As per Technical Specification)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.36	34,020.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	12	22,809.60
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	12	22,809.60
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	40	30,060.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	2	1,51,800.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane , charges for crane will be paid separately.	EA	4,217.00	2	8,434.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	40	19,280.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	80	1,04,400.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	20	4,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	80	14,400.00
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	8	41,040.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	106	31,906.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	3500	3,81,500.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	1600	2,01,600.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	800	21,600.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	66	18,612.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	4	24,158.44
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	24	1,61,928.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	40	30,060.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	50	3,65,800.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	34	34,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	94	2,10,090.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	24	11,568.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	96	1,25,280.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	30	6,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	48	8,640.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	178	53,578.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	3006	3,27,654.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	106	29,892.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	38	2,78,008.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	4	4,000.00
34	Modification and extension of Control Room along with other civil works	Cum	79,41,481.89	1	79,41,481.89
K				**Total Civil & Services**	**1,07,53,008.75**
L				**Total (J+K)**	**8,72,74,077.39**
M				Other overheads (Including 6% supervision charges) of L	52,36,444.64
N				**Sub Total (L+M)**	**9,25,10,522.03**
O				Total GST @ 18% of (N)	1,66,51,893.97
P				CESS 1% of N	9,25,105.22
Q				**Gross Total Material +Services (N+O+P)**	**11,00,87,521.22**
a				Inspection Fee of Drawing Checking and Approval	800.00
b				Final decision by electrical Inspector	1,000.00
c				Inspection Fee of PTR	11,000.00
d				Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
e				Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	-
f				Inspection Fee of Breaker	4,000.00
R				**Total Inspection Fees (a+b+c+d+e+f)**	**17,050.00**
S				**Gross Total Material, Services and Inspection Fees (Q+S)**	**11,01,04,571.22**

Benefits:

To help mitigating overloading condition on power transformers.

4. Augmentation of Power Transformer at Talabania Substation

Proposal:

Augmentation of existing 1no. 33/11kV 8MVA Power Transformer to 12.5/16MVA at Talabania 33/11kV Substation in PED to mitigate overloading condition during N-1 contingency critical condition during **Puri Ratha Yatra**. As Puri Rath Yatra is the most important festival of the state and the providing reliable power supply to the area is of utmost importance, the PTR augmentation proposal is a requisite to mitigate N-1 contingency condition and provide quality and reliable power supply.

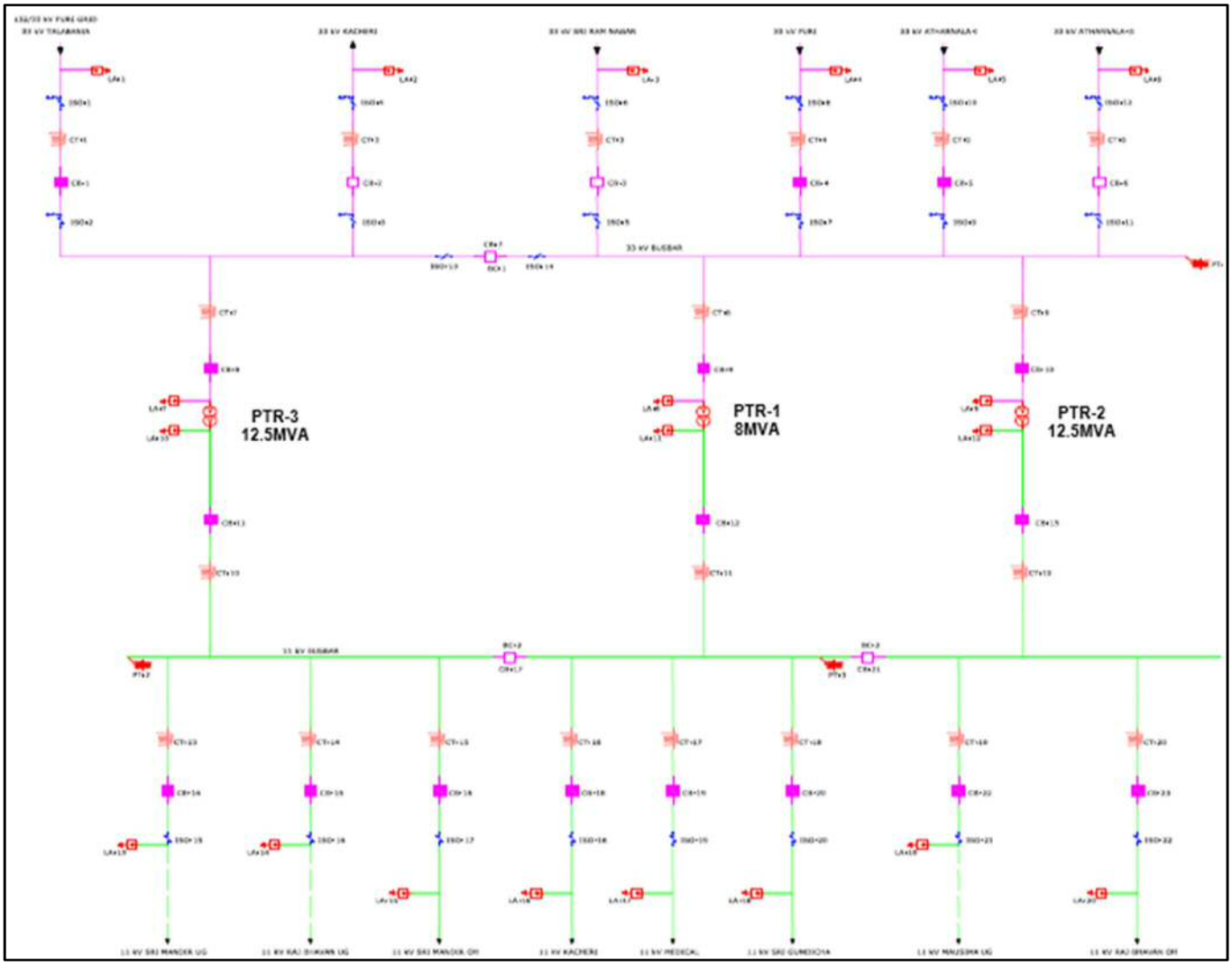
Existing Scenario:

- Loading of 33/11kV Talabania PTR-1 is 2.9MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 5years), the projected loading of FY' 27-28 would be 4.67MVA.
- During N-1 contingency condition which is specifically critical during Ratha Yatra the PTR is overloaded with 11.12MVA, w.r.t. PTR-2 and 11.26MVA, w.r.t. PTR-3. Considering load growth for 2years (10% load growth per year for 2years), the projected loading of FY' 24-25 would be 13.46MVA, w.r.t PTR-2 and 13.62MVA, w.r.t PTR-3.
- During N-1 contingency condition, PTR-1 will be loaded up to 168%, w.r.t PTR-2 and 170%, w.r.t PTR-3.

Existing FY' 22-23 Loading at N-1 condition:

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	N-1 PTR Loading in MVA (FY' 22-23)	Projected N-1 PTR load in (FY' 24-25)	% PTR Loading N-1 condition	PTR Status
33/11kV TALABANIA	PTR-1	8	11.12 (w.r.t PTR-2)	13.46 (w.r.t PTR-2)	168%	Overloading
			11.26 (w.r.t PTR-3)	13.62 (w.r.t PTR-3)	170%	Overloading

Existing SLD of TALABANIA 33/11kV PSS:

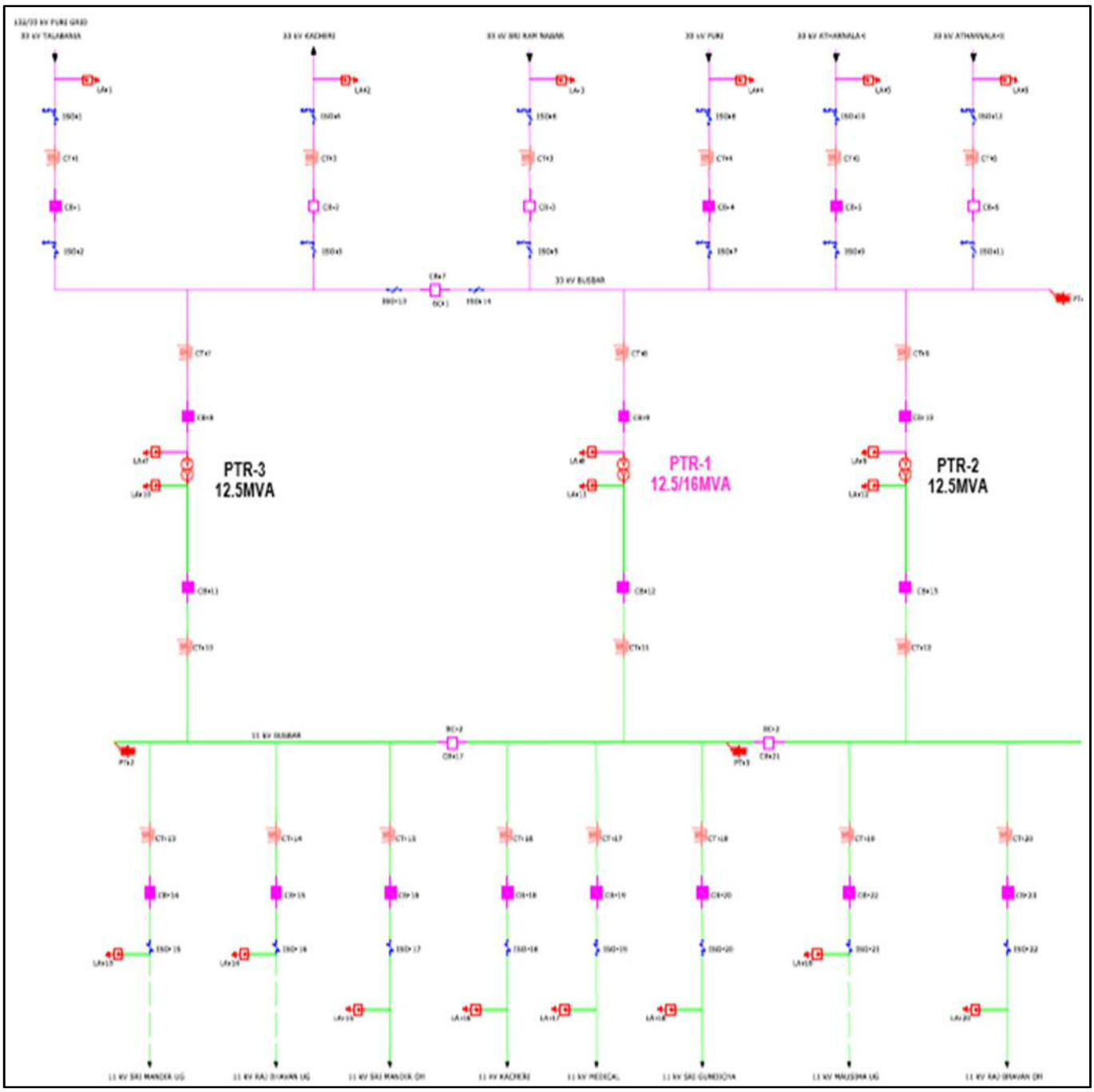


Proposed Scenario:

- Augmentation of PTR-1 from 8 MVA to 12.5/16MVA at Talabania PSS is proposed to mitigate the N-1 contingency overloading condition of both PTRs after 2years load growth.

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	N-1 PTR Loading in MVA (FY' 22-23)	Projected N-1 PTR load in (FY' 24-25)	% PTR Loading N-1 condition	PTR Status
33/11kV TALABANIA	PTR-1	12.5/16	11.12 (w.r.t PTR-2)	13.46 (w.r.t PTR-2)	84%	Ok
			11.26 (w.r.t PTR-3)	13.62 (w.r.t PTR-3)	85%	Ok

Proposed SLD of TALABANIA 33/11kV PSS:



BOQ for Augmentation of PTR-1

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**PED**
	Name of the Sub-Division : -	Sub Div.-3
	Name of the Section : -	Talabania
	Name of the Work :-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at Talabania 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).
	Scope of work:-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at Talabania 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)

ABSTRACT OF ESTIMATE

Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at Talabania 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).	2,87,29,572.59
		Total Amount	**2,87,29,572.59**
		Total Amount (In Cr.)	**2.87**

Total estimated cost is Rs. 2.87 Crore. (On TPCODL Capex Scheme)

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)					
1	12.5/16 MVA, 33/11 KV Power Transformer with OLTC	Nos.	1,34,00,000.00	1	1,34,00,000.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	200.00	17,700.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,227.20	5	6,136.00
4	GI Nuts & Bolts of Assorted size	Kg	92.04	100.00	9,204.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,83,420.00	0.18	1,95,015.60
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,256.21	6	13,537.26
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,594.64	6	15,567.85
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	376.5	33,320.25

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing)	No.	39,68,222.00	1	39,68,222.00
A				**Total Cost of materials**	**1,76,58,702.96**
B				Stock, Storage & Insurance i.e 3% of A	5,29,761.09
C				**Sub Total (A+B)**	**1,81,88,464.05**
D				Contigency @ 3% of C	5,45,653.92
E				Tools & Plants @ 2% of C	3,63,769.28
F				Transportation @ 7.5% of C	13,64,134.80
G				Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	8,94,463.43
H				Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)	6,835.11
I				Erection Charges @ 20% of PSC pole- Not to be used for 33kV	-
J				**Sum of (C to I)**	**2,13,63,320.59**

Civil and Services Works
(As per Technical Specification)

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane , charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
K				**Total Civil & Services**	**14,05,763.43**
L				**Total (J+K)**	**2,27,69,084.02**
M				Other overheads (Including 6% supervision charges) of L	13,66,145.04
N				**Sub Total (L+M)**	**2,41,35,229.06**
O				Total GST @ 18% of (N)	43,44,341.23
P				CESS 1% of N	2,41,352.29
Q				**Gross Total Material +Services (N+O+P)**	**2,87,20,922.59**
a				Inspection Fee of Drawing Checking and Approval	400.00
b				Final decision by electrical Inspector	500.00
c				Inspection Fee of PTR	5,500.00
d				Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
e				Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	-
f				Inspection Fee of Breaker	2,000.00
R				**Total Inspection Fees (a+b+c+d+e+f)**	**8,650.00**
S				**Gross Total Material, Services and Inspection Fees (Q+S)**	**2,87,29,572.59**

Benefits:

To help mitigating overloading condition on power transformers during N-1 contingency condition and mitigate the criticality of loading during Ratha Yatra.

5. Augmentation of Power Transformer at College Substation

Proposal:

Augmentation of existing 1no. 33/11kV 8MVA Power Transformers to 12.5/16MVA at College 33/11kV Substation in DED to mitigate overloading condition.

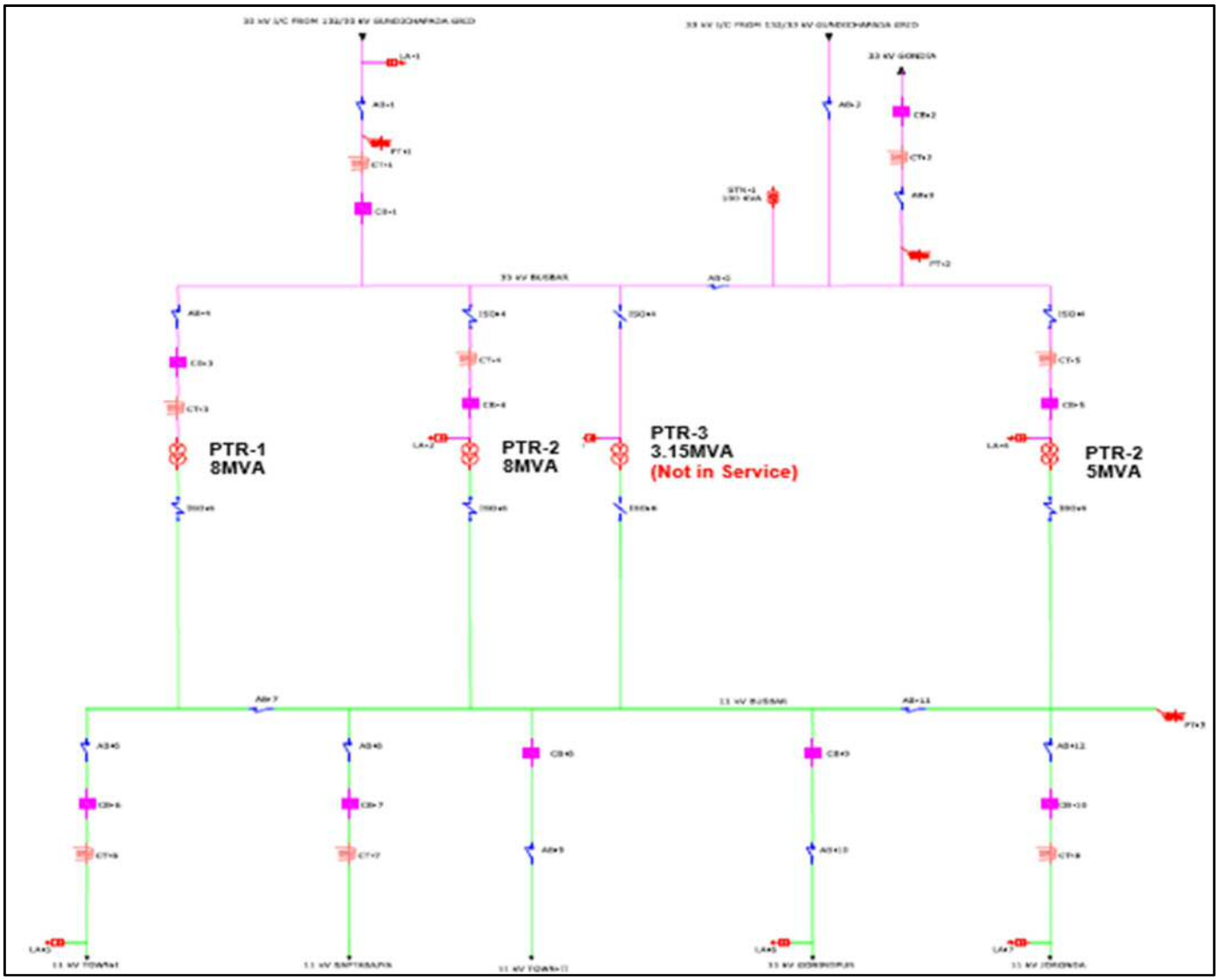
Existing Scenario:

- Loading of 33/11kV College PTR-1 is 7.6MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 5years), the projected loading of FY' 27-28 would be 12.24MVA.
- PTR-1 will be loaded 153% in FY' 27-28.

Existing FY' 22-23 Loading for PTR-1:

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV COLLEGE	PTR-1	8	7.6	12.24	153%	Overloaded

Existing SLD of COLLEGE 33/11kV PSS:

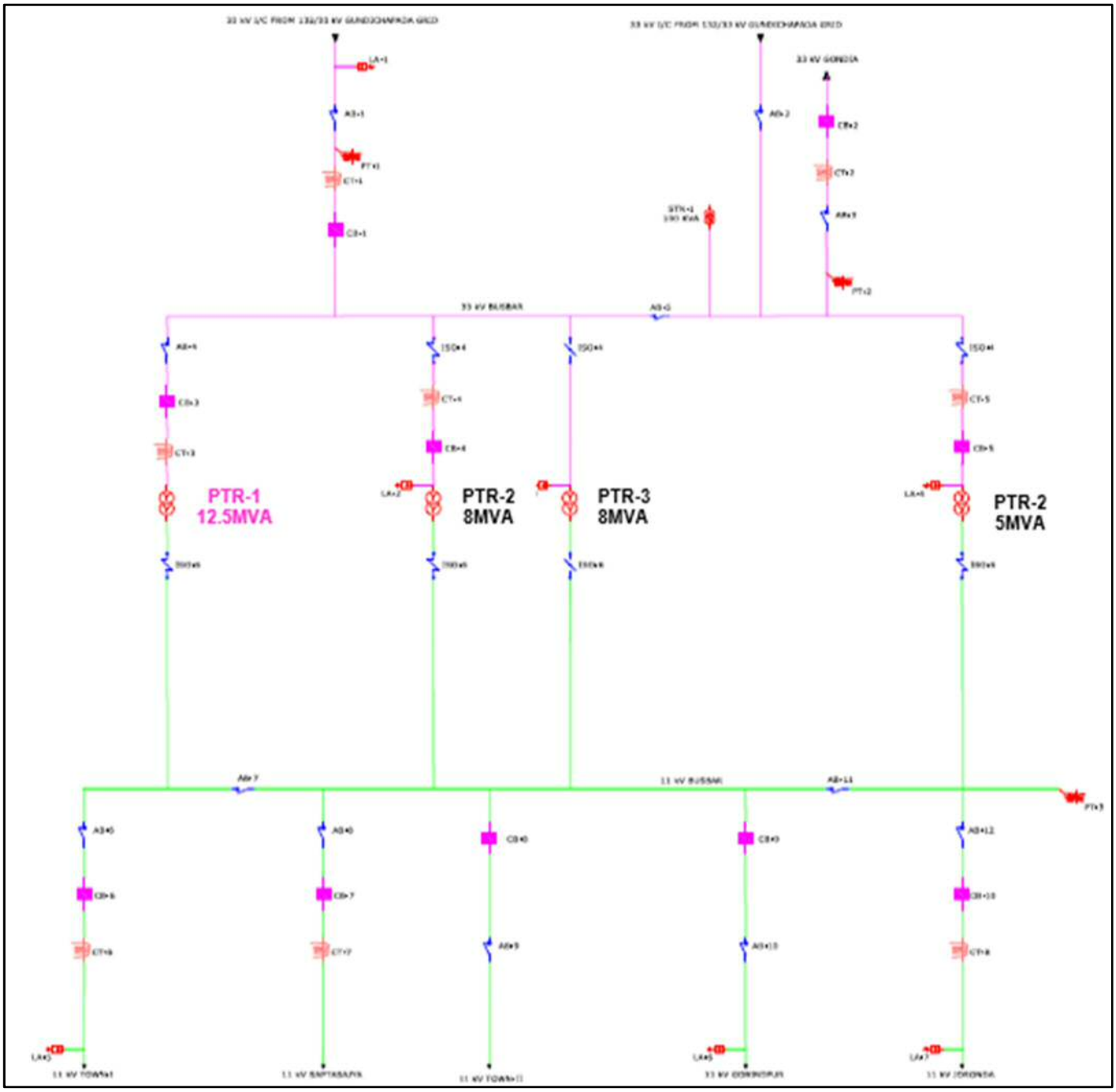


Proposed Scenario:

- It is proposed for augmentation of PTR-1 from 8 MVA to 12.5/16MVA at College PSS to mitigate the overloading & meet the load growth for next 5years.

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV COLLEGE	PTR-1	12.5/16	12.24	77%	OK

Proposed SLD of COLLEGE 33/11kV PSS:



BOQ for Augmentation of PTR-1

TP CENTRAL ODISHA DISTRIBUTION LIMITED		
	Name of the Division :-	**DED**
	Name of the Sub-Division : -	Dhenkanal
	Name of the Section : -	Section-1
	Name of the Work :-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at College 33/11kV PSS.
	Scope of work:-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at College 33/11kV PSS.
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)

ABSTRACT OF ESTIMATE

Sl. No.	**Part**	**Description**	**Amount**
1	A	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at College 33/11kV PSS.	2,26,71,647.78
		Total Amount	**2,26,71,647.78**
		Total Amount (In Cr.)	**2.27**
Total estimated cost is Rs. 2.27 Crore. (On TPCODL Capex Scheme)			

Sl. No.	***Description of Materials***	***Unit***	***Unit Rate***	***Total Quantity***	***Total Amount***
SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)					
1	12.5/16 MVA, 33/11 KV Power Transformer with OLTC	Nos.	1,34,00,000.00	1	1,34,00,000.00
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	200.00	17,700.00
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,227.20	5	6,136.00
4	GI Nuts & Bolts of Assorted size	Kg	92.04	100.00	9,204.00
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	Km	10,83,420.00	0.18	1,95,015.60
6	Supply of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,256.21	6	13,537.26
7	Supply of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,594.64	6	15,567.85
8	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	376.5	33,320.25
A				**Total Cost of materials**	**1,36,90,480.96**
B				Stock, Storage & Insurance i.e 3% of A	4,10,714.43
C				**Sub Total (A+B)**	**1,41,01,195.39**
D				Contigency @ 3% of C	4,23,035.86
E				Tools & Plants @ 2% of C	2,82,023.91
F				Transportation @ 7.5% of C	10,57,589.65

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				6,90,100.00
H	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)				6,835.11
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kV				-
J	**Sum of (C to I)**				**1,65,60,779.92**
	Civil and Services Works (As per Technical Specification)				
Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by **open trench method**.	Km	94,500.00	0.18	17,010.00
2	Erection of **Indoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of **Outdoor termination kits** Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane , charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth , including consolidating each deposited layers by ramming ,watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specifcation. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density . .Scope of work also includes of jungle such as grass,small tree,plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil .	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61

Sl. No.	*Description of Materials*	*Unit*	*Unit Rate*	*Total Quantity*	*Total Amount*
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
K				**Total Civil & Services**	**14,05,763.43**
L				**Total (J+K)**	**1,79,66,543.35**
M				Other overheads (Including 6% supervision charges) of L	10,77,992.60
N				**Sub Total (L+M)**	**1,90,44,535.95**
O				Total GST @ 18% of (N)	34,28,016.47
P				CESS 1% of N	1,90,445.36
Q				**Gross Total Material +Services (N+O+P)**	**2,26,62,997.78**
a				Inspection Fee of Drawing Checking and Approval	400.00
b				Final decision by electrical Inspector	500.00
c				Inspection Fee of PTR	5,500.00
d				Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
e				Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	-
f				Inspection Fee of Breaker	2,000.00
R				**Total Inspection Fees (a+b+c+d+e+f)**	**8,650.00**
S				**Gross Total Material, Services and Inspection Fees (Q+S)**	**2,26,71,647.78**

Benefits:

1)To help mitigating overloading condition on power transformer.

2) This will help to cater future load growth for next 5years.

ANNEXURE-4

Construction of 33/11kV PSS

Summary of 2 no. substations to be taken in TPCODL Supplementary CAPEX are as below: -

Sl. no	Name of Circle	Name of Division	Name of Site	Substation Capacity	Load category	Cost Estimate (in Cr)
1	Dhenkanal	AnED	Panchamahala	2X8MVA	Semi Urban	₹ 26.35
2	Cuttack	CED	Manguli	2X8MVA	Semi Urban	₹ 17.51
Total						**₹ 43.86**

1. Panchmahal (2X8MVA)

1) Executive Summary:

The Proposal for installing of 33/11KV substation at Panchmahal is laid basing upon detailed Load Flow Analysis for existing loads in proposed area and catering low voltage issues through new Substation.

- The power supply to Panchmahal s/s is planned from 132/33KV Angul grid S/s at a distance of 9.5km. For n-1 redundancy, 33kv feeder will be laid from Meramundali Grid at a distance of 22.5KM. Four associated 11 kV feeders from Panchmahala s/s with a total 11 kV linking of 10.5km (approx) divert loads from RCMS 33/11 kV s/s thereby ensuring uniform power distribution.
- The proposed substation with an installed capacity of 2x8 MVA will cater loads to 2200 consumers of Panchamahala, Saradhapur, Karadagadia, Rantelai, Hulurisingha, Panchamahala, Saradhapur, Gadataila, Talabahal, Badabahal, Kumursingha, Sabalabhanga, Balakata, Shyamasundarpur, Kariabani with an anticipated load of 6MVA.
- The Panchmahal s/s, GIS Indoor will be SCADA enabled for smart operation with minimal human intervention in future.
- The total estimated cost for the proposed substation of Rs. 26.34Crs.

2) Introduction

Installation of 2x8 MVA 33/11 kV substation at Panchmahal with associated 11 kV lines is required in order to supply reliable power in the area as well as to meet the increasing load demand due to prospective loads. The main thrust is laid on improvement of voltage profile, to minimize interruption of power supply to the consumers, availability of alternate power supply and socio-economic development of the inhabitants.

3) Existing Scenario

Presently the area is getting power supply from existing 33/11 kV RCMS substation through 11 kV feeder Town -1 from RCMS PSS and Sabalbhanga feeder from Bantala PSS. Consumers in these areas are facing low voltage problem and frequent break downs due to snapping of conductors.

4) Need of the Project

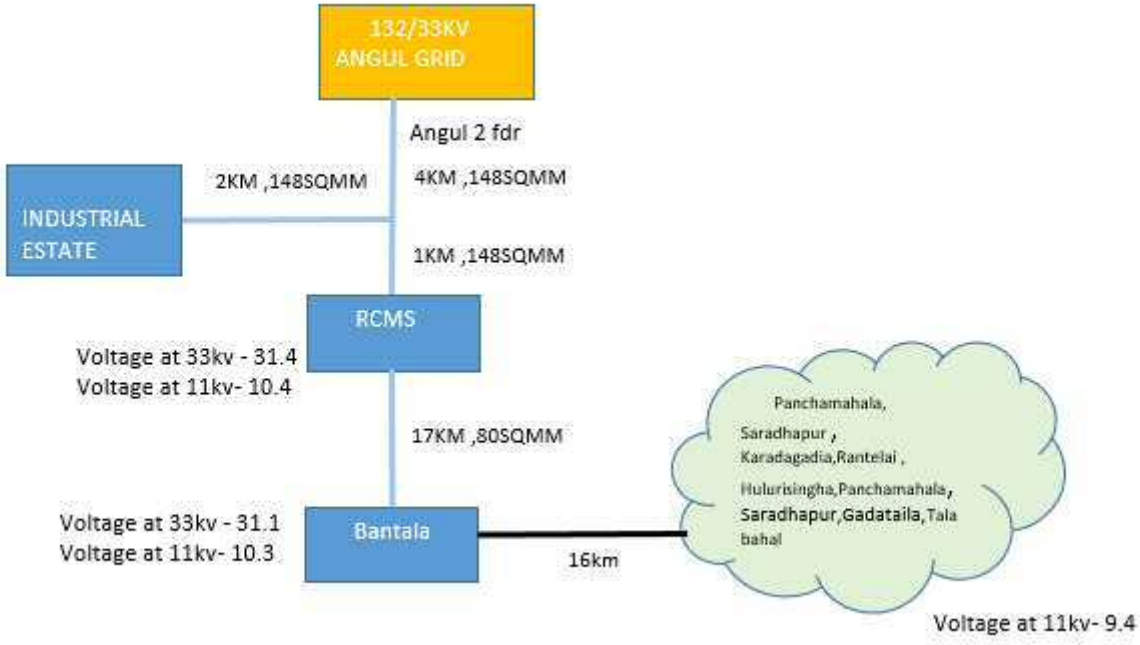
To eradicate low voltage problem, improvement of supply system and to cater the future load growth it is proposed to install a 33/11 kV substation at Pachmahala with Four numbers outgoing 11 kV feeders named Panchmahala, Adarsh, Agriculture and Govt Polytechnic feeder.

5) Load Details of the Proposed System:

Name of the proposed s/s	Name of the of proposed 11kV feeders	Length of feeder (km)	Anticipated load (MVA)	No. of consumers to avail supply from the feeder (Nos.)
Panchmahal (2X8 MVA)	Panchmahala	4	2	900
	Adarsh	2	2	900
	Agriculture	2	1.1	200
	Govt Polytechnic	2.5	0.9	200

6) Load flow Analysis Results:-

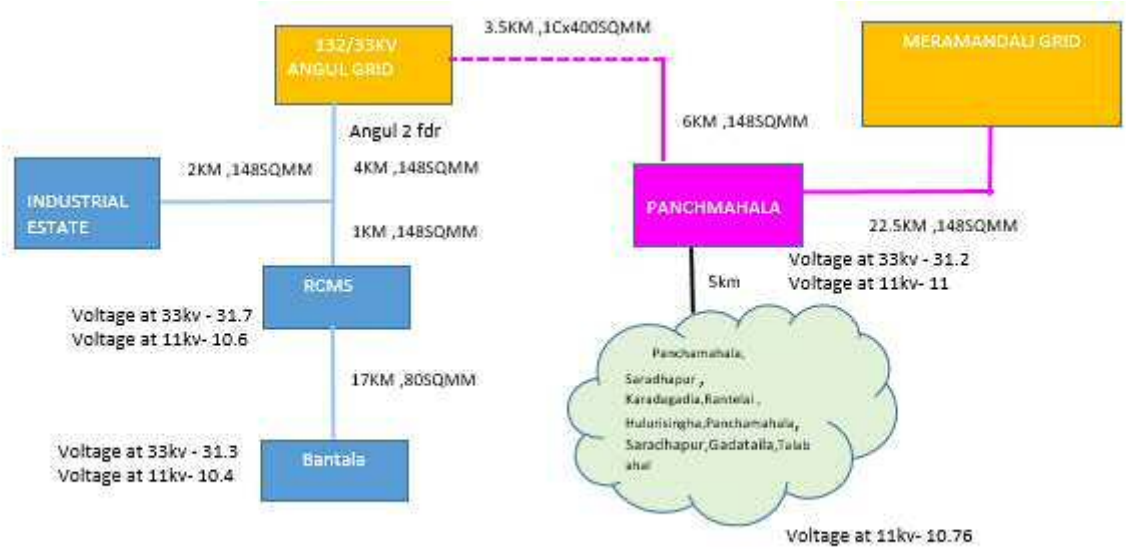
Existing Scenario with SLD: -



- RCMS S/S and Bantala S/S connected from Angul 2 Feeder of Angul Grid.
- All 11 KV and LT consumers, important installation in RCMS town area are getting supply from RCMS S/S and Bantala s/s.

33 KV Feeder Name	Structure Name	33 KV Bus Voltage in KV	11 KV Bus Voltage in KV
Angul 2	RCMS	31.4	10.4
Angul 2	BANTALA	31.1	10.3

Proposed Scenario with SLD: -



- Proposed Panchmala S/S connected from Angul Grid and Meramundali Grid.
- 6 MVA load will shift from RCMS S/S and Bantala S/S.
- The proposed Panchmahala S/S will Provide Reliable source for all 11KV and LT consumers.

33 KV Feeder Name	Structure Name	33 KV Bus Voltage in KV	11 KV Bus Voltage in KV
PANCHMAHALA	PANCHMAHALA	31.2	11
Angul 2	RCMS	31.7	10.6
Angul 2	BANTALA	31.3	10.4

Scope of Work: -

It is recommended to

- Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 22.5km from Meramundali Grid to Panchmahal PSS
- Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 6.8km. and Construction of 33kv line UG (4X1CX400sqmm) with length 3.5KM from Angul Grid to Panchmahla PSS
- Construction of 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work
- Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length (Panchamahala 11kV Feeder) = 4 km.
- Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC.

Length (Adarsa 11kV Feeder) = 2 km.

- Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length (Agriculture Feeder) = 2 km.
- Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length (Govt. Polytechnic 11kV Feeder) = 2.5 km.
- Tower for Lingarajodi Nala crossing=2Nos.
- Construction of OPTCL 33kv Bay at Angul Grid
- Construction of OPTCL 33kv Bay at Meramundali Grid

7) Cost Estimate

TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	ANGUL ELECTRIC DIVISION (ANED)	
	Name of the Sub-Division : -		
	Name of the Section : -		
	Name of the Work :-	Construction of 2X8 MVA, 33/11 KV Panchmahal PSS along with 33 KV line (O/H) (22.5+6.8)KM 148sqmm and UG (4X1CX400sqmm) with length 3.5KM	
	Scope of work:-	Construction of 2X8 MVA, 33/11 KV Panchmahal PSS along with 33 KV line (O/H) (22.5+6.8)KM 148sqmm and UG (4X1CX400sqmm) with length 3.5KM	
	Names of Schemes: -	ODSSP PH- IV	
ABSTRACT OF ESTIMATE			
Sl. No.	Part	Description	Amount
1	A	1. Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 22.5km.	₹ 5,79,25,908.01
2	B	Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 6.8km.	₹ 1,97,31,763.38
3	C	Construction of 33kv line UG (4X1CX400sqmm) with length 3.5KM	₹ 6,37,20,952.67
4	D	Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work	₹ 8,34,94,609.95
5	E	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Panchamahala 11kV Feeder) = 4 km.	₹ 82,83,271.48
6	F	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Adarsa 11kV Feeder) = 2 km.	₹ 46,10,805.17
7	G	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Agriculture Feeder) = 2 km.	₹ 40,96,800.54

8	H	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Govt. Polytechnic 11kV Feeder) = 2.5 km.	₹ 56,59,061.71
9	I	Tower for Lingarajodi Nala crossing=2Nos.	₹ 39,10,893.00
10	J	OPTCL Bay cost at Angul Grid	₹ 60,00,000.00
11	K	OPTCL Bay cost at Meramandali Grid	₹ 60,00,000.00
		Total Amount	₹ 26,34,34,065.93
		Total Amount (In Cr)	26.34

PART A: Construction of 22.5 CKM 33 KV O/H Line using 13 Mtr WPB Pole & 148 Sqmm AAAC Conductor, considering span length of 40 Mtr.

DP W/O ISO -58 nos, DP With ISO-08 Nos, 4 Pole-2 Nos.

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	5552	75	4,16,433.60
2	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR). (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	11121	75	8,34,094.80
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	5821	75	4,36,590.00
5	Pipe Earthing 40mm. GI Pipe	No.	132	1050	1,38,600.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	6600	75	4,95,000.00
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	198	10350	20,49,300.00
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	264	75	19,800.00
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	SET	8	71580	5,72,640.00
10	PG Clamp for 148 sq.mm AAA conductor	NO.	396	620	2,45,520.00
	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	673	75	50,476.80
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	1445.1	75	1,08,385.20
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	705.6	75	52,920.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	6	10350	62,100.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	32	75	2,400.00

18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with Pl(Polvmer)	SET	3	71580	2,14,740.00
19	PG Clamp for 148 sq.mm AAA conductor	NO.	12	620	7,440.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	344	75.00	25,812.00
	MATERIALS OF LINE				
21	WPB 160x160-13M 30.44KG/MTR	No	635	29679.00	1,88,46,165.00
22	33 KV V cross Arm (MS) 22Kg each	No.	485	1580.00	7,66,300.00
23	Top bracket 100x50mm MS channel (2kg each)/	No.	485	150.00	72,750.00
24	33KV pin insulator polymer	No.	1689	480	8,10,720.00
25	H W fitting(B&S)90KN,4 Bolt	No.	468	500	2,34,000.00
26	Disc insulator (B&S)90 KN polymer	No.	468	1150	5,38,200.00
27	H.T. Stay set (Complete)	Set	160	1050.00	1,68,000.00
28	H.T. Stay Insulator	No.	160	40.00	6,400.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	160	125.00	20,000.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	2400	75.00	1,80,000.00
31	Earthing of Support (Coil Type)	No.	495	166.00	82,170.00
32	148 mm2 AAAC	K.M.	69.525	82000.00	57,01,050.00
33	Red Oxide paint	Ltr	318	150.00	47,625.00
34	Alluminium Paint	Ltr	318	200.00	63,500.00
35	Black Paint	Ltr	635	220.00	1,39,700.00
36	Yellow Colour Paint for Background	Ltr	635	220.00	1,39,700.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	1905	75.00	1,42,875.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	2362.5	78.00	1,84,275.00
39	Danger Plate	No.	635	80.00	50,800.00
A-1	Total Cost of materials				3,39,64,882.40
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				3,39,64,882.40
B	Stock, Storage & Insurance i.e 3% of A				10,18,946.47
(A+B)	Sub Total				3,49,83,828.87
C	Contigency @ 3% of (A+B)				10,49,514.87
D	Tools & Plants @ 2% of (A+B)				6,99,676.58
E	Transportation @ 7.5% of (A+B)				26,23,787.17
F	Erection Charges @ 5% on Trf/Breaker/Joist				9,70,577.50
G	Erection Charges @ 10% of other items				15,57,227.89
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				4,18,84,612.87

Civil & Services					
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	160	2000.00	3,20,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	349.3	8446.00	29,49,765.50
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	635	676.00	4,29,260.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	140	2407	3,36,980.00
J1	Total Civil & Services				40,36,005.50
J2	Applicable Taxes to make it Landed Cost @18%				-
J	Total landed Cost (J=J1 + J2)				40,36,005.50
K	Total Material+Services (I+J)				4,59,20,618.37
L	Other overheads (Including 6% supervision charges)				27,55,237.10
M	SubTotal (K + L)				4,86,75,855.47
N	Total GST @ 18% of (M)				87,61,653.99
O	CESS @ 1% of (M)				4,86,758.55
P	Gross Total Material +Services (M+N+0)				5,79,24,268.01
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				540
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)				5,79,25,908.01

PART B: Construction of 6.8CKM 33 KV O/H Line using 13 Mtr WPB Pole & 148 Sqmm AAAC Conductor, considering span length of 40 Mtr.

DP W/O ISO -16 nos, DP With ISO-05 Nos, 4 Pole-3 Nos.

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	1767	75	1,32,501.60
2	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	3770	75	2,82,744.00

4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	1852	75	1,38,915.00
5	Pipe Earthing 40mm. GI Pipe	No.	42	1050	44,100.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	2100	75	1,57,500.00
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	63	10350	6,52,050.00
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	84	75	6,300.00
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	SET	5	71580	3,57,900.00
10	PG Clamp for 148 sq.mm AAA conductor	NO.	126	620	78,120.00
	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	1010	75	75,715.20
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	2073.5	75	1,55,509.20
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	1058.4	75	79,380.00
14	Pipe Earthing 40mm. GI Pipe	No.	12	1050	12,600.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	600	75	45,000.00
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	9	10350	93,150.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	48	75	3,600.00
18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	3	71580	2,14,740.00
19	PG Clamp for 148 sq.mm AAA conductor	NO.	18	620	11,160.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	516	75.00	38,718.00
	MATERIALS OF LINE				
21	WPB 160x160-13M 30.44KG/MTR	No	200	29679.00	59,35,800.00
22	33 KV V cross Arm (MS) 22Kg each	No.	131	1580.00	2,06,980.00
23	Top bracket 100x50mm MS channel (2kg each)/	No.	131	150.00	19,650.00
24	33KV pin insulator polymer	No.	489	480	2,34,720.00
25	H W fitting(B&S)90KN,4 Bolt	No.	234	500	1,17,000.00
26	Disc insulator (B&S)90 KN polymer	No.	234	1150	2,69,100.00
27	H.T. Stay set (Complete)	Set	84	1050.00	88,200.00
28	H.T. Stay Insulator	No.	84	40.00	3,360.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	84	125.00	10,500.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	1260	75.00	94,500.00
31	Earthing of Support (Coil Type)	No.	146	166.00	24,236.00

32	148 mm2 AAAC	K.M.	21.012	82000.00	17,22,984.00
33	Red Oxide paint	Ltr	100	150.00	15,000.00
34	Alluminium Paint	Ltr	100	200.00	20,000.00
35	Black Paint	Ltr	200	220.00	44,000.00
36	Yellow Colour Paint for Background	Ltr	200	220.00	44,000.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	600	75.00	45,000.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	882.5	78.00	68,835.00
39	Danger Plate	No.	200	80.00	16,000.00
A-1	Total Cost of materials				1,15,59,568.00
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				1,15,59,568.00
B	Stock, Storage & Insurance i.e 3% of A				3,46,787.04
(A+B)	Sub Total				1,19,06,355.04
C	Contigency @ 3% of (A+B)				3,57,190.65
D	Tools & Plants @ 2% of (A+B)				2,38,127.10
E	Transportation @ 7.5% of (A+B)				8,92,976.63
F	Erection Charges @ 5% on Trf/Breaker/Joist				3,05,693.70
G	Erection Charges @ 10% of other items				5,79,248.10
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				1,42,79,591.22
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	84	2000.00	1,68,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	110	8446.00	9,29,060.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	200	676.00	1,35,200.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	54	2407	1,29,978.00
J1	Total Civil & Services				13,62,238.00
J2	Applicable Taxes to make it Landed Cost @18%				-
J	Total landed Cost (J=J1 + J2)				13,62,238.00
K	Total Material+Services (I+J)				1,56,41,829.22
L	Other overheads (Including 6% supervision charges)				9,38,509.75
M	SubTotal (K + L)				1,65,80,338.98
N	Total GST @ 18% of (M)				29,84,461.02
O	CESS @ 1% of (M)				1,65,803.39
P	Gross Total Material +Services (M+N+0)				1,97,30,603.38
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				60

S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	1,97,31,763.38

PART-C. Construction of 3.5KM 33kv, 4X1CX400 sqmm line					
Supply Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				
1.1	Supply of 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable	km	14	7,83,000.00	1,09,62,000.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG Cable kits for 1Core	Set	56	19,679.00	11,02,024.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	8	6,869.00	54,952.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set		5,233.00	-
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	14	10,91,237.00	1,52,77,318.00
	Sub Total (Supply Portion) (in Rs.)				2,73,96,294.00
Erection Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 400sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	2	2,80,497.64	5,60,995.28
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG cable kits	Set	56	4,286.75	2,40,058.00
1.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	8	2,327.04	18,616.32
1.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	0	1,959.72	-

1.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	12	13,73,059.62	1,64,76,715.44
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	2	1,04,114.67	2,08,229.34
	Sub Total (Erection Portion) (in Rs.)				1,75,04,614.38
Civil Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of soil	Cum	350	201.62	70,567.00
1.1.b	Earth work excavation of hard rock	Cum	150	884.35	1,32,652.50
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	300	171.55	51,465.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	200	479.74	95,948.00
1.4	Back filling with excavated soil outside and above the trench	Cum	300	30.28	9,084.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.5	26,43,670.63	13,21,835.32
2	Civil works for Prefabricated RCC foundation with supply of all materials				
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,607.00	1,02,848.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	117	376.13	44,007.21
	Sub Total (Civil Portion) (in Rs.)				18,28,407.03
A-1	Sub Total (Supply Portion)				2,73,96,294.00
A-2	Applicable Taxes to make it Landed Cost @18%				
A	Total landed Cost (A=A1 + A2)				2,73,96,294.00

B	Stock, Storage & Insurance @ 3 % of A	8,21,888.82	
C	Sub Total (A+B)	2,82,18,182.82	
D	Contingency @ 3 % of C	8,46,545.48	
E	Tools & Plants Charges @ 2% of C (Not considered)	-	
F	Transportation @ 7.5% of C	21,16,363.71	
G	Total (C+D+E+F)	3,11,81,092.02	
H-1	Sub Total (Erection Portion + Civil Portion)	1,93,33,021.41	
H-2	Applicable Taxes to make it Landed Cost @18%		
H	Total landed Cost (H=H1 + H2)	1,93,33,021.41	
I	Total Cost (G+H)	5,05,14,113.42	
J	Other Overhead /(including Supervision Charges) @ 6 % of I	30,30,846.81	
K	Total Estimated Capital Cost i.e. (I+J)	5,35,44,960.23	
L	GST @ 18% of K	96,38,092.84	
M	CESS @ 1% of L	5,35,449.60	
N	Grand Total (K+L+M)	6,37,18,502.67	
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00	
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	1300	
Q	Inspection Fee of Drawing Checking and Approval	400.00	
R	Final decision by electrical Inspector	500.00	
S	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	6,37,20,952.67	

PART D: Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work

Sl. No.	DESCRIPTION OF ITEMS	UNITS	Total Quantity	Basic Unit price (In Rs.)	Total
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
	33kV Equipment (Indoor Type)				
1	36kV Indoor GIS/SIS Equipment and accessories for 33/11kV GIS Substation as detailed below				
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for line feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (800-400/1-1A) , PT, bus-bar dis connectors (1250A) with common grounding switch, for complete Line feeder bay as per the technical specification. The module shall be provided with complete Line Feeder protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	2.00	25,36,365.25	50,72,730.50
1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Transformer feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (600-300/1-1-1A) , bus-bar dis connectors (1250A) with common grounding switch, for complete Transformer feeder bay as per the technical specification. The module shall be provided with	Set	2.00	24,75,453.15	49,50,906.29

	complete Transformer Feeder protection system to suit for SCADA (BCPU, Numerical Differential Relay having inbuilt of REF protection, Multi-function Meter & other provisions as per tech spec).				
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Bus-coupler bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt CT (800-400/1-1A) , bus-bar dis connectors (1250A) with grounding switches, Each bus bar set shall be provided with inductive voltage transformers(two sets) with disconnector(s) for both the buses for complete Bus-coupler bay as per the technical specification. The module shall be provided with complete Bus-coupler protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	1.00	44,03,929.80	44,03,929.80
	11kV Equipment (Indoor Type)				
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester (for 33kV Incoming Line, HT side of 2nos. Power Transformers and 33/0.433kV Station Transformer) - Outdoor Type with Surge Counter	Nos.	6.00	10,350.00	62,100.00
3	12kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester with out surge counter(For Transformers & Out Going Feeders) - Outdoor type	Nos.	6.00	3,550.00	21,300.00
4	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-630A, Busbar-1250A(Copper) & CT (400-200/1-1-1A) for Transformer Protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	2.00	6,41,174.55	12,82,349.09
5	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-630A, Busbar-1250A (Copper), CT (400-200/1-1-1A) for Feeder protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	6.00	7,21,808.20	43,30,849.18
6	11kV Bus-Coupler Indoor AIS Panel consisting of Breaker-630A, Bus-bar-1250A (Copper)	No	1.00	5,79,725.65	5,79,725.65
7	11kV, 2 Core, Single Phase, IVT (11/√3 kV / 110/√3-110/√3V), 3nos in a set, in a separate draw out chamber with Digital Voltmeter inside Control Room separately for Bus-1 & Bus-2 plug in type with disconnector.	Set	2.00	3,67,128.86	7,34,257.71
	SCADA				
8	SCADA FOR Primary Substation	Set	1.00	2,60,000.00	2,60,000.00
	Transformer and RMU			-	
9	8.0 MVA, 33/11kV Power Transformer DYn11 (Outdoor Installation) with Accessories	No.	2.00	57,00,000.00	1,14,00,000.00
10	100 KVA 33/0.433kV Energy efficient Station Transformer	No	1.00	2,72,000.00	2,72,000.00
11	11 KV 4Way RMU	No.	0.00	4,49,500.00	-
	Substation Earthing System GI				
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat for laying (spacing maximum 2m both ways)	Kg	5301.00	75.00	3,97,575.00
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat for Raiser from the burial earth mat to equipment, structure etc.)	Kg	720.00	75.00	54,000.00

14	Earthing Device & Associated Accessories (Heavy duty GI Perforated Pipe of ID=40mm & OD=50mm with 3000mm long for treated Earth Pit) as per Drawing	No	30.00	1,050.00	31,500.00
	33, 11 and Station Trf Structure				
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04 nos for one Power Transformer) for supporting of 33kV Cable & 11kV cable (Unit Wt=0.0665 MT) & 10 mm thick MS plate size 250X250 mm at the bottom of the RS Joist duly welded & the MS plate to be suitably grouted to the floor for the rigidity.	Kg	532.00	75.00	39,900.00
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr - 06 nos for one Power Transformer) for supporting of 33kV & 11kV power Cable (Unit Wt=0.01912 MT)	Kg	229.44	75.00	17,208.00
17	GI Nuts & Bolts etc. for column and beam & Equipment Structures	Kg	500.00	78.00	39,000.00
18	Supply & Erection of GI Pipe of dia. 150mm, Class-B	Mtr.	50.00	1,607.00	80,350.00
19	High Density Polyethylene (HDPE) pipe 160 mm diameter.	KM	0.01	10,91,237.00	10,912.37
20	LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	24,419.00	24,419.00
21	Supply and installation of 8way LDB with accessories	Nos.	2.00	8,960.00	17,920.00
	33 and 11 kv Power and Control, XLPE cables				
22	1C X 400 sqmm, 33 KV, XLPE, Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	1.60	7,83,000.00	12,52,800.00
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	5,233.00	1,04,660.00
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	6,869.00	1,37,380.00
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	0.80	15,00,000.00	12,00,000.00
24	11 KV, 3C X 400 sqmm Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	9,582.00	1,53,312.00
25	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	13,904.00	2,22,464.00
26	Control Cables (Copper Armoured)				
26.1	4 Core x 2.5 mm^2	Km	0.30	1,06,157.22	31,847.17
26.2	7 Core x 2.5 mm^2	Km	0.10	1,67,628.60	16,762.86
26.3	10 Core x 2.5 mm^2	Km	0.20	2,34,997.61	46,999.52
26.4	12 Core x 2.5 mm^2	Km	0.20	2,78,851.73	55,770.35
26.5	1 Core x 16 mm2 Aluminium cable from Battery to Battery Charger & Battery Charger to DCDB	Km	0.06	1,24,606.20	7,476.37
27	1.1 kV XLPE Power Cables				
27.1	XLPE 3 1/2 Core x 120 mm2 (for Station Transformer output)	Km	0.05	4,28,106.97	21,405.35
27.2	XLPE 3 1/2 Core x 95 mm2 (for Oil Filtration Machine Connection)	Km	0.03	3,36,088.92	10,082.67
27.3	XLPE 3 1/2 Core x 25 mm2 (for Switchyard Lighting)	Km	0.03	1,17,045.14	3,511.35
27.4	XLPE 4 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	84,154.55	2,524.64
27.5	XLPE 2 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	50,583.46	1,517.50

	Battery & Battery Charger			-	-
28	48 V, 100 AH, maintenance free VRLA Battery (Set. 4 Nos of 12V Battery)	Set	1.00	58,740.62	58,740.62
29	48V, Float cum Boost Battery Charger (15 A float charging, 20 A boost charging)	No	1.00	1,90,907.01	1,90,907.01
	Sub-station Lighting And Fire Fighting System				
30	Sub-Station Switchyard Lighting , Control Room Lighting (it includes supply of fixtures & Lamps (LED) with switch gear, GI Conduit etc.(120Wx 4 sets and 100Wx6 sets out side the control room, 20 Watt CFL tube-10 sets inside control room .Control Room wiring to be done with Copper wires as per the requirement (Lighting fixtures are to be fixed rigidly on the Column at a suitable height with GI tubular pole so that the required lux as per the technical specification is maintained).	Lot	1.00	11,62,247.82	11,62,247.82
31	1.5 Ton capacity Split Air Conditioning units with Remote control facility: Including supply of split Air conditioner 5 Star rated, voltage stabiliser, control boxes etc. for completing the A.C scheme. (As per specification) for control room.	No	4.00	83,017.70	3,32,070.81
32	1400 mm sweep 250Volt A/C Celling Fan	No	5.00	2,905.62	14,528.10
33	300 mm sweep 70W A/C Exhaust Fan (for Battery room and Toilet)	No	4.00	2,158.46	8,633.84
34	Fire Fighting System (portable and wheel mounted sets for control room)				
34.1	Foam type- 5 Ltrs	No	2.00	4,981.06	9,962.12
34.2	CO_2 - 4.5 Kgs	No	2.00	9,962.12	19,924.25
34.3	Dry powder 4.5 Kg	No	2.00	4,150.89	8,301.77
34.4	Fire Bucket with Stand (4nos. in each Stand)	No	4.00	2,988.64	11,954.55
	AC & DC System for Auxiliary supply				
35	AC System				
35.1	ACDB (as per specification)	Lot	0.00	4,15,088.51	-
35.2	Main Lighting Distribution Board (as per specification)	Lot	1.00	1,66,035.40	1,66,035.40
35.3	Indoor Lighting Distribution Board as per specification	Lot	1.00	46,489.91	46,489.91
35.4	Receptable Panel near Power Transformer	No	1.00	14,943.19	14,943.19
36	DC System				
36.1	48 V DC Distribution Board as per specification .	No	1.00	2,07,544.25	2,07,544.25
37	Water Cooler with water purifier system as per Technical Specification	No	1.00	24,905.31	24,905.31
38	Maintenance Testing Equipment as per Technical Specification	Lot	1.00	9,96,212.42	9,96,212.42
39	Tools and Plants (T&P's) Requirement as per Technical Specification	Lot	1.00	2,49,053.10	2,49,053.10
40	Office Furniture as per Technical Specification	Lot	1.00	8,30,177.01	8,30,177.01
41	Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing)				
41.1	90 lb Rail 5.4 mts (2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)	Nos	2.00	20,322.28	40,644.56
41.2	(500x500x10) mm GI plate 6 nos / Transformer each (Unit Wt=0.013 MT)	Nos	6.00	1,145.44	6,872.65
41.3	(65x65x5) mm GI angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)	Nos	2.00	2,290.88	4,581.77
42	Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr	Kg	640.00	84.68	54,192.75
	Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)				4,18,10,369.59
	Material Landed Cost @18%				
	Total Cost in Cr.				4.18

ERECTION, TESTING & COMMISSIONING WORKS OF FOLLOWING EQUIPMENT (As per Technical Specification)					
33kV Equipment (Indoor Type)					
1	Erection, Commissioning, Testing of 33kV Equipment for (INDOOR AIS Sub-Station)				
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for line feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (800-400/1-1A) , bus-bar dis connectors (1250A) with common grounding switch, for complete Line feeder bay as per the technical specification. The module shall be provided with complete Line Feeder protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	2.00	48,237.78	96,475.57
1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Transformer feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (600-300/1-1-1A) , bus-bar dis connectors (1250A) with common grounding switch, for complete Transformer feeder bay as per the technical specification. The module shall be provided with complete Transformer Feeder protection system to suit for SCADA (BCPU, Numerical Differential Relay having inbuilt of REF protection, Multi-function Meter & other provisions as per tech spec).	Set	2.00	48,237.78	96,475.57
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Bus-coupler bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt CT (800-400/1-1A) , bus-bar dis connectors (1250A) with grounding switches, Each bus bar set shall be provided with inductive voltage transformers(two sets) with disconnector(s) for both the buses for complete Bus-coupler bay as per the technical specification. The module shall be provided with complete Bus-coupler protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	1.00	48,237.78	48,237.78
Erection, Commissioning, Testing of 11kV Equipment (Indoor Type)					-
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester (for 33kV Incoming Line, HT side of 2nos. Power Transformers and 33/0.433kV Station Transformer) - Outdoor Type with Surge Counter	Nos.	6.00	428.00	2,568.00
3	12kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester with out surge counter(For Transformers & Out Going Feeders) - Outdoor type	Nos.	6.00	128.40	770.40
4	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-1250A, Busbar-2000A(Copper) & CT (800-400/1-1-1A) Horizontal draw type for Transformer Protection and Differential Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	2.00	7,490.00	14,980.00
5	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-1250A, Busbar-2000A (Copper), CT (600-300/1-1-1A) for Feeder protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	6.00	7,490.00	44,940.00

6	11kV Bus-Coupler Indoor AIS Panel consisting of Breaker-1250A, Bus-bar-2000A (Copper), for Bus protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	1.00	7,490.00	7,490.00
7	11kV, 2 Core, Single Phase, IVT (11/√3 kV / 110/√3-110/√3V), 3nos in a set, in a separate draw out chamber with Digital Voltmeter inside Control Room separately for Bus-1 & Bus-2 plug in type with disconnector.	Set	2.00	7,490.00	14,980.00
Erection, Commissioning, Testing of SCADA					
8	SCADA FOR Primary Substation	Set	1.00	0.00	0.00
Erection, Commissioning, Testing of Transformer and RMU					0.00
9	8.0 MVA, 33/11kV Power Transformer DYn11 (Outdoor Installation) with Accessories	No.	2.00	85,600.00	1,71,200.00
10	100 KVA 33/0.433kV Energy efficient Station Transformer	No	1.00	5,350.00	5,350.00
11	11 KV 4Way RMU	No.	0.00	4,813.00	-
`					-
Erection, Laying of Substation Earthing System GI					
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat for laying (spacing maximum 2m both ways)	Kg	5301.00	15.00	79,515.00
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat for Raiser from the burial earth mat to equipment, structure etc.)	Kg	720.00	15.00	10,800.00
14	Earthing Device & Associated Accessories (Heavy duty GI Perforated Pipe of ID=40mm & OD=50mm with 3000mm long for treated Earth Pit) as per Drawing	No	30.00	2,675.00	80,250.00
Erection of System GI 33, 11 and Station Trf Structure					
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04 nos for one Power Transformer) for supporting of 33kV Cable & 11kV cable (Unit Wt=0.0665 MT) & 10 mm thick MS plate size 250X250 mm at the bottom of the RS Joist duly welded & the MS plate to be suitably grouted to the floor for the rigidity.	Kg	532.00	30.00	15,960.00
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr - 06 nos for one Power Transformer) for supporting of 33kV & 11kV power Cable (Unit Wt=0.01912 MT)	Kg	229.44	30.00	6,883.20
17	GI Nuts & Bolts etc. for column and beam & Equipment Structures	Kg	500.00	30.00	15,000.00
18	GI Pipe of dia. 150mm, Class-B	Mtr.	0.00	-	-
19	High Density Polyethylene (HDPE) pipe 160 mm diameter.	KM	0.01	1,04,114.67	1,041.15
20	LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	1,000.00	1,000.00
Laying of 11kV 33 and 11 kv Power and Control cables					-
21	1C X 400 sqmm, 33 KV, XLPE, Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	1.60	2,80,497.64	4,48,796.22
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	1,959.72	39,194.40
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	2,327.04	46,540.80
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging	KM	0.80	2,08,229.35	1,66,583.48

	etc. as required as per technical specifications and scope of the works.				
24.1	11 KV, 3C X 400 sqmm Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	1,470.29	23,524.64
24.2	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	1,837.61	29,401.76
25	Control Cables (Copper Armoured)				-
25.1	4 Core x 2.5 mm^2	Km	0.30	21,400.00	6,420.00
25.2	7 Core x 2.5 mm^2	Km	0.10	21,400.00	2,140.00
25.3	10 Core x 2.5 mm^2	Km	0.20	26,750.00	5,350.00
25.4	12 Core x 2.5 mm^2	Km	0.20	26,750.00	5,350.00
25.5	1 Core x 16 mm2 Aluminium cable from Battery to Battery Charger & Battery Charger to DCDB	Km	0.06	16,050.00	963.00
26	Laying of 1.1 kV XLPE Power Cables				-
26.1	XLPE 3 1/2 Core x 120 mm2 (for Station Transformer output)	Km	0.05	32,100.00	1,605.00
26.2	XLPE 3 1/2 Core x 95 mm2 (for Oil Filtration Machine Connection)	Km	0.03	29,960.00	898.80
26.3	XLPE 3 1/2 Core x 25 mm2 (for Switchyard Lighting)	Km	0.03	27,820.00	834.60
26.4	XLPE 4 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	25,680.00	770.40
26.5	XLPE 2 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	25,680.00	770.40
	Erection, Commissioning , Wiring & Testing of Battery & Battery Charger				
27	48 V, 100 AH, maintenance free VRLA Battery (Set. 4 Nos of 12V Battery)	Set	1.00	5,350.00	5,350.00
28	48V, Float cum Boost Battery Charger (15 A float charging, 20 A boost charging)	No	1.00	5,350.00	5,350.00
	Erection, Commissioning , Wiring & Testing of Sub-station Lighting And Fire Fighting System				-
29	Sub-Station Switchyard Lighting , Control Room Lighting (it includes supply of fixtures & Lamps (LED) with switch gear, GI Conduit etc.(120Wx 4 sets and 100Wx6 sets out side the control room, 20 Watt CFL tube-10 sets inside control room .Control Room wiring to be done with Copper wires as per the requirement (Lighting fixtures are to be fixed rigidly on the Column at a suitable height with GI tubular pole so that the required lux as per the technical specification is maintained).	Lot	1.00	32,100.00	32,100.00
30	1.5 Ton capacity Split Air Conditioning units with Remote control facility: Including supply of split Air conditioner 5 Star rated, voltage stabiliser, control boxes etc. for completing the A.C scheme. (As per specification) for control room.	No	4.00	1,498.00	5,992.00
31	1400 mm sweep 250Volt A/C Celling Fan	No	5.00	107.00	535.00
32	300 mm sweep 70W A/C Exhaust Fan (for Battery room and Toilet)	No	4.00	107.00	428.00
33	Erection, Commissioning of Fire Fighting System (portable and wheel mounted sets for control room)				
33.1	Foam type- 5 Ltrs	No	2.00	53.50	107.00
33.2	CO_2 - 4.5 Kgs	No	2.00	53.50	107.00
33.3	Dry powder 4.5 Kg	No	2.00	53.50	107.00
33.4	Fire Bucket with Stand (4nos. in each Stand)	No	4.00	107.00	428.00
	Erection, Commissioning , Wiring & Testing of AC & DC System				
34	AC System				-

34.1	ACDB (as per specification)	Lot	0.00	4,280.00	-
34.2	Main Lighting Distribution Board (as per specification)	Lot	1.00	2,140.00	2,140.00
34.3	Indoor Lighting Distribution Board as per specification	Lot	1.00	2,140.00	2,140.00
34.4	Receptable Panel near Power Transformer	No	1.00	1,605.00	1,605.00
35	DC System				-
35.1	48 V DC Distribution Board as per specification .	No	1.00	2,140.00	2,140.00
36	Erection, Commissioning of Water Cooler with water Purifier System	No	1.00	802.50	802.50
37	Commissioning & Testing of Maintenance Testing Equipment	Lot	1.00	2,140.00	2,140.00
38	Commissioning Tools and Plants (T&P's) Requirement	Lot	1.00	535.00	535.00
39	Commissioning Office Furniture	Lot	1.00	1,070.00	1,070.00
	Laying of Materials for Installation of Power Transformer on Plinth (as per Drawing)				-
40	90 lb Rail 5.4 mts (2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)	Nos	2.00	856.00	1,712.00
41	(500x500x10) mm GI plate 6 nos / Transformer each (Unit Wt=0.013 MT)	Nos	6.00	74.90	449.40
42	(65x65x5) mm GI angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)	Nos	2.00	80.25	160.50
43	Construction of Cable Trench : 2 tier 2 rows U-Type RCC Cable trench with M-20 Grade concrete: The internal width 2000 mm, depth 1005 mm, with 75X75X6 mm support angles fixed RCC wall of 175 X 175 mm, Raft of 175mm & with ladder type cable tray (45X45X5)mm two angles at both side having welded flats of 25X5 mm at a gap of 150mm) for Power & control Cable with RCC Trench Cover Slab as per technical Specification, approved drawing and Direction of Engineer Incharge. Complete work including earth work in excavation in all kind of soil & rock and refilling the cavity by selective soil, leveling the surface around the pit with disposal of surplus earth.	Mtr	71.85	23,041.98	16,55,566.26
44	Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr	Metric Ton	0.64	6,420.00	4,095.96
	Sub-Total for ERECTION,TESTING & COMMISSIONING WORKS (In Rs.)				32,18,120.80
	Total Cost in Cr.				0.32
-					
Civil Works with supply of all materials like Cement, MS tor rod, Brick, Coarse & Fine Agregrates & Labour,T&P etc.					
1	Contour survey (36 mts.x 34 mts.), plotting the contour on graph sheet and marking the finished ground level	Sqr Mtr	1,224.00	16.05	19,645.20
2	Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.	Cum	143.00	192.60	27,541.80
3	Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).	Cum	2,320.00	374.50	8,68,840.00
4	OUT DOOR DRAIN to DISCHARGE SWITCHYARD/ WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts		-	-	-
4.1	Excavation in all type soil (1.35x10x0.7)	Cum	9.45	214.00	2,022.30
4.2	PCC (1:3:6) (1.35x10x0.1)	Cum	1.35	4,708.00	6,355.80
4.3	PCC (1:2:4) (0.3x10x0.05)	Cum	0.15	5,778.00	866.70
4.4	Brick Masonary with cement mortar (1:5) (0.25x10x0.925+1/2x0.15x0.93x10)+(0.25x10x0.925)	Cum	5.32	3,905.50	20,775.63
4.4	Plastering with Cement mortar(1:6) (2x0.25x10+2x0.925x10+1x0.925x10+1x1.0x10)	Sq. mtr.	42.75	107.00	4,574.25

5	Switch Yard and COMPOUND WALL as per Drawing Schedule and Specification. For PILE Foundation for SBC Upto 10		-	-	-
5.1	Construction of Compound-wall (with RCC column & beam with M-20 Grade concrete) along the property line of the sub-station as per technical specification and instruction of the Engineer in Charge.(the size of the bricks shall be 250mm having 1st class Fly-ash brick having compressive strength with 75kg/cm2). This also includes excavation in all types of soil or rocks, backfilling ,and disposal of excess earth . (Brick works rested on RCC Beam and RCC Column & footings , including Cement Plastering, Cement wash, Wall Painting two coats with weather coat. Provision of the boundary wall Fencing with M.S Grill of 700 mm height fixing at the top of the wall. It includes supply of all the materials & two coats of synthetic enamel paintings after primer application of the fencing .	Run. Mtr.	140.00	16,990.55	23,78,677.00
5.2	Switch Yard GI Chain Linking Fencing with 2.4 Mtr Height.	Run. Mtr.	60.00	5,000.00	3,00,000.00
6	Power Transformer Foundation / One (8 MVA)		-	-	-
6.1	Excavation in all type soil per Tfr.(3X3X1.1 mtr)	Cum	19.80	214.00	4,237.20
6.2	PCC (1:3:6) per Tfr.(3X3X0.075 mtr)	Cum	1.35	4,708.00	6,355.80
6.3	RCC (1:1.5:3) per Tfr. As per drawing	Cum	10.52	6,420.00	67,538.40
6.4	RRHG stone grouting with sand per Tfr.	Cum	9.00	1,926.00	17,334.00
7	Construction of 100kVA 33/0.4 kV station Trf. Plinth		-	-	-
7.1	Excavation in all type soil (2.5X2.5X0.750 mtr)	Cum	4.69	214.00	1,003.13
7.2	PCC (1:3:6) (2.5X2.5X0.075 mtr)	Cum	0.47	4,708.00	2,206.88
7.3	RCC (1:1.5:3) (1.5X1.5X0.1 mtr)	Cum	0.23	6,420.00	1,444.50
7.4	Brick Masonary work (2.5x2.5x.925+2x(.5 x1.5x2.25) (1:5)	Cum	61.19	3,905.50	2,38,967.78
7.5	Cement Plastering (1:6) (1.5x2.25x4)+(1.5x1.5) 20mm thick	Sq Mtr	15.75	107.00	1,685.25
8	Construction of oil sump pit for Transformer (1.6 X 1.6 X 2.3)		-	-	-
8.1	Excavation of Earth(2.0x2.0x2.1)	Cum	8.40	214.00	1,797.60
8.2	PCC (1:3:6) 2X2X0.1	Cum	0.40	4,708.00	1,883.20
8.3	RCC(1:1.5:3) 1.6X1.6X0.1 for Top Slab	Cum	0.26	6,420.00	1,643.52
8.4	Brick Masonary work(2x2.1+2x1.6)x0.25x2.3 (1:5)	Cum	4.26	3,905.50	16,617.90
8.5	Cement Plastering (1:6) 2.3 (4x2.1+ 4x1.6)+ 1.6x1.6	Sq.mtr	36.60	107.00	3,916.20
8.6	Drainage for Oil sump pit with 250 dia hume pipe	Mtr	24.00	749.00	17,976.00
9	ROAD (5 Mtrs wide) Length of the road 20 mtrs as per Drawing Schedule- OPTCL/CIVIL/11-REV-B.		-	-	-
9.1	Excavation in all type soil 0.5mx1mx5m	Cum	50.00	214.00	10,700.00
9.2	Boulder Packing 0.5mx1mx5m	Cum	50.00	1,926.00	96,300.00
9.3	Water base course -I 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.4	Water base course -II 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.5	PCC (1:2:4) 0.1mx1mx5m	Cum	10.00	5,778.00	57,780.00
10	(125x70x5) mm RS GI joist 5Mtr (STATION) as per Drawing Schedule- OPTCL/CIVIL/2-REV-B.		-	-	-
10.1	Excavation with back filling L 1m x W 1 x D 2	Cum	8.00	214.00	1,712.00
10.2	PCC (1:3:6)	Cum	0.40	4,708.00	1,883.20
10.3	RCC (1:1.5:3)	Cum	12.00	6,420.00	77,040.00
11	Baffle Wall		-	-	-
11.1	Excavation with back filling 4.2mx0.75mx0.5m	Cum	1.58	214.00	337.05
11.2	PCC 1:3:6 4.2mx0.75mx0.1m	Cum	0.32	4,708.00	1,483.02
11.3	RCC 1:1.5:3 0.75x3.8x0.2+0.5x3.4x0.2+2.5x3x0.15	Cum	5.80	6,420.00	37,203.90

12	PCC (1:4:8) With cement For S/S area(75 mm) per Sq. mts.((8x16x0.075)	Cum	9.60	4,066.00	39,033.60
13	Metal Spreading 100 mm. per Sq. mts. Area of spreading.	Cum	12.80	1,605.00	20,544.00
	Switchgear Cum Control Room (22x10Mts) (column & beam based) (as per specification & Inclusive of doors, windows, collapsible gate, PHD fittings, electrification, inner cable trench, Two nos main doors with concrete pillars, beams) etc. as per Technical specification in Civil section. Layout Drawing		-	-	-
14	Switchgear Cum Control Room For Pile foundation in FLOOD AREA (with SBC upto 10)		-	-	-
14.1	Boring and casting 300 mm dia single under reamed pile of 5.00 m. long with R.C.C. M-20 using 20 mm down graded chips with cost of all materials, labours, T&P etc. & all other machinaries required for the work etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Nos	252.00	6,420.00	16,17,840.00
14.2	Earth work in excavation of foundation trenches in all kinds of soil including moorum, stony earth and earth mixed with boulders except sheet rock and boulders requiring blasting including dressing of sides and leveling the bed up to the required depth and depositing the excavated materials away from the work site within initial leads and lifts, including shoring, shuttering & dewatering (if required) with cost of labour,cess, hire & running charges of water pumps sundries , T & P & all other machinaries required for the work etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	470.80	235.40	1,10,826.32
14.3	Supplying and filling in foundation and plinth with good river sand well watered and rammed in layers not exceeding 23 cm in each layer including all leads and lifts, cost of all materials, labour,cess, sundries, T&P required for the work etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	791.60	770.40	6,09,848.64
14.4	Providing and lying plain cement concrete of proportion (1:3:6) in foundation and plinths using approved quality cement , 40 mm. size black hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, loading, unloading, royalties and taxes of all materials and cost of all labours, cess, sundries, T&P & all other machinaries required for the work including shoring, shuttering and dewatering if required including hire & running charges of water pump etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	156.80	4,708.00	7,38,214.40
14.5	K.B. Brick masonary in cement mortar (1:6) using the bricks of size 10" x 5" x 3" of crushing strength not less than 100 kg / centimeter square with dimensional tolerance 3% after immersing the bricks for 6 hours in water before use including hoisting to required height placing in position scaffolding, splays cutting, circular moulding, corbelling, chamfering and similar such type of work watering and curing etc. including cost, conveyance, royalty, cess, and taxes of all other materials machinaries scaffolding all labour T&P articles required for the work etc. complete in all respect as per the latest specification confirming to		-	-	-

	relevant IS Specification and direction of the Engineer-in-charge.				
14.5.1	In Foundation and Plinth	Cum	108.00	4,494.00	4,85,352.00
14.5.2	Ground Floor	Cum	222.80	4,494.00	10,01,263.20
14.6	RCC work M-20 grade as per approved designs and drawings having a minimum compressive strength (in work test) 200 Kg./ Sqcm.in 15 cm. cubes at 28 days after mixing and test conducted in accordance with I.S.456 and I.S 516 using 12 mm. to 20 mm. size black hard crusher broken granite stone chips, screened and washed sharp sand for mortar of approved quality from approved quarry, to be mixed in concrete mixture with approved quality cement including hoisting, lowering, laying and compacting concrete by using vibrators, watering and curing for 28 days, centering and shuttering and finishing the exposed surface smooth providing grooves or beads wherever necessary including cost, conveyance, loading, unloading, royalties and taxes and cess of all materials, cost of all labours, sundries, T&P & all other machinaries required for the work but excluding cost and conveyance of M.S. or Tor steel and binding wires etc. Complete in all respect as per latest specification & direction of the Engineer in charge.		-	-	-
14.6.1	Pile cap & Grade beam	Cum	300.00	6,420.00	19,26,000.00
14.6.2	R.C.C. wall	Cum	70.80	6,420.00	4,54,536.00
14.6.3	Plinth Beam	Cum	24.40	6,420.00	1,56,648.00
14.6.4	Column & Beam- Ground Floor	Cum	144.00	6,420.00	9,24,480.00
14.6.5	Lintel-Ground Floor	Cum	8.80	6,420.00	56,496.00
14.6.6	65mm thick R.C.C.Chajja- Ground Floor	Sqm	88.40	588.50	52,023.40
14.6.7	Roof slab - Ground Floor	Cum	147.20	6,420.00	9,45,024.00
14.6.8	Staircase- Ground Floor	Cum	23.60	6,420.00	1,51,512.00
14.7	Cutting, Straightening coiled or bent up M.S. rods or Tor steel welding or jointing if necessary, bending, binding, tying the grills as required for R.C.C. works, providing fan hooks where necessary and hoisting, lowering and placing in proper position according to approved designs and drawings including cost, conveyance, loading, unloading, taxes of M.S. rods or Tor steel and binding wires of 18 to 20 gauge required for the work and cost of all labour, sundries, T&P and scaffolding complete in all respect as directed by the Engineer in charge (payment will be made according to the actual weight of M.S. rod / Tor steel consumed in the work and no separate payment will be made towards weight of binding wires which is to be borne by the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.		-	-	-
14.7.1	Ground Floor	MT	72.00	58,850.00	42,37,200.00
14.8	Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in floors of approved make with application of polymer modified cement based water resistant adhesive bed of required thickness of 10mm and filling joints with epoxy grout of approved quality including cost of all materials, takes labour T&P etc. required for the work etc. complete in all respect as	Sqm	416.00	963.00	4,00,608.00

	per the latest specification and direction of the Engineer-in-charge.				
14.9	Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in dado of approved make with application of polymer modified cement based water resistant adhesive bed of required thickness of 10mm and filling joints with epoxy grout of approved quality including cost of all materials, takes labour T&P etc. required for the work etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	36.80	963.00	35,438.40
14.10	Supplying, fitting and fixing Floor tile of size 40cmx40 cm / 30cmx30cm in floors on 25mm thick bed of cement mortar 1:1 (1cement : 1sand) jointed with neat cement slury mixed with pigment to match the shades of the tiles of required thickness of approved quality including cost of all materials, takes labour T&P etc. required for the work.etc complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	20.40	856.00	17,462.40
14.11	Providing fitting fixing Glazed /Ceramic tiles of size 20cmX30cm & 6.5 to 6.7mm thick of size up to 0.10sqm in wall dados skirting and on 12mm thick cement plaster (1:3) jointed with neat cement slurry mixed with pigments to match the shade of the tiles including rubbing and polishing complete including cost of precast tiles etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	107.20	802.50	86,028.00
14.1	Supplying, fitting and fixing 5"x2½" size Dressed seasoned Sal wood chaukaths including cost, conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.	Cum	1.00	80,250.00	80,250.00
14.13	Supplying, fitting and fixing 30mm/32mm flush door shutter (Non-Sal hard wood frame fixed with 4mm BWR ply on both sides of frame.including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.	Sqm	57.60	1,605.00	92,448.00
14.1	Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW	Sqm	124.00	2,354.00	2,91,896.00
14.15	Providing and fixing of FRP door frame including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the latest specification and direction of the Engineer-in-Charge.	Mtr	40.80	481.50	19,645.20
14.2	Providing and fixing of FRP door shutter including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work	Sqm	15.20	3,745.00	56,924.00

	complete in all respect as per the latest specification and direction of the Engineer-in-Charge.				
14.17	Providing 16mm. thick cement plaster with cement mortar of mix (1:6) with approved quality cement with screened and washed sharp sand for mortar and finished smooth to the surface over brick work after racking out the joints including watering and curing, rounding of corners etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charge		-	-	-
14.17.1	Ground Floor	Sqm	2,499.60	128.40	3,20,948.64
14.18	Providing 12mm. thick cement plaster with cement mortar of mix (1:6) with approved quality cement and screened and washed sharp sand for mortar and finished smooth to the surface over brick work after racking out the joints including watering and curing, rounding of corners etc. complete with cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charger in charge		-	-	-
14.18.1	Ground Floor	Sqm	1,588.40	107.00	1,69,958.80
14.19	Providing 12mm. thick cement plaster with cement mortar of mix (1:3) with approved quality cement with screened and washed sharp sand for mortar and finished smooth to the surface in ceiling and R.C.C. surface after chipping the surface in all floors including watering and curing, rounding of corners etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charge.		-	-	-
14.19.1	Ground Floor	Sqm	1,603.60	107.00	1,71,585.20
14.20	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge		-	-	-
14.20.1	Ground Floor	Sqm	5,655.20	6.42	36,306.38
14.21	Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in Charge.	Kg	3,166.80	80.25	2,54,135.70
14.22	Supplying fitting and fixing of M.S grill made out of M.S M.S.Flat 19 mm x 5 mm size, as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in Charge.	Kg	2,848.40	80.25	2,28,584.10

14.23	Wall painting 2 coats with acrylic distemper over one coat of wall primer of approved shade on new work to give an even shade in all floors at all height including scafolding cost of brushes including cost of paint cost conveyance royality of all materials labour,T&P articles required for the work etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.		-	-	-
14.23.1	Ground Floor	Sqm	3,725.20	10.70	39,859.64
14.24	Painting two coats with weather coat on exterior walls surface of approved quality and approved shade over a coat of primer in all floors at all height of approved quality and shade including cleaning and sand papering the surface and making the surface smooth with cost, conveyance, loading, unloading, and taxes of all materials, cost of all labour, sundries, T&P, scaffolding etc. required for the work complete in all respect as directed by Engineer-in-charge		-	-	-
14.24.1	Ground Floor	Sqm	1,930.00	16.05	30,976.50
14.25	Painting two Coats with approved colour synthetic enamel paint on wood / iron work in all floors at all height including scafolding cost conveyance royality of all materials labour,T&P articles required for the work etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	418.40	32.10	13,430.64
14.26	Providing cement concrete (1:1.5:3) using 12mm size black hard crusher broken granite stone chips, screened & washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, loading, unloading, royalties and taxes of all materials and cost of all labours, cess, sundries, T&P & all other machinaries required for the work including shoring, shuttering and dewatering if required including hire & running charges of water pump etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	123.60	6,420.00	7,93,512.00
14.27	Supplying, fitting and fixing of stainless steel of 304 grade in hand railing using 50mm dia of 2mm thick circular pipe with Balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32mm x 32mm x 2mm in 3 rows in stair case as per approved design and specification, buffing, polishing etc. with cost, conveyance, taxes of all materials, labour, T&P etc. required for the complete in all respect.	Mtr	68.00	1,605.00	1,09,140.00
14.28	Providing and fixing M.S. fan clamp type-I of 16mm dia M.S. bar bent to shape with hooked ends in R.C.C. slab during laying including painting the exposed portion of loop as per standard design complete as directed by the Engineer-in-charge.	Nos	120.00	160.50	19,260.00
14.29	Providing 12mm. thick cement plaster in cement mortar of mix (1:4) with neat cement punning with approved quality cement with screened and washed sharp sand for mortar and finished smooth to the surface in ceiling and R.C.C. surface after chipping the surface in septic tank including watering and curing, rounding of corners etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding	Sqm	48.40	107.00	5,178.80

	required for the work etc. complete in all respect as desired by the Engineer in charge.				
14.30	Providing neat cement punning with approved quality cement finished smooth to the surface etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charge.	Sqm	958.00	16.05	15,375.90
14.31	40 mm thick grading concrete with cement concrete (1:2:4) using 12mm and down graded b.h.g. chips to the roof surface with water proofing cement compound finished smooth over RCC slab including hoisting and laying in position watering and curing for required number of days finished to smooth surface and desired slope including cost conveyance, royalty and taxes of all materials, labour T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in-Charge.	Sqm	550.80	235.40	1,29,658.32
15	P.H. Fitting (Internal & External) to Switch-Gear -Cum - Control Room		-	-	-
15.1	Supplying all materials , labours , taxes and tools and plants for fitting and fixing of PVC pipes of following nominal bore conforming to ASTM-D-1785 (Schedule-80) including fittings and laying as per the site requirement etc., all complete including testing as per the direction and specification of Engineer-in-charge		-	-	-
15.1.1	15 mm dia	Mtr	15.00	107.00	1,605.00
15.1.2	20 mm dia	Mtr	20.00	133.75	2,675.00
15.1.3	25 mm dia	Mtr	15.00	187.25	2,808.75
15.1.4	40 mm dia	Mtr	20.00	214.00	4,280.00
15.1.5	50 mm dia	Mtr	20.00	267.50	5,350.00
15.2	Supplying all material, labour , T&P & fitting ,fixing the following different water supply fittings of approved make with including supply of all necessary jointing materials etc. all complete as directed by the Engineer-in-charge.		-	-	-
15.2.1	25 mm dia Ball valve	Nos	2.00	695.50	1,391.00
15.2.2	50 mm dia Ball valve	Nos	2.00	1,070.00	2,140.00
15.2.3	25 mm dia F.W. valve	Nos	2.00	695.50	1,391.00
15.2.4	50 mm dia F.W. valve	Nos	2.00	1,070.00	2,140.00
15.3	Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer-incharge		-	-	-
15.3.1	For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall	Nos	10.00	133.75	1,337.50
15.4	Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the required depth and width for fixing pipes & fittings of sizes 15mm dia to 25mm dia in the grooves, testing the pipe line against leakage, and filling the grooves with cement mortar(1:4) to bring the surface to original level including cost of mortars, curing and conveyance of materials etc. complete as per direction of the Engineer-in-charge.	Mtr	10.00	53.50	535.00

15.5	Supplying all materials , labour T&P and fittings of approved quality required for fixing of NP or CP Brass or GM fixtures of following sizes and specification with leak proof threaded joints tightened with spun yarn and white zinc or any tightened with spun yarn and white zinc or any including testing and rectification of detects, after testing complete as per direction of Engineer-in-charge.		-	-	-
15.5.1	Bibcock	Nos	5.00	160.50	802.50
15.5.2	Long Body Bibcock	Nos	2.00	321.00	642.00
15.5.3	Pillar cock	Nos	2.00	428.00	856.00
15.5.4	Angular stop cock	Nos	4.00	588.50	2,354.00
15.5.5	Soap Holder	Nos	2.00	80.25	160.50
15.5.6	Towel ring	Nos	2.00	160.50	321.00
15.5.7	Toilet paper holder	Nos	2.00	80.25	160.50
15.5.8	Glass self 22"	Nos	2.00	321.00	642.00
15.5.9	Towel rail 24"	Nos	2.00	374.50	749.00
15.5.10	Shower arm 190mm long light	Nos	2.00	749.00	1,498.00
15.5.11	CP Grating	Nos	2.00	80.25	160.50
15.5.12	Concealed stop cock	Nos	4.00	535.00	2,140.00
15.5.13	Connecting Pipe	Nos	2.00	160.50	321.00
15.5.14	Basin with pedestal	Nos	2.00	3,210.00	6,420.00
15.5.15	Providing and fixing vitreous China water closet (European with seat and lid), of Cerra Cascade “CASINO”, CP brass buffers, 10 liter cascade dual flushing cistern hinges & rubber with fittings and brackets, 40 mm flush bend of CP brass, 20 mm overflow pipe with specials & mosquito proof coupling complete, painting on brackets and making good the walls and floors wherever required.	Nos	1.00	16,050.00	16,050.00
15.5.16	Providing and fixing vitreous China water closet Indian type of Orissa pattern size (580mmx440mm) of approved quality with PVC Slimeline (Parryware make) 12.5 ltr capacity low level cistrn with hinges & rubber with fittings and brackets, 40 mm flush bend of CP brass, 20 mm overflow pipe with specials & mosquito proof coupling complete, painting on brackets and making good the walls and floors wherever required.	Nos	1.00	4,494.00	4,494.00
15.5.17	Providing and fixing vitreous China water urinal of Cerra/Parry ware with fittings and brackets, flush bend of CP brass, and making good the walls and floors wherever required.	Nos	2.00	2,675.00	5,350.00
15.6	Supply of all materials, labour, T&P , fitting and fixing in all floors fixed type bevelled plate glass mirror of size 600mm x 450mm x 5.5mm thick best Indian make ,supply of 13mm thick asbestos backing and CP Brass screw including cost conveyance, taxes of all materials complete as per specification and direction of Engineer-in-charge(Make-Modi Guard/Belgium)	Nos	2.00	802.50	1,605.00
15.7	Supply of all materials, joining materials ,labour and T&P and laying UPVC SWR PIPES of Standard make with ISI Mark duly approved by the Engineer-in-charge including jointing, earthwork in excavation of trenches in all kind of soil to the required depth and refilling of pipe line trenches in 0.3048 mtrs layers with 300 mm deep sand around cushion duly watered and rammed or fixing to walls, floors with supply of necessary clamps, nails and cutting the pipe to length with		-	-	-

	wastage including supply of all Clamps, Clips, Endcaps & jointing materials etc., complete as per standard specification and direction of Engineer-in-charge.				
15.7.1	100mm dia (ISI Marked)	Mtr	10.00	535.00	5,350.00
15.7.2	150mm dia (ISI Marked)	Mtr	25.00	642.00	16,050.00
15.8	Supplying all materials, labour T&P for jointing of the UPVC SWR SEWER pipe fittings of standard make duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.		-	-	-
15.8.1	100mm dia "P" Trap	Nos	2.00	428.00	856.00
15.8.2	100mm dia Bend Plain	Nos	3.00	181.90	545.70
15.8.3	100mm Door Bend	Nos	3.00	160.50	481.50
15.8.4	100 mm dia Single Junction with Door	Nos	3.00	374.50	1,123.50
15.8.5	100 mm dia double Junction with Door	Nos	3.00	428.00	1,284.00
15.8.6	100mm dia Terminal Guard	Nos	2.00	214.00	428.00
15.8.7	100mm dia. Floor trap	Nos	3.00	267.50	802.50
15.9	Supplying all materials, labor T&P for jointing of the UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.		-	-	-
15.9.1	100mm Pipe	Nos	10.00	321.00	3,210.00
15.10	Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.		-	-	-
15.10.1	100mm Pipe	Mtr	4.00	428.00	1,712.00
15.10.2	100mm Vent Cowl	No	2.00	107.00	214.00
15.11	Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.		-	-	-
15.11.1	750mmx 750mm x450mm	No	1.00	4,815.00	4,815.00
15.12	Providing and fixing 2000 litres capacity P.V.C Over head (Sintex make) tank with all piping and valve arrangement with all labour & materials ,including cost, T&P , scaffolding etc., complete as directed by the Engineer-in-charge.		-	-	-
15.12.1	2000 Ltr Capacity	No	1.00	18,190.00	18,190.00

15.13	Supplying all material, labour, T&P and constructing manhole chamber of size as mentioned below with 250mm nominal size K.B. Brick having crushing strength 75kg to 99kg /cm2 in CM 1:4 over a bed of 150mm thick C.C(1:4:8) using 40mm size HG metal, plastering with 12mm thick cement mortar (1:3) on internal and external surface, inside finish with neat cement punning, providing & fixing step iron of appropriate quality & size with 3 coats anticorrosive paint, RCC (1:1.5:3) cover slab using 20m & down size graded HG chips along with factory made reinforced concrete cover with frame including breaking of pipe line where ever necessary and earth work in excavation in all kind of soil & rock and refilling the cavity by selective soil, leveling the surface around the chamber with disposal of surplus earth if any to a distance of 50mt as per specification, design & drawing including cost of curing and all taxes , royality , cost , conveyance etc. all complete as directed by the Engineer-in-charge.	No	1.00	10,700.00	10,700.00
15.14	Supplying all material, labour, T&P and constructing 1.80m dia x 2.60m deep soak way pit with dry brick walling upto 2.00m height and 1st class K.B. Brickwork in cement mortar (1:6) for the remaining 06.60m height at top, 12mm thick cement plaster (1:4) inside and outside , 100mm thick gravel backing in the rear of well staining, 125mm thick RCC cover slab fitted with with iron lifting handles including earth work in excavation in all kind of soil & rock and refilling the cavity by selective soil, leveling the surface around the pit with disposal of surplus earth if any to a distance of 50mt including cost of curing and all taxes , royality , cost , conveyance etc. all complete as directed by the Engineer-in-charge.	No	1.00	12,840.00	12,840.00
16	Watering system like 150 mm dia, 100 Mtr deep bore well (PVC pipe to be used) 1 HP submersivele pump, switch yard water hydrant system for pouring water into the earth pits, tap for garden, including PVC pipes & other accessories required etc.	LS	1.00	1,60,500.00	1,60,500.00
17	Small wicket (GI) gate one in between Main Gate & Security shed & another in front of Customer Care room of size 1.5 mtr width X 2 mtrs height single leaf with locking arrangement etc. as per above.	No.	2.00	5,350.00	10,700.00
18	RRHG retaing wall with 1:5 cement mortar Considering 0.6 mt height of retaining wall above the existing ground level per Meter as per Drawing TOTAL 74 Mtrs		-	-	-
18.1	Excavation in all type of soil(0.8 Cum / Mtr)	Cum	105.60	267.50	28,248.00
18.2	PCC (1:4:8) 200 mm thick. With cement (0.2 Cum / Mtr)	Cum	26.40	4,280.00	1,12,992.00
18.3	PCC (1:2:4) 50 mm thick With cement (0.02 Cum / Mtr)	Cum	1.58	5,778.00	9,152.35
18.4	RRHG Cement Masonary (1:5) With cement (0.86 Cum / Mtr)	Cum	63.64	3,745.00	2,38,331.80
19	Prefabricated RCC Foundation for RMU	Nos.	1.00	10,265.00	10,265.00
20	Design & providing Galvanised Chain Linking Fencing with 2 Mtr Height around RMUs, as per TPCODL specification.	Sq. mtr.	-	4,668.00	-
	Sub-Total for CIVIL WORKS with supply of all materials like Cement, MS tor rod, Brick, Coarse & Fine Agregrates & Labour,T&P etc. (In Rs.)				2,19,95,067.99
	Total Cost in Cr.				2.20
-					
-				All Prices in Cr.	

A	Total Cost for SUPPLY OF EQUIPMENT & MATERIALS (In Cr.)				4.18
B	Stock , Storage & Insurance @ 3 % of A				
C	Sub - Total (A+B)				4.18
D	Contingency @ 3 % of C				
E	Tools &Plants Charges @ 2% of C (NOT CONSIDERED)				-
F	Transportation @ 7.5% of C				0.31
G	Sub - Total (C+D+E+F)				4.49
H1	Total Cost for ERECTION,TESTING & COMMISSIONING WORKS (In Cr.)				0.32
H2	Total Cost for CIVIL WORKS with supply of all materials like Cement, MS tor rod, Brick, Coarse & Fine Agregrates & Labour,T&P etc. (In Cr.)				2.20
H3	Total Cost for Erection & Civil works (H1+H2)				2.52
H4	GST @ 18% of Erection & Civil works				
I	Total Cost of Erection & Civil works in Cr.(H3+H4)				2.52
J	Total Cost (G+I)				7.02
K	Other Overhead /(including Supervision Charges) @ 6 % of J				
L	Total Estimated Capital Cost i.e. J+K				7.02
M	GST @ 18% of L				1.26
N	CESS @ 1% of L				0.07
O	Inspection Charges (As per Gov. Notification)				0.00050
P	Total Estimate to be deposit in Cr @ L+M+N+O (In Cr.)				8.35

Part -E. Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length =4 km. (Panchamahala 11kV Feeder)

Total DP without AB-6, DP with AB-3, 4pole-2nos

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	516	75	38,718.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	900	75	67,473.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	486	75	36,450.00
5	Pipe Earthing 40mm. GI Pipe	No.	18	1050	18,900.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	900	75	67,500.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	27	3550	95,850.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	36	75	2,700.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	54	580	31,320.00
	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	459	75	34,416.00

12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	813.96	75	61,047.00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	504	75	37,800.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	6	3550	21,300.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	32	75	2,400.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	12	580	6,960.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	275	75.00	20,649.60
	MATERIALS OF LINE				
21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter) (Each 335.06kg))	No	115	25113.00	28,87,995.00
22	11 KV V cross Arm (10.2 K.g. each)	No.	81	810.00	65,610.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	81	170.00	13,770.00
24	11 K.V. Pin Insulator (Polymer)	No.	243	200	48,600.00
25	11 K.V. H.W. Fitting (B & S) 70 KN 3 Bolt	No.	114	351	40,014.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	114	1150	1,31,100.00
27	H.T. Stay set (Complete)	Set	42	1050.00	44,100.00
28	H.T. Stay Insulator	No.	42	50.00	2,100.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	42	125.00	5,250.00
30	7/10 SWG Stay Wire 15kg /stay	K.g.	630	75.00	47,250.00
31	Earthing of Support (Coil Type)	No.	89	166.00	14,774.00
32	100 mm2 AAAC	K.M.	12.36	55000.00	6,79,800.00
33	Red Oxide paint	Ltr	115	150.00	17,250.00
34	Alluminium Paint	Ltr	115	200.00	23,000.00
35	Black Paint	Ltr	115	220.00	25,300.00
36	Yellow Paint	Ltr	115	220.00	25,300.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	345	75.00	25,875.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	489.5	78.00	38,181.00
39	Danger Plate	No.	115	80.00	9,200.00
A-1	Total Cost of materials				47,97,452.60
A-2	Applicable Taxes to make it Landed Cost @18%				
A	Total landed Cost (A=A1 + A2)				47,97,452.60
B	Stock, Storage & Insurance i.e 3% of A				1,43,923.58
(A+B)	Sub Total				49,41,376.18

C	Contigency @ 3% of (A+B)				1,48,241.29
D	Tools & Plants @ 2% of (A+B)				98,827.52
E	Transportation @ 7.5% of (A+B)				3,70,603.21
F	Erection Charges @ 5% on Trf/Breaker/Joist				1,48,731.74
G	Erection Charges @ 10% of other items				1,96,674.13
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				59,04,454.08
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	42	2000.00	84,000.00
2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	51.75	8446.00	4,37,080.50
3	Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	115	676.00	77,740.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	26	2407	62,582.00
J1	Total Civil & Services				6,61,402.50
J2	Applicable Taxes to make it Landed Cost @18%				
J	Total landed Cost (J=J1 + J2)				6,61,402.50
K	Total Material+Services (I+J)				65,65,856.58
L	Other overheads (Including 6% supervision charges)				3,93,951.39
M	SubTotal (K + L)				69,59,807.97
N	Total GST @ 18% of (M)				12,52,765.43
O	CESS @ 1% of (M)				69,598.08
P	Gross Total Material +Services (M+N+0)				82,82,171.48
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)				82,83,271.48

	Part -F. Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length =2 km. (Adarsa 11kV Feeder)				
	Total DP without AB-4, DP with AB-1, 4pole-2nos				
Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				

1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	287	75	21,510.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	471	75	35,343.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	270	75	20,250.00
5	Pipe Earthing 40mm. GI Pipe	No.	10	1050	10,500.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	500	75	37,500.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	15	3550	53,250.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	20	75	1,500.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	1	11850	11,850.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	30	580	17,400.00
	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	459	75	34,416.00
12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	813.96	75	61,047.00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	504	75	37,800.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	6	3550	21,300.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	32	75	2,400.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	12	580	6,960.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	172	75.00	12,906.00
	MATERIALS OF LINE				
21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter) (Each 335.06kg))	No	61	25113.00	15,31,893.00
22	11 KV V cross Arm (10.2 K.g. each)	No.	38	810.00	30,780.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	38	170.00	6,460.00
24	11 K.V. Pin Insulator (Polymer)	No.	114	200	22,800.00
25	11 K.V. H.W. Fitting (B & S) 70 KN 3 Bolt	No.	72	351	25,272.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	72	1150	82,800.00
27	H.T. Stay set (Complete)	Set	28	1050.00	29,400.00
28	H.T. Stay Insulator	No.	28	50.00	1,400.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	28	125.00	3,500.00

30	7/10 SWG Stay Wire 15kg /stay	K.g.	420	75.00	31,500.00
31	Earthing of Support (Coil Type)	No.	43	166.00	7,138.00
32	100 mm2 AAAC	K.M.	6.18	55000.00	3,39,900.00
33	Red Oxide paint	Ltr	61	150.00	9,150.00
34	Alluminium Paint	Ltr	61	200.00	12,200.00
35	Black Paint	Ltr	61	220.00	13,420.00
36	Yellow Paint	Ltr	61	220.00	13,420.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	183	75.00	13,725.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	310	78.00	24,180.00
39	Danger Plate	No.	61	80.00	4,880.00
A-1	Total Cost of materials				26,63,700.00
A-2	Applicable Taxes to make it Landed Cost @18%				
A	Total landed Cost (A=A1 + A2)				26,63,700.00
B	Stock, Storage & Insurance i.e 3% of A				79,911.00
(A+B)	Sub Total				27,43,611.00
C	Contigency @ 3% of (A+B)				82,308.33
D	Tools & Plants @ 2% of (A+B)				54,872.22
E	Transportation @ 7.5% of (A+B)				2,05,770.83
F	Erection Charges @ 5% on Trf/Breaker/Joist				78,892.49
G	Erection Charges @ 10% of other items				1,16,576.12
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				32,82,030.99
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	28	2000.00	56,000.00
2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	27.45	8446.00	2,31,842.70
3	Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	61	676.00	41,236.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	18	2407	43,326.00
J1	Total Civil & Services				3,72,404.70
J2	Applicable Taxes to make it Landed Cost @18%				
J	Total landed Cost (J=J1 + J2)				3,72,404.70
K	Total Material+Services (I+J)				36,54,435.69
L	Other overheads (Including 6% supervision charges)				2,19,266.14
M	SubTotal (K + L)				38,73,701.83
N	Total GST @ 18% of (M)				6,97,266.33
O	CESS @ 1% of (M)				38,737.02
P	Gross Total Material +Services (M+N+0)				46,09,705.17
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00

T	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	46,10,805.17

Part -G. Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length =2 km. (Agriculture 11kV Feeder)					
Total DP without AB-3, DP with AB-1, 4pole-1no					
Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	229	75	17,208.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	386	75	28,917.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	216	75	16,200.00
5	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	12	3550	42,600.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	16	75	1,200.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	1	11850	11,850.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	24	580	13,920.00
	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	229	75	17,208.00
12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	471.24	75	35,343.00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	252	75	18,900.00
14	Pipe Earthing 40mm. GI Pipe	No.	4	1050	4,200.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	200	75	15,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	3	3550	10,650.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	16	75	1,200.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	6	580	3,480.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	138	75.00	10,324.80
	MATERIALS OF LINE				

21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter) (Each 335.06kg))	No	57	25113.00	14,31,441.00
22	11 KV V cross Arm (10.2 K.g. each)	No.	41	810.00	33,210.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	41	170.00	6,970.00
24	11 K.V. Pin Insulator (Polymer)	No.	123	200	24,600.00
25	11 K.V. H.W. Fitting (B & S) 70 KN 3 Bolt	No.	54	351	18,954.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	54	1150	62,100.00
27	H.T. Stay set (Complete)	Set	20	1050.00	21,000.00
28	H.T. Stay Insulator	No.	20	50.00	1,000.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	20	125.00	2,500.00
30	7/10 SWG Stay Wire 15kg /stay	K.g.	300	75.00	22,500.00
31	Earthing of Support (Coil Type)	No.	45	166.00	7,470.00
32	100 mm2 AAAC	K.M.	6.18	55000.00	3,39,900.00
33	Red Oxide paint	Ltr	57	150.00	8,550.00
34	Alluminium Paint	Ltr	57	200.00	11,400.00
35	Black Paint	Ltr	57	220.00	12,540.00
36	Yellow Paint	Ltr	57	220.00	12,540.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	171	75.00	12,825.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	238.5	78.00	18,603.00
39	Danger Plate	No.	57	80.00	4,560.00
A-1	Total Cost of materials				23,74,813.80
A-2	Applicable Taxes to make it Landed Cost @18%				
A	Total landed Cost (A=A1 + A2)				23,74,813.80
B	Stock, Storage & Insurance i.e 3% of A				71,244.41
(A+B)	Sub Total				24,46,058.21
C	Contigency @ 3% of (A+B)				73,381.75
D	Tools & Plants @ 2% of (A+B)				48,921.16
E	Transportation @ 7.5% of (A+B)				1,83,454.37
F	Erection Charges @ 5% on Trf/Breaker/Joist				73,719.21
G	Erection Charges @ 10% of other items				97,167.40
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				29,22,702.10
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	20	2000.00	40,000.00

2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	25.65	8446.00	2,16,639.90
3	Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	57	676.00	38,532.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	12	2407	28,884.00
J1	Total Civil & Services				3,24,055.90
J2	Applicable Taxes to make it Landed Cost @18%				
J	Total landed Cost (J=J1 + J2)				3,24,055.90
K	Total Material+Services (I+J)				32,46,758.00
L	Other overheads (Including 6% supervision charges)				1,94,805.48
M	SubTotal (K + L)				34,41,563.48
N	Total GST @ 18% of (M)				6,19,481.43
O	CESS @ 1% of (M)				34,415.63
P	Gross Total Material +Services (M+N+0)				40,95,460.54
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				240
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)				40,96,800.54

Part -H. Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length =2.5 km. (Govt. Poly Technic 11kV Feeder).

Total DP without AB-6, DP with AB-1, 4pole-2no

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	402	75	30,114.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	643	75	48,195.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	378	75	28,350.00
5	Pipe Earthing 40mm. GI Pipe	No.	14	1050	14,700.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	700	75	52,500.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	21	3550	74,550.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	28	75	2,100.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	1	11850	11,850.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	42	580	24,360.00

	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	459	75	34,416.00
12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	813.96	75	61,047.00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	504	75	37,800.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	6	3550	21,300.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	32	75	2,400.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	12	580	6,960.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	172	75.00	12,906.00
	MATERIALS OF LINE				
21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter) (Each 335.06kg))	No	76	25113.00	19,08,588.00
22	11 KV V cross Arm (10.2 K.g. each)	No.	49	810.00	39,690.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	49	170.00	8,330.00
24	11 K.V. Pin Insulator (Polymer)	No.	147	200	29,400.00
25	11 K.V. H.W. Fitting (B & S) 70 KN 3 Bolt	No.	84	351	29,484.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	84	1150	96,600.00
27	H.T. Stay set (Complete)	Set	32	1050.00	33,600.00
28	H.T. Stay Insulator	No.	32	50.00	1,600.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	32	125.00	4,000.00
30	7/10 SWG Stay Wire 15kg /stay	K.g.	480	75.00	36,000.00
31	Earthing of Support (Coil Type)	No.	54	166.00	8,964.00
32	100 mm2 AAAC	K.M.	7.725	55000.00	4,24,875.00
33	Red Oxide paint	Ltr	76	150.00	11,400.00
34	Alluminium Paint	Ltr	76	200.00	15,200.00
35	Black Paint	Ltr	76	220.00	16,720.00
36	Yellow Paint	Ltr	76	220.00	16,720.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	228	75.00	17,100.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	367.5	78.00	28,665.00
39	Danger Plate	No.	76	80.00	6,080.00
A-1	Total Cost of materials				32,70,514.00
A-2	Applicable Taxes to make it Landed Cost @18%				

A	Total landed Cost (A=A1 + A2)				32,70,514.00
B	Stock, Storage & Insurance i.e 3% of A				98,115.42
(A+B)	Sub Total				33,68,629.42
C	Contigency @ 3% of (A+B)				1,01,058.88
D	Tools & Plants @ 2% of (A+B)				67,372.59
E	Transportation @ 7.5% of (A+B)				2,52,647.21
F	Erection Charges @ 5% on Trf/Breaker/Joist				98,292.28
G	Erection Charges @ 10% of other items				1,40,278.38
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				40,28,278.76
Civil & Services					
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	32	2000.00	64,000.00
2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	34.2	8446.00	2,88,853.20
3	Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	76	676.00	51,376.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	22	2407	52,954.00
J1	Total Civil & Services				4,57,183.20
J2	Applicable Taxes to make it Landed Cost @18%				
J	Total landed Cost (J=J1 + J2)				4,57,183.20
K	Total Material+Services (I+J)				44,85,461.96
L	Other overheads (Including 6% supervision charges)				2,69,127.72
M	SubTotal (K + L)				47,54,589.67
N	Total GST @ 18% of (M)				8,55,826.14
O	CESS @ 1% of (M)				47,545.90
P	Gross Total Material +Services (M+N+0)				56,57,961.71
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)				56,59,061.71

PART- I:
1. Construction of 2 nos. 'PC+6' EHT Tower for Lingarajodi Nala crossing (150 Mtr.)

(To be executed in ODSSP Scheme)

Supply of Material for Construction of 'PC+6' EHT Tower

Part-1	Discription	Unit	Qty	Rate	Amount
1	Cost of G.I PC +6 TYPE Tower super structure (Main + Extention +Stub + Template)				
i)	PC Tower (6.214 MT/ Tower)	MT	12.428	75,000.00	9,32,100.00

ii)	+6 Mtr Extention (2.342 MT/ Tower)	MT	4.684	75,000.00	3,51,300.00
iii)	Template (1.904 MT/ Tower)	MT	3.808	75,000.00	2,85,600.00
2	Nut Bolts				-
i)	PC Tower (1.654 MT/ Tower)	MT	3.308	78,000.00	2,58,024.00
ii)	+6 Mtr Extention (0.592 MT/ Tower)	MT	1.184	78,000.00	92,352.00
3	Conductor and Accessories				-
i	33 kV 148sqmm conductor (AAAC)	Km	0.47	82,000.00	38,745.00
ii	Earth wire 7/1.5=150 meter +Tower earthing (50 x 3) = 150 meter + 12 meter wastage = 312 meter	Km	0.312	35,000.00	10,920.00
iii	Double tension Hardware Fittings	Set	12	3,460.00	41,520.00
iv	Disc insulator (B&S)120 KN polymer	Nos	12	1,440.00	17,280.00
v	Earth wire tension fittings	Set	6	450.00	2,700.00
iv	Vibration damper for earth wire	Nos	6	918.00	5,508.00
v	Vibration damper	Nos	12	975.00	11,700.00
vi	Mid-Span Joint	Nos	0	-	-
vii	Repair Sleeve	Nos	0	-	-
viii	Copper flexible bond	Nos	2	700.00	1,400.00
ix	Phase Plate (R,Y,B)	Set	6	150.00	900.00
x	Tower Number Plate	Nos	4	250.00	1,000.00
xi	Circuit Plate	Nos	2	150.00	300.00
xii	40 mm Dia. 3Mtr. long G.I Earthing device	Nos	4	1,050.00	4,200.00
xiii	GI Flat 50 x 6 mm	kg	200	75.00	15,000.00
xiv	Danger Board	Nos	4	80.00	320.00
xv	Bird Guard	Nos	6	200.00	1,200.00
xvi	Anticlimbing Device	kg	211.2	80.00	16,896.00
xvii	Loop Connector	Nos	6	250.00	1,500.00
A	Total Cost of materials				20,90,465.00
B	Stock , Storage & Insurance @ 3 % of A				62,713.95
C	Total (A+B)				21,53,178.95
D	Contingency @ 3 % of C				64,595.37
E	T&P Charges @ 2% of C				2,501.33
F	Transportation @ 7.5% of C				1,61,488.42
G	Errection Charge @ 10% of C				12,506.67
H	Sub - Total (C+D+E+F+G)				23,94,270.75
Foundation, Civil Works and Stringing					
Part-2	Discription	Unit	Qty	Rate	Amount
1	Civil work (Excavation, Back Filling,PCC, RCC,etc.) for Tower including pile foundation (upto 12 mtr).	Each	2	3,00,000.00	6,00,000.00
2	Erection of tower super structure	MT	20.92	4,400.00	92,048.00
3	Stringing of 148sqmm conductor	C/Km	0.1575	49,500.00	7,796.25
4	Stringing of Earth wire	R/Km	0.3	15,000.00	4,500.00
I	Cost of Foundation, Civil Works and Stringing (Part-B)				7,04,344.25
J1	Sub-Total (I+H)				30,98,615.00
K	Other Overhead /(including Supervision Charges) @ 6 % of J				1,85,916.90
L	Total Estimated Capital Cost (J+K)				32,84,531.90

M	GST @ 18% of L	5,91,215.74
N	CESS @ 1% of L	32,845.32
O	Inspection Charges	2300.00
P	Total (L+M+N+O)	*39,10,893.00*

8) Benefits

- Technical Loss savings of 48KW on 33kv and 203KW on 11kv level.
- N-1 redundancy for All important installation, 11KV and LT consumers
- Minimization of interruption.
- Strengthening of distribution network.
- Load shifting from RCMS and Bantala PSS

9) Conclusion

Proposed s/s at Panchmahala is necessary after considering the length of 11 kV feeder and poor voltage profile which caters power supply to the subject areas. Based on the present and future load growth, installation of 2x8 MVA s/s GIS Indoor is proposed along with SCADA compatibility. The cost is as per OERC approved rates and Capex rates. Rates of some of the items which are not available in OERC approved rates and Capex rates are considered from Competitive Market prices, SCRIPS. The BoQ and Cost estimate of 33/11 kV s/s (GIS Indoor), 33 kV line and 11 kV line are finalized in consultation with NEG, STS, Projects and Division.

2. Manguli (2X8MVA)

1) Executive Summary:

The Proposal for installing of 33/11KV substation at Manguli is laid basing upon detailed Load Flow Analysis for existing loads in proposed area and catering low voltage issues through new Substation.

- The power supply to Manguli s/s is planned from existing City Feeder from 132/33KV Choudwar grid S/s at a distance of 3.5KM. For n-1 redundancy, existing 33kv Tangi feeder will be tapped for a distance of 1km upto proposed SS. Three associated 11 kV feeders from Manguli s/s with a total 11 kV linking of 5km (approx) divert loads from Tangi 33/11 kV s/s thereby ensuring uniform power distribution.
- The proposed substation with an installed capacity of 2x8 MVA will cater loads to 5550 consumers of Manguli (Ind.), Nakhara & Kujibar, Napanga & Kesharpur, Sardola & Harianta. with an anticipated load of 4MVA.
- The Manguli s/s, GIS Indoor will be SCADA enabled for smart operation with minimal human intervention in future.
- The total estimated cost for the proposed substation of Rs. 17.51 Crs.

2) Introduction

Installation of 2x8 MVA 33/11 kV substation at Manguli with associated 11 kV lines is required in order to supply reliable power in the area as well as to meet the increasing load demand due to prospective loads. The main thrust is laid on improvement of voltage profile, to minimize interruption of power supply to the consumers, availability of alternate power supply and socio-economic development of the inhabitants.

3) Existing Scenario

Presently the area is getting power supply from existing 33/11 kV Tangi substation through 11 kV feeders. There are Five outgoing 11 kV feeder emanating from Tangi substation namely Manguli, Haripur, Bhatimunda, NH-5 and Local. Out of these, existing Manguli 11 kV feeder having length of 7KMs (trunk and spur lines) carries 4MVA at its peak load. It caters power supply to area such as Manguli (Ind.), Nakhara & Kujibar, Napanga & Kesharpur, Sardola & Harianta. Consumers in these areas are facing low voltage problem and frequent break downs due to snapping of conductors.

4) Need of the Project

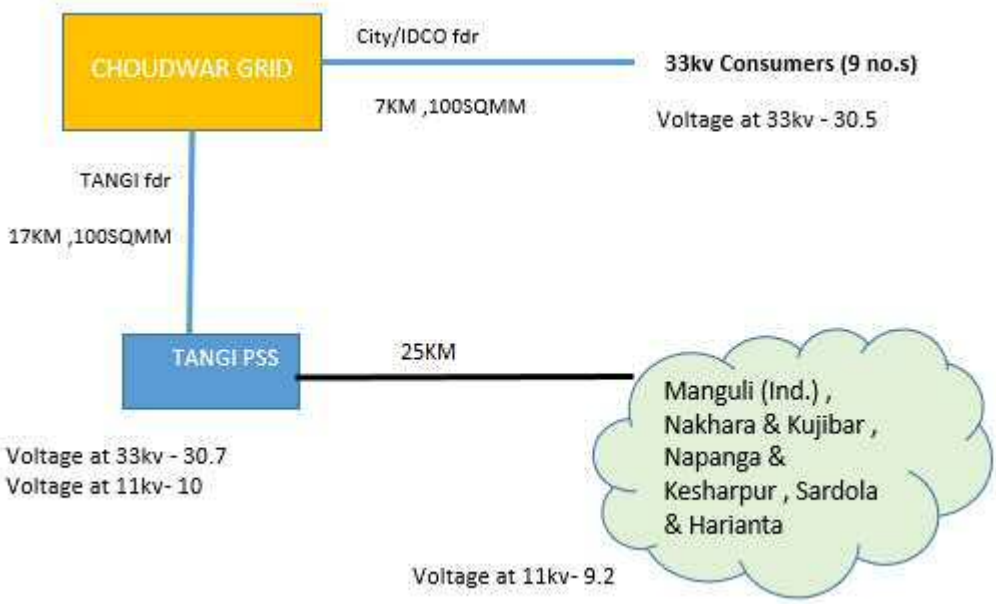
To eradicate low voltage problem, improvement of supply system and to cater the future load growth it is proposed to install a 33/11 kV substation at Manguli with Three numbers outgoing 11 kV feeders namely Manguli, Kashipur and Naktara. Proposed Manguli 11kV feeder will cater loads to the villages mainly Manguli (Ind.) bus stand, etc. Proposed Kesharpur 11 kV feeder will cater loads to the villages Napanga & Kesharpur, etc. Proposed Nakhara 11kv feeder will cater load to Nakhara & Kujibar area. Total 3960 consumers will be benefitted.

5) Load Details of the Proposed System:

Name of the proposed s/s	Name of the of proposed 11kV feeders	Length of feeder (km)	Anticipated load (MVA)	No. of consumers to avail supply from the feeder (Nos.)
Manguli (2X8 MVA)	Manguli	1	1.2	1250
	Kesharpur	2	2	830
	Nakhara	2	1	1880

6) Load flow Analysis Results: -

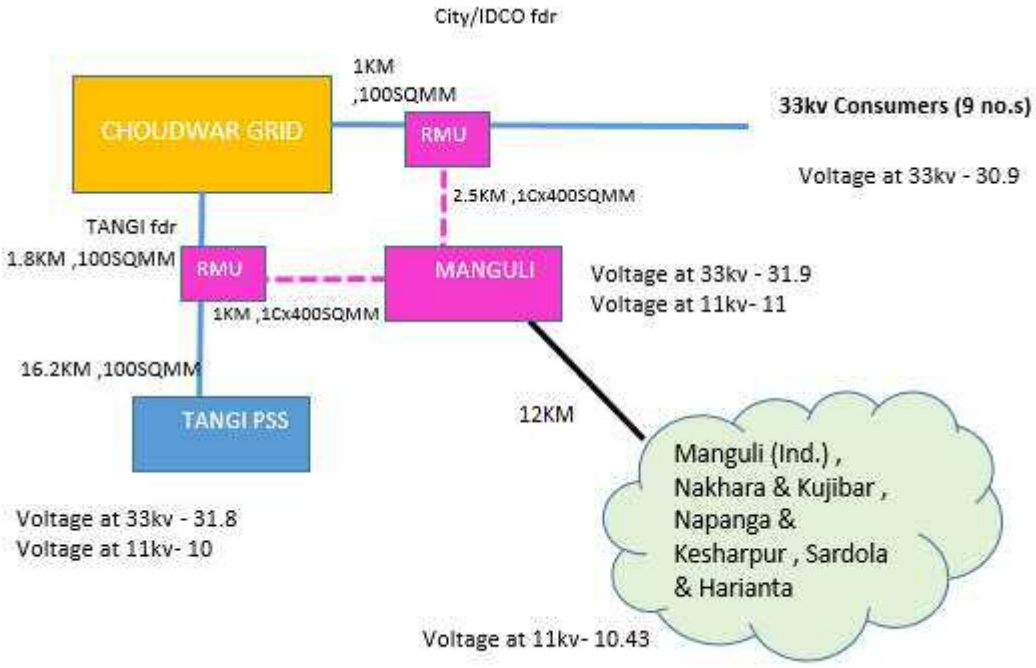
Existing Scenario with SLD: -



- Tangi S/S connected from Tangi Feeder from Choudwar Grid.
- 33 KV consumers in Tangi area are connected through City/IDCO feeder.

33 KV Feeder Name	Structure Name	33 KV Bus Voltage in KV	11 KV Bus Voltage in KV
TANGI	Tangi	30.7	10
IDCO	33 KV Consumer end	30.5	-

Proposed Scenario with SLD: -



33 KV Feeder Name	Structure Name	33 KV Bus Voltage in KV	11 KV Bus Voltage in KV
Tangi	Tangi	31.8	10.1
IDCO	33 KV Consumer end	30.9	-
Tangi	Manguli	31.9	11

- Tangi S/S connected from Choudwar Grid.
- 33 KV consumers in Tangi area are connected through IDCO feeder.
- Proposed Manguli S/S connected from Choudwar Grid via Tangi fdr and NOP on IDCO feeder.
- 3.2 MVA load to be shifted in proposed Substation from Tangi PSS.

Recommendations: -

- It is recommended to connect Choudwar Grid with Manguli S/S by construction of UG 4X1CX300 sqmm for 2.5km from Idco/City Feeder and 33kv 3W RMU installation. For n-1 redundancy Manguli S/S will be connected with existing 33kv Tangi Feeder by installation of 33kv 3W RMU and extending the feeder on UG (4X1CX400 sqmm) with distance 1Km.

7) Cost Estimate

TP CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	CED	
	Name of the Sub-Division : -	TANGI	
	Name of the Section : -	CHOUDWAR	
	Name of the Work :-	Construction of Proposed 2X8 MVA, 33/11 KV MANGULI PSS along with 33 KV line (U/G) T-off of IDCO/City fdr near Mundumal chawk to proposed ODDSP MANGULI PSS and another 33KV line (U/G) from T-off of 33kv Tangi feeder near Shakti hotel to proposed ODDSP MANGULI PSS for N-1 connectivity with associated 11 kv lines	
	Scope of work:-	1. Construction of 33kv line(U/G) of 2.5 km lentgh with one 33KV,3WAY RMU from T-off of 33kv IDCO/City feeder near Mundumal chawk to proposed ODSSP Manguli PSS. 2.Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X5 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work. 3.Constrcution of 33kv line (U/G) of 1 km length with one 33KV,3WAY RMU from T-off of 33kv Tangi feeder near shakti hotel to Proposed ODSSP Manguli PSS for N-1 connectivity. 4.Construction of 11kv line of 5 ckm over 11mtr long,WPB Pole 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length with 11kv U/G,XLPE of lentgh of 0.8 km.	
	Names of Schemes: -	TPCODL CAPEX	
ABSTRACT OF ESTIMATE			
Sl. No.	Part	Description	Amount
1	A	.Construction of 33kv line(U/G) of 2.5km lentgh with one 33KV,3WAY RMU from T-off of 33kv Choudwar feeder near Mundumal chawk to proposed ODSSP Manguli PSS	₹ 4,70,62,381.87
		Construction of one number of 33KV Incomer DP with Isolator at Proposed Manguli PSS.	₹ 3,84,229.59
3	B	Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work	₹ 9,18,34,492.30
2	C	1.Constrcution of 33kv line (U/G) of 1 km length with one 33KV,3WAY RMU from T-off of 33kv Tangi feeder near shakti hotel to Proposed ODSSP Manguli PSS.	₹ 2,06,62,800.38
		Construction of one number of 33KV Incomer DP with Isolator at Proposed Manguli PSS.	₹ 3,84,229.59

4	D	Construction of 11kv OH line of lentgh of 5 Ckm over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length with 11kv U/G,XLPE of lentgh of 0.8 km .Total no of 11kv feeders=3.	₹ 1,01,53,789.85
			₹ 45,81,616.99
		Total Amount	₹ 17,50,63,540.57
		Total Amount (In Cr)	17.51

Part-A Construction of 33kv line(U/G) of 2.5km lentgh with one 33KV,3WAY RMU from T-off of 33kv Choudwar feeder near Mundumal chawk to proposed ODSSP Manguli PSS

Supply Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				
1.1	Supply of 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable	km	10	7,83,000.00	78,30,000.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG Cable kits for 1Core	Set	36	19,679.00	7,08,444.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	12	6,869.00	82,428.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	12	5,233.00	62,796.00
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	10	10,91,237.00	1,09,12,370.00
2	Supply of materials for 33kV, 1Core, 300sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				
2.1	Supply of 33kV, 1Core, 300sqmm Aluminium, XLPE insulation UG Cable	km	0	6,85,000.00	-
2.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, aluminium UG Cable kits for 1Core	Set	0	19,679.00	-
2.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core	Set		6,869.00	-
2.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core	Set		5,233.00	-
2.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
3	Supply of materials for 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
3.1	Supply of 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	20,32,000.00	-

3.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG Cable kits	Set	0	68,594.00	-
3.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	Set		33,255.00	-
3.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	Set		20,503.00	-
3.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
4	Supply of materials for 33kV, 3Core, 300sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
4.1	Supply of 33kV, 3Core, 300sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	17,56,000.00	-
4.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, aluminium UG Cable kits	Set	0	61,254.00	-
4.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG Cable kits	Set		33,255.00	-
4.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG Cable kits	Set		20,503.00	-
4.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
5	Supply of materials for 33kV, 3Core, 185sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
5.1	Supply of 33kV, 3Core, 185sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	13,66,000.00	-
5.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, aluminium UG Cable kits	Set	0	61,254.00	-
5.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG Cable kits	Set		25,125.00	-
5.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG Cable kits	Set		18,082.00	-
5.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	5,20,436.00	-
6	Supply of materials for 33kV, 3Core, 95sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
6.1	Supply of 33kV, 3Core, 95sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	10,24,000.00	-
6.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, aluminium UG Cable kits	Set	0	43,131.00	-
6.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG Cable kits	Set		19,384.00	-
6.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG Cable kits	Set		11,958.00	-

6.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	5,20,436.00	-
1	Supply of 33kV RMU				
1.1	Supply of 33kV, 630A, 25kA 3 Way NON-Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker Type LLV Model	Nos.	1	17,50,000.00	17,50,000.00
1.2	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker Type LLVV Model	Nos.	0	24,50,000.00	-
1.3	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker with metering panel Type LLV+M Model	Nos.	0	32,00,000.00	-
1.4	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker with metering panel Type LLVV+M Model	Nos.	0	45,00,000.00	-
1.5	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 3 Load Break Switch Type LLL Model	Nos.	0	15,50,000.00	-
1.6	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 4 Load Break Switch Type LLLL Model	Nos.	0	19,50,000.00	-
3	Earthing				
3.1	Earthing Conductor: 50X6 mm (2.4kg./mtr.) GI Flat for equipment, structure etc.)	kg	7.20	75.00	540.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,050.00	2,100.00
	Sub Total (Supply Portion) (in Rs.)				2,13,48,678.00
Erection Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 400sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	9.2	2,80,497.64	25,80,578.29
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG cable kits	Set	36	4,286.75	1,54,323.00
1.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	2,327.04	27,924.48
1.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	1,959.72	23,516.64

1.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0.8	13,73,059.62	10,98,447.70
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	9.2	1,04,114.67	9,57,854.96
2	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 300sqmm, XLPE UG cable with one spare				
2.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	0	2,80,497.64	-
2.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, aluminium UG cable kits	Set	0	4,286.75	-
2.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	2,327.04	-
2.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	1,959.72	-
2.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,73,059.62	-
2.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
3	Erection, Commissioning & Testing of 33kV new line by 3Core, 400sqmm, XLPE UG cable with spare				
3.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 400sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	2,08,229.35	-
3.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG cable kits	Set	0	3,062.68	-
3.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG cable kits	Set	0	1,470.29	-
3.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG cable kits	Set	0	1,837.61	-
3.5	Laying, Commissioning & Testing of 33kV, 3Core, 1Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	14,13,306.01	-

3.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
4	Erection, Commissioning & Testing of 33kV new line by 3Core, 300sqmm, XLPE UG cable with spare.				
4.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 300sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	2,08,229.35	-
4.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, aluminium UG cable kits	Set	0	3,062.68	-
4.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG cable kits	Set	0	1,470.29	-
4.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG cable kits	Set	0	1,837.61	-
4.5	Laying, Commissioning & Testing of 33kV, 3Core, 300sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 300sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	14,13,306.01	-
4.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
5	Erection, Commissioning & Testing of 33kV new line by 3Core, 185sqmm, XLPE UG cable with spare				
5.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 185sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	1,95,980.63	-
5.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, aluminium UG cable kits	Set	0	3,062.68	-
5.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG cable kits	Set	0	1,470.29	-
5.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG cable kits	Set	0	1,837.61	-
5.5	Laying, Commissioning & Testing of 33kV, 3Core, 1Runs, 185sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 185sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 110mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,99,890.88	-
5.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
6	Erection, Commissioning & Testing of 33kV new line by 3Core, 95sqmm, XLPE UG cable with spare				
6.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 95sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	1,95,980.63	-

6.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, aluminium UG cable kits	Set	0	3,062.68	-
6.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG cable kits	Set	0	1,470.29	-
6.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG cable kits	Set	0	1,837.61	-
6.5	Laying, Commissioning & Testing of 33kV, 1Core, 1Runs, 95sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 95sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 110mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,99,890.88	-
6.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
1	Erection, Commissioning, Wiring and Testing of 33kV RMU				
1.1	Erection of 33kV, 630A, 25kA 3 Way NON-Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker Type LLV Model	Nos.	1	61,243.63	61,243.63
1.2	Erection of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker Type LLVV Model	Nos.	0	61,243.63	-
1.3	Erection of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker with metering panel Type LLV+M Model	Nos.	0	61,243.63	-
1.4	Erection of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker with metering panel Type LLVV+M Model	Nos.	0	61,243.63	-
1.5	Erection of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 3 Load Break Switch Type LLL Model	Nos.	0	61,243.63	-
1.6	Erection of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 4 Load Break Switch Type LLLL Model	Nos.	0	61,243.63	-
	Sub Total (Erection Portion) (in Rs.)				49,03,888.70
Civil Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of soil	Cum	1610	201.62	3,24,608.20
1.1.b	Earth work excavation of hard rock	Cum	690	884.35	6,10,201.50

1.2	Shifting of excavated soil to a lead distance of 10km	Cum	1380	171.55	2,36,739.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	920	479.74	4,41,360.80
1.4	Back filling with excavated soil outside and above the trench	Cum	1380	30.28	41,786.40
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	2.3	26,43,670.63	60,80,442.45
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	87,921.26	87,921.26
3	Supply of Galvanised Fencing around each RMU with height 2 mtr for external protection	sqmtr	20	4,668.00	93,360.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	96	1,607.00	1,54,272.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	83	376.13	31,218.79
	Sub Total (Civil Portion) (in Rs.)				81,06,724.40
A-1	Sub Total (Supply Portion)				2,13,48,678.00
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				2,13,48,678.00
B	Stock, Storage & Insurance @ 3 % of A				6,40,460.34
C	Sub Total (A+B)				2,19,89,138.34
D	Contingency @ 3 % of C				6,59,674.15
E	Tools & Plants Charges @ 2% of C (Not considered)				-
F	Transportation @ 7.5% of C				16,49,185.38
G	Total (C+D+E+F)				2,42,97,997.87
H-1	Sub Total (Erection Portion + Civil Portion)				1,30,10,613.10
H-2	Applicable Taxes to make it Landed Cost @18%				-
H	Total landed Cost (H=H1 + H2)				1,30,10,613.10
I	Total Cost (G+H)				3,73,08,610.96
J	Other Overhead /(including Supervision Charges) @ 6 % of I				22,38,516.66
K	Total Estimated Capital Cost i.e. (I+J)				3,95,47,127.62
L	GST @ 18% of K				71,18,482.97
M	CESS @ 1% of L				3,95,471.28

N	Grand Total (K+L+M)	4,70,61,081.87
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	150.00
Q	Inspection Fee of Drawing Checking and Approval	400.00
R	Final decision by electrical Inspector	500.00
S	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	4,70,62,381.87

Construction of 33kv Incomer Isolator at Proposed Manguli PSS					
DP with Isolator-01					
Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	84	75	6,309.60
2	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	251	75	18,849.60
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	88	75	6,615.00
5	Pipe Earthing 40mm. GI Pipe	No.	2	1050	2,100.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	100	75	7,500.00
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	3	10350	31,050.00
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	4	75	300.00
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	1	71580	71,580.00
10	PG Clamp for 148 sq.mm AAA conductor	NO.	6	620	3,720.00
	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	0	75	-
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	0	75	-
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	0	75	-
14	Pipe Earthing 40mm. GI Pipe	No.	0	1050	-

15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	0	75	-
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	0	10350	-
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	0	75	-
18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with Pl(Polvmer)	SET	0	71580	-
19	PG Clamp for 148 sq.mm AAA conductor	NO.	0	620	-
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	0	75.00	-
	MATERIALS OF LINE				
21	WBP 160x160-13M 30.44KG/MTR	No	2	29679.00	59,358.00
22	33 KV V cross Arm (GI) 22Kg each	No.	0	1580.00	-
23	Top bracket 100x50mm MS channel (2kg each)/	No.	0	150.00	-
24	33KV pin insulator polymer	No.	6	480	2,880.00
25	H W fitting(B&S)90KN,4 Bolt	No.	6	500	3,000.00
26	Disc insulator (B&S)90 KN polymer	No.	6	1150	6,900.00
27	H.T. Stay set (Complete)	Set	2	1050.00	2,100.00
28	H.T. Stay Insulator	No.	2	40.00	80.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	125.00	250.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	30	75.00	2,250.00
31	Earthing of Support (Coil Type)	No.	0	166.00	-
32	148 mm2 AAAC	K.M.	0	82000.00	-
33	Red Oxide paint	Ltr	1	150.00	150.00
34	Alluminium Paint	Ltr	1	200.00	200.00
35	Black Paint	Ltr	2	220.00	440.00
36	Yellow Colour Paint for Background	Ltr	2	220.00	440.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	6	75.00	450.00

38	GI Nut , Bolt & Washer of different sizes	K.g.	15	78.00	1,170.00
39	Danger Plate	No.	2	80.00	160.00
A-1	Total Cost of materials				2,27,852.20
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				2,27,852.20
B	Stock, Storage & Insurance i.e 3% of A				6,835.57
(A+B)	Sub Total				2,34,687.77
C	Contigency @ 3% of (A+B)				7,040.63
D	Tools & Plants @ 2% of (A+B)				4,693.76
E	Transportation @ 7.5% of (A+B)				17,601.58
F	Erection Charges @ 5% on Trf/Breaker/Joist				3,056.94
G	Erection Charges @ 10% of other items				17,354.90
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				2,84,435.58
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	2	2000.00	4,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	1.1	8446.00	9,290.60
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	2	676.00	1,352.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	2407	4,814.00
J1	Total Civil & Services				19,456.60
J2	Applicable Taxes to make it Landed Cost @18%				-
J	Total landed Cost (J=J1 + J2)				19,456.60
K	Total Material+Services (I+J)				3,03,892.18
L	Other overheads (Including 6% supervision charges)				18,233.53
M	SubTotal (K + L)				3,22,125.71
N	Total GST @ 18% of (M)				57,982.63
O	CESS @ 1% of (M)				3,221.26
P	Gross Total Material +Services (M+N+0)				3,83,329.59
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval				400.00
T	Final decision by electrical Inspector				500.00

U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	3,84,229.59

PART B: Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work					
Sl. No.	DESCRIPTION OF ITEMS	UNITS	Total Quantity	Basic Unit price (In Rs.)	Total
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)				
	33kV Equipment (Indoor Type)				
1	36kV Indoor GIS/SIS Equipment and accessories for 33/11kV GIS Substation as detailed below				
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for line feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (800-400/1-1A) , PT, bus-bar dis connectors (1250A) with common grounding switch, for complete Line feeder bay as per the technical specification. The module shall be provided with complete Line Feeder protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	2.00	25,36,365.25	50,72,730.50
1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Transformer feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (600-300/1-1-1A) , bus-bar dis connectors (1250A) with common grounding switch, for complete Transformer feeder bay as per the technical specification. The module shall be provided with complete Transformer Feeder protection system to suit for SCADA (BCPU, Numerical Differential Relay having inbuilt of REF protection, Multi-function Meter & other provisions as per tech spec).	Set	2.00	24,75,453.15	49,50,906.29
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Bus-coupler bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt CT (800-400/1-1A) , bus-bar dis connectors (1250A) with grounding switches, Each bus bar set shall be provided with inductive voltage transformers(two sets) with disconnector(s) for both the buses for complete Bus-coupler bay as per the technical specification. The module shall be provided with complete Bus-coupler protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	1.00	44,03,929.80	44,03,929.80
	11kV Equipment (Indoor Type)				
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester (for 33kV Incoming Line, HT side of 2nos. Power Transformers and 33/0.433kV Station Transformer) - Outdoor Type with Surge Counter	Nos.	6.00	10,350.00	62,100.00

3	12kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester with out surge counter(For Transformers & Out Going Feeders) - Outdoor type	Nos.	6.00	3,550.00	21,300.00
4	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-630A, Busbar-1250A(Copper) & CT (400-200/1-1-1A) for Transformer Protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	2.00	6,41,174.55	12,82,349.09
5	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-630A, Busbar-1250A (Copper), CT (400-200/1-1-1A) for Feeder protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	6.00	7,21,808.20	43,30,849.18
6	11kV Bus-Coupler Indoor AIS Panel consisting of Breaker-630A, Bus-bar-1250A (Copper)	No	1.00	5,79,725.65	5,79,725.65
7	11kV, 2 Core, Single Phase, IVT (11/√3 kV / 110/√3-110/√3V), 3nos in a set, in a separate draw out chamber with Digital Voltmeter inside Control Room separately for Bus-1 & Bus-2 plug in type with disconnector.	Set	2.00	3,67,128.86	7,34,257.71
SCADA					
8	SCADA FOR Primary Substation	Set	1.00	2,60,000.00	2,60,000.00
Transformer and RMU				-	
9	8.0 MVA, 33/11kV Power Transformer DYn11 (Outdoor Installation) with Accessories	No.	2.00	57,00,000.00	1,14,00,000.00
10	100 KVA 33/0.433kV Energy efficient Station Transformer	No	1.00	2,72,000.00	2,72,000.00
11	11 KV 4Way RMU	No.	0.00	4,49,500.00	-
Substation Earthing System GI					
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat for laying (spacing maximum 2m both ways)	Kg	5301.00	75.00	3,97,575.00
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat for Raiser from the burial earth mat to equipment, structure etc.)	Kg	720.00	75.00	54,000.00
14	Earthing Device & Associated Accessories (Heavy duty GI Perforated Pipe of ID=40mm & OD=50mm with 3000mm long for treated Earth Pit) as per Drawing	No	30.00	1,050.00	31,500.00
33, 11 and Station Trf Structure					
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04 nos for one Power Transformer) for supporting of 33kV Cable & 11kV cable (Unit Wt=0.0665 MT) & 10 mm thick MS plate size 250X250 mm at the bottom of the RS Joist duly welded & the MS plate to be suitably grouted to the floor for the rigidity.	Kg	532.00	75.00	39,900.00
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr - 06 nos for one Power Transformer) for supporting of 33kV & 11kV power Cable (Unit Wt=0.01912 MT)	Kg	229.44	75.00	17,208.00
17	GI Nuts & Bolts etc. for column and beam & Equipment Structures	Kg	500.00	78.00	39,000.00
18	Supply & Erection of GI Pipe of dia. 150mm, Class-B	Mtr.	50.00	1,607.00	80,350.00
19	High Density Polyethylene (HDPE) pipe 160 mm diameter.	KM	0.01	10,91,237.00	10,912.37
20	LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	24,419.00	24,419.00
21	Supply and installation of 8way LDB with accessories	Nos.	2.00	8,960.00	17,920.00
33 and 11 kv Power and Control, XLPE cables					

22	1C X 400 sqmm, 33 KV, XLPE, Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	1.60	7,83,000.00	12,52,800.00
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	5,233.00	1,04,660.00
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	6,869.00	1,37,380.00
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	0.80	15,00,000.00	12,00,000.00
24	11 KV, 3C X 400 sqmm Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	9,582.00	1,53,312.00
25	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	13,904.00	2,22,464.00
26	Control Cables (Copper Armoured)				
26.1	4 Core x 2.5 mm^2	Km	0.30	1,06,157.22	31,847.17
26.2	7 Core x 2.5 mm^2	Km	0.10	1,67,628.60	16,762.86
26.3	10 Core x 2.5 mm^2	Km	0.20	2,34,997.61	46,999.52
26.4	12 Core x 2.5 mm^2	Km	0.20	2,78,851.73	55,770.35
26.5	1 Core x 16 mm2 Aluminium cable from Battery to Battery Charger & Battery Charger to DCDB	Km	0.06	1,24,606.20	7,476.37
27	1.1 kV XLPE Power Cables				
27.1	XLPE 3 1/2 Core x 120 mm2 (for Station Transformer output)	Km	0.05	4,28,106.97	21,405.35
27.2	XLPE 3 1/2 Core x 95 mm2 (for Oil Filtration Machine Connection)	Km	0.03	3,36,088.92	10,082.67
27.3	XLPE 3 1/2 Core x 25 mm2 (for Switchyard Lighting)	Km	0.03	1,17,045.14	3,511.35
27.4	XLPE 4 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	84,154.55	2,524.64
27.5	XLPE 2 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	50,583.46	1,517.50
	Battery & Battery Charger			-	-
28	48 V, 100 AH, maintenance free VRLA Battery (Set. 4 Nos of 12V Battery)	Set	1.00	58,740.62	58,740.62
29	48V, Float cum Boost Battery Charger (15 A float charging, 20 A boost charging)	No	1.00	1,90,907.01	1,90,907.01
	Sub-station Lighting And Fire Fighting System				
30	Sub-Station Switchyard Lighting , Control Room Lighting (it includes supply of fixtures & Lamps (LED) with switch gear, GI Conduit etc.(120Wx 4 sets and 100Wx6 sets out side the control room, 20 Watt CFL tube-10 sets inside control room .Control Room wiring to be done with Copper wires as per the requirement (Lighting fixtures are to be fixed rigidly on the Column at a suitable height with GI tubular pole so that the required lux as per the technical specification is maintained).	Lot	1.00	11,62,247.82	11,62,247.82
31	1.5 Ton capacity Split Air Conditioning units with Remote control facility: Including supply of split Air conditioner 5 Star rated, voltage stabiliser, control	No	4.00	83,017.70	3,32,070.81

	boxes etc. for completing the A.C scheme. (As per specification) for control room.				
32	1400 mm sweep 250Volt A/C Celling Fan	No	5.00	2,905.62	14,528.10
33	300 mm sweep 70W A/C Exhaust Fan (for Battery room and Toilet)	No	4.00	2,158.46	8,633.84
34	Fire Fighting System (portable and wheel mounted sets for control room)				
34.1	Foam type- 5 Ltrs	No	2.00	4,981.06	9,962.12
34.2	CO_2 - 4.5 Kgs	No	2.00	9,962.12	19,924.25
34.3	Dry powder 4.5 Kg	No	2.00	4,150.89	8,301.77
34.4	Fire Bucket with Stand (4nos. in each Stand)	No	4.00	2,988.64	11,954.55
	AC & DC System for Auxiliary supply				
35	AC System				
35.1	ACDB (as per specification)	Lot	0.00	4,15,088.51	-
35.2	Main Lighting Distribution Board (as per specification)	Lot	1.00	1,66,035.40	1,66,035.40
35.3	Indoor Lighting Distribution Board as per specification	Lot	1.00	46,489.91	46,489.91
35.4	Receptable Panel near Power Transformer	No	1.00	14,943.19	14,943.19
36	DC System				
36.1	48 V DC Distribution Board as per specification .	No	1.00	2,07,544.25	2,07,544.25
37	Water Cooler with water purifier system as per Technical Specification	No	1.00	24,905.31	24,905.31
38	Maintenance Testing Equipment as per Technical Specification	Lot	1.00	9,96,212.42	9,96,212.42
39	Tools and Plants (T&P's) Requirement as per Technical Specification	Lot	1.00	2,49,053.10	2,49,053.10
40	Office Furniture as per Technical Specification	Lot	1.00	8,30,177.01	8,30,177.01
41	Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing)				
41.1	90 lb Rail 5.4 mts (2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)	Nos	2.00	20,322.28	40,644.56
41.2	(500x500x10) mm GI plate 6 nos / Transformer each (Unit Wt=0.013 MT)	Nos	6.00	1,145.44	6,872.65
41.3	(65x65x5) mm GI angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)	Nos	2.00	2,290.88	4,581.77
42	Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr	Kg	640.00	84.68	54,192.75
	Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)				4,18,10,369.59
	Material Landed Cost @18%				
	Total Cost in Cr.				4.18
ERECTION, TESTING & COMMISSIONING WORKS OF FOLLOWING EQUIPMENT (As per Technical Specification)					
	33kV Equipment (Indoor Type)				
1	Erection, Commissioning, Testing of 33kV Equipment for (INDOOR AIS Sub-Station)				
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for line feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (800-400/1-1A) , bus-bar dis connectors (1250A) with common grounding switch, for complete Line feeder bay as per the technical specification. The module shall be provided with complete Line Feeder protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	2.00	48,237.78	96,475.57

1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Transformer feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (600-300/1-1-1A) , bus-bar dis connectors (1250A) with common grounding switch, for complete Transformer feeder bay as per the technical specification. The module shall be provided with complete Transformer Feeder protection system to suit for SCADA (BCPU, Numerical Differential Relay having inbuilt of REF protection, Multi-function Meter & other provisions as per tech spec).	Set	2.00	48,237.78	96,475.57
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system)/Solid insulated system for Bus-coupler bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt CT (800-400/1-1A) , bus-bar dis connectors (1250A) with grounding switches, Each bus bar set shall be provided with inductive voltage transformers(two sets) with disconnector(s) for both the buses for complete Bus-coupler bay as per the technical specification. The module shall be provided with complete Bus-coupler protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	1.00	48,237.78	48,237.78
Erection, Commissioning, Testing of 11kV Equipment (Indoor Type)					-
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester (for 33kV Incoming Line, HT side of 2nos. Power Transformers and 33/0.433kV Station Transformer) - Outdoor Type with Surge Counter	Nos.	6.00	428.00	2,568.00
3	12kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester with out surge counter(For Transformers & Out Going Feeders) - Outdoor type	Nos.	6.00	128.40	770.40
4	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-1250A, Busbar-2000A(Copper) & CT (800-400/1-1-1A) Horizontal draw type for Transformer Protection and Differential Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	2.00	7,490.00	14,980.00
5	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-1250A, Busbar-2000A (Copper), CT (600-300/1-1-1A) for Feeder protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	6.00	7,490.00	44,940.00
6	11kV Bus-Coupler Indoor AIS Panel consisting of Breaker-1250A, Bus-bar-2000A (Copper), for Bus protection Relays to be installed on the panel, Multi-function Meter to be installed above the panel, Energy meter to be installed on the panel	No	1.00	7,490.00	7,490.00
7	11kV, 2 Core, Single Phase, IVT (11/√3 kV / 110/√3-110/√3V), 3nos in a set, in a separate draw out chamber with Digital Voltmeter inside Control Room separately for Bus-1 & Bus-2 plug in type with disconnector.	Set	2.00	7,490.00	14,980.00
Erection, Commissioning, Testing of SCADA					
8	SCADA FOR Primary Substation	Set	1.00	0.00	0.00
Erection, Commissioning, Testing of Transformer and RMU					0.00

9	8.0 MVA, 33/11kV Power Transformer DYn11 (Outdoor Installation) with Accessories	No.	2.00	85,600.00	1,71,200.00
10	100 KVA 33/0.433kV Energy efficient Station Transformer	No	1.00	5,350.00	5,350.00
11	11 KV 4Way RMU	No.	0.00	4,813.00	-
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Erection, Laying of Substation Earthing System GI					
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat for laying (spacing maximum 2m both ways)	Kg	5301.00	15.00	79,515.00
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat for Raiser from the burial earth mat to equipment, structure etc.)	Kg	720.00	15.00	10,800.00
14	Earthing Device & Associated Accessories (Heavy duty GI Perforated Pipe of ID=40mm & OD=50mm with 3000mm long for treated Earth Pit) as per Drawing	No	30.00	2,675.00	80,250.00
Erection of System GI 33, 11 and Station Trf Structure					
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04 nos for one Power Transformer) for supporting of 33kV Cable & 11kV cable (Unit Wt=0.0665 MT) & 10 mm thick MS plate size 250X250 mm at the bottom of the RS Joist duly welded & the MS plate to be suitably grouted to the floor for the rigidity.	Kg	532.00	30.00	15,960.00
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr - 06 nos for one Power Transformer) for supporting of 33kV & 11kV power Cable (Unit Wt=0.01912 MT)	Kg	229.44	30.00	6,883.20
17	GI Nuts & Bolts etc. for column and beam & Equipment Structures	Kg	500.00	30.00	15,000.00
18	GI Pipe of dia. 150mm, Class-B	Mtr.	0.00	-	-
19	High Density Polyethylene (HDPE) pipe 160 mm diameter.	KM	0.01	1,04,114.67	1,041.15
20	LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	1,000.00	1,000.00
Laying of 11kV 33 and 11 kv Power and Control cables					-
21	1C X 400 sqmm, 33 KV, XLPE, Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	1.60	2,80,497.64	4,48,796.22
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	1,959.72	39,194.40
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	2,327.04	46,540.80
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	0.80	2,08,229.35	1,66,583.48
24.1	11 KV, 3C X 400 sqmm Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	1,470.29	23,524.64
24.2	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	1,837.61	29,401.76
25	Control Cables (Copper Armoured)				-
25.1	4 Core x 2.5 mm^2	Km	0.30	21,400.00	6,420.00
25.2	7 Core x 2.5 mm^2	Km	0.10	21,400.00	2,140.00

25.3	10 Core x 2.5 mm^2	Km	0.20	26,750.00	5,350.00
25.4	12 Core x 2.5 mm^2	Km	0.20	26,750.00	5,350.00
25.5	1 Core x 16 mm2 Aluminium cable from Battery to Battery Charger & Battery Charger to DCDB	Km	0.06	16,050.00	963.00
26	Laying of 1.1 kV XLPE Power Cables				-
26.1	XLPE 3 1/2 Core x 120 mm2 (for Station Transformer output)	Km	0.05	32,100.00	1,605.00
26.2	XLPE 3 1/2 Core x 95 mm2 (for Oil Filtration Machine Connection)	Km	0.03	29,960.00	898.80
26.3	XLPE 3 1/2 Core x 25 mm2 (for Switchyard Lighting)	Km	0.03	27,820.00	834.60
26.4	XLPE 4 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	25,680.00	770.40
26.5	XLPE 2 Core 16 mm2 (for Switchyard Lighting)	Km	0.03	25,680.00	770.40
	Erection, Commissioning , Wiring & Testing of Battery & Battery Charger				
27	48 V, 100 AH, maintenance free VRLA Battery (Set. 4 Nos of 12V Battery)	Set	1.00	5,350.00	5,350.00
28	48V, Float cum Boost Battery Charger (15 A float charging, 20 A boost charging)	No	1.00	5,350.00	5,350.00
	Erection, Commissioning , Wiring & Testing of Sub-station Lighting And Fire Fighting System				-
29	Sub-Station Switchyard Lighting , Control Room Lighting (it includes supply of fixtures & Lamps (LED) with switch gear, GI Conduit etc.(120Wx 4 sets and 100Wx6 sets out side the control room, 20 Watt CFL tube-10 sets inside control room .Control Room wiring to be done with Copper wires as per the requirement (Lighting fixtures are to be fixed rigidly on the Column at a suitable height with GI tubular pole so that the required lux as per the technical specification is maintained).	Lot	1.00	32,100.00	32,100.00
30	1.5 Ton capacity Split Air Conditioning units with Remote control facility: Including supply of split Air conditioner 5 Star rated, voltage stabiliser, control boxes etc. for completing the A.C scheme. (As per specification) for control room.	No	4.00	1,498.00	5,992.00
31	1400 mm sweep 250Volt A/C Celling Fan	No	5.00	107.00	535.00
32	300 mm sweep 70W A/C Exhaust Fan (for Battery room and Toilet)	No	4.00	107.00	428.00
33	Erection, Commissioning of Fire Fighting System (portable and wheel mounted sets for control room)				
33.1	Foam type- 5 Ltrs	No	2.00	53.50	107.00
33.2	CO_2 - 4.5 Kgs	No	2.00	53.50	107.00
33.3	Dry powder 4.5 Kg	No	2.00	53.50	107.00
33.4	Fire Bucket with Stand (4nos. in each Stand)	No	4.00	107.00	428.00
	Erection, Commissioning , Wiring & Testing of AC & DC System				
34	AC System				-
34.1	ACDB (as per specification)	Lot	0.00	4,280.00	-
34.2	Main Lighting Distribution Board (as per specification)	Lot	1.00	2,140.00	2,140.00
34.3	Indoor Lighting Distribution Board as per specification	Lot	1.00	2,140.00	2,140.00
34.4	Receptable Panel near Power Transformer	No	1.00	1,605.00	1,605.00
35	DC System				-
35.1	48 V DC Distribution Board as per specification .	No	1.00	2,140.00	2,140.00
36	Erection, Commissioning of Water Cooler with water Purifier System	No	1.00	802.50	802.50
37	Commissioning & Testing of Maintenance Testing Equipment	Lot	1.00	2,140.00	2,140.00
38	Commissioning Tools and Plants (T&P's) Requirement	Lot	1.00	535.00	535.00

39	Commissioning Office Furniture	Lot	1.00	1,070.00	1,070.00
	Laying of Materials for Installation of Power Transformer on Plinth (as per Drawing)				-
40	90 lb Rail 5.4 mts (2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)	Nos	2.00	856.00	1,712.00
41	(500x500x10) mm GI plate 6 nos / Transformer each (Unit Wt=0.013 MT)	Nos	6.00	74.90	449.40
42	(65x65x5) mm GI angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)	Nos	2.00	80.25	160.50
43	Construction of Cable Trench : 2 tier 2 rows U-Type RCC Cable trench with M-20 Grade concrete: The internal width 2000 mm, depth 1005 mm, with 75X75X6 mm support angles fixed RCC wall of 175 X 175 mm, Raft of 175mm & with ladder type cable tray (45X45X5)mm two angles at both side having welded flats of 25X5 mm at a gap of 150mm) for Power & control Cable with RCC Trench Cover Slab as per technical Specification, approved drawing and Direction of Engineer Incharge. Complete work including earth work in excavation in all kind of soil & rock and refilling the cavity by selective soil, leveling the surface around the pit with disposal of surplus earth.	Mtr	71.85	23,041.98	16,55,566.26
44	Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr	Metric Ton	0.64	6,420.00	4,095.96
	Sub-Total for ERECTION,TESTING & COMMISSIONING WORKS (In Rs.)				32,18,120.80
	Total Cost in Cr.				0.32
-					
Civil Works with supply of all materials like Cement, MS tor rod, Brick, Coarse & Fine Agregrates & Labour,T&P etc.					
1	Contour survey (36 mts.x 34 mts.), plotting the contour on graph sheet and marking the finished ground level	Sqr Mtr	1,224.00	16.05	19,645.20
2	Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.	Cum	143.00	192.60	27,541.80
3	Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).	Cum	2,320.00	374.50	8,68,840.00
4	OUT DOOR DRAIN to DISCHARGE SWITCHYARD/ WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts		-	-	-
4.1	Excavation in all type soil (1.35x10x0.7)	Cum	9.45	214.00	2,022.30
4.2	PCC (1:3:6) (1.35x10x0.1)	Cum	1.35	4,708.00	6,355.80
4.3	PCC (1:2:4) (0.3x10x0.05)	Cum	0.15	5,778.00	866.70
4.4	Brick Masonary with cement mortar (1:5) (0.25x10x0.925+1/2x0.15x0.93x10)+(0.25x10x0.925)	Cum	5.32	3,905.50	20,775.63
4.4	Plastering with Cement mortar(1:6) (2x0.25x10+2x0.925x10+1x0.925x10+1x1.0x10)	Sq. mtr.	42.75	107.00	4,574.25
5	Switch Yard and COMPOUND WALL as per Drawing Schedule and Specification. For PILE Foundation for SBC Upto 10		-	-	-
5.1	Construction of Compound-wall (with RCC column & beam with M-20 Grade concrete) along the property line of the sub-station as per technical specification and instruction of the Engineer in Charge.(the size of the bricks shall be 250mm having 1st class Fly-ash brick having compressive strength with 75kg/cm2). This also includes excavation in all types of soil or rocks, backfilling ,and disposal of excess earth . (Brick works rested	Run. Mtr.	140.00	16,990.55	23,78,677.00

	on RCC Beam and RCC Column & footings , including Cement Plastering, Cement wash, Wall Painting two coats with weather coat. Provision of the boundary wall Fencing with M.S Grill of 700 mm height fixing at the top of the wall. It includes supply of all the materials & two coats of synthetic enamel paintings after primer application of the fencing .				
5.2	Switch Yard GI Chain Linking Fencing with 2.4 Mtr Height.	Run. Mtr.	60.00	5,000.00	3,00,000.00
6	Power Transformer Foundation / One (8 MVA)		-	-	-
6.1	Excavation in all type soil per Tfr.(3X3X1.1 mtr)	Cum	19.80	214.00	4,237.20
6.2	PCC (1:3:6) per Tfr.(3X3X0.075 mtr)	Cum	1.35	4,708.00	6,355.80
6.3	RCC (1:1.5:3) per Tfr. As per drawing	Cum	10.52	6,420.00	67,538.40
6.4	RRHG stone grouting with sand per Tfr.	Cum	9.00	1,926.00	17,334.00
7	Construction of 100kVA 33/0.4 kV station Trf. Plinth		-	-	-
7.1	Excavation in all type soil (2.5X2.5X0.750 mtr)	Cum	4.69	214.00	1,003.13
7.2	PCC (1:3:6) (2.5X2.5X0.075 mtr)	Cum	0.47	4,708.00	2,206.88
7.3	RCC (1:1.5:3) (1.5X1.5X0.1 mtr)	Cum	0.23	6,420.00	1,444.50
7.4	Brick Masonary work (2.5x2.5x.925+2x(.5 x1.5x2.25) (1:5)	Cum	61.19	3,905.50	2,38,967.78
7.5	Cement Plastering (1:6) (1.5x2.25x4)+(1.5x1.5) 20mm thick	Sq Mtr	15.75	107.00	1,685.25
8	Construction of oil sump pit for Transformer (1.6 X 1.6 X 2.3)		-	-	-
8.1	Excavation of Earth(2.0x2.0x2.1)	Cum	8.40	214.00	1,797.60
8.2	PCC (1:3:6) 2X2X0.1	Cum	0.40	4,708.00	1,883.20
8.3	RCC(1:1.5:3) 1.6X1.6X0.1 for Top Slab	Cum	0.26	6,420.00	1,643.52
8.4	Brick Masonary work(2x2.1+2x1.6)x0.25x2.3 (1:5)	Cum	4.26	3,905.50	16,617.90
8.5	Cement Plastering (1:6) 2.3 (4x2.1+ 4x1.6)+ 1.6x1.6	Sq.mtr	36.60	107.00	3,916.20
8.6	Drainage for Oil sump pit with 250 dia hume pipe	Mtr	24.00	749.00	17,976.00
9	ROAD (5 Mtrs wide) Length of the road 20 mtrs as per Drawing Schedule- OPTCL/CIVIL/11-REV-B.		-	-	-
9.1	Excavation in all type soil 0.5mx1mx5m	Cum	50.00	214.00	10,700.00
9.2	Boulder Packing 0.5mx1mx5m	Cum	50.00	1,926.00	96,300.00
9.3	Water base course -I 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.4	Water base course -II 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.5	PCC (1:2:4) 0.1mx1mx5m	Cum	10.00	5,778.00	57,780.00
10	(125x70x5) mm RS GI joist 5Mtr (STATION) as per Drawing Schedule- OPTCL/CIVIL/2-REV-B.		-	-	-
10.1	Excavation with back filling L 1m x W 1 x D 2	Cum	8.00	214.00	1,712.00
10.2	PCC (1:3:6)	Cum	0.40	4,708.00	1,883.20
10.3	RCC (1:1.5:3)	Cum	12.00	6,420.00	77,040.00
11	Baffle Wall		-	-	-
11.1	Excavation with back filling 4.2mx0.75mx0.5m	Cum	1.58	214.00	337.05
11.2	PCC 1:3:6 4.2mx0.75mx0.1m	Cum	0.32	4,708.00	1,483.02
11.3	RCC 1:1.5:3 0.75x3.8x0.2+0.5x3.4x0.2+2.5x3x0.15	Cum	5.80	6,420.00	37,203.90
12	PCC (1:4:8) With cement For S/S area(75 mm) per Sq. mts.((8x16x0.075)	Cum	9.60	4,066.00	39,033.60
13	Metal Spreading 100 mm. per Sq. mts. Area of spreading.	Cum	12.80	1,605.00	20,544.00
	Switchgear Cum Control Room (22x10Mts) (column & beam based) (as per specification & Inclusive of doors, windows, collapsible gate, PHD fittings, electrification, inner cable trench, Two nos main doors with concrete pillars, beams) etc. as per		-	-	-

	Technical specification in Civil section. Layout Drawing				
14	Switchgear Cum Control Room For Pile foundation in FLOOD AREA (with SBC upto 10)		-	-	-
14.1	Boring and casting 300 mm dia single under reamed pile of 5.00 m. long with R.C.C. M-20 using 20 mm down graded chips with cost of all materials, labours, T&P etc. & all other machinaries required for the work etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Nos	252.00	6,420.00	16,17,840.00
14.2	Earth work in excavation of foundation trenches in all kinds of soil including moorum, stony earth and earth mixed with boulders except sheet rock and boulders requiring blasting including dressing of sides and leveling the bed up to the required depth and depositing the excavated materials away from the work site within initial leads and lifts, including shoring, shuttering & dewatering (if required) with cost of labour,cess, hire & running charges of water pumps sundries , T & P & all other machinaries required for the work etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	470.80	235.40	1,10,826.32
14.3	Supplying and filling in foundation and plinth with good river sand well watered and rammed in layers not exceeding 23 cm in each layer including all leads and lifts, cost of all materials, labour,cess, sundries, T&P required for the work etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	791.60	770.40	6,09,848.64
14.4	Providing and lying plain cement concrete of proportion (1:3:6) in foundation and plinths using approved quality cement , 40 mm. size black hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, loading, unloading, royalties and taxes of all materials and cost of all labours, cess, sundries, T&P & all other machinaries required for the work including shoring, shuttering and dewatering if required including hire & running charges of water pump etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	156.80	4,708.00	7,38,214.40
14.5	K.B. Brick masonary in cement mortar (1:6) using the bricks of size 10" x 5" x 3" of crushing strength not less than 100 kg / centimeter square with dimensional tolerance 3% after immersing the bricks for 6 hours in water before use including hoisting to required height placing in position scaffolding, splays cutting, circular moulding, corbelling, chamfering and similar such type of work watering and curing etc. including cost, conveyance, royalty, cess, and taxes of all other materials machinaries scaffolding all labour T&P articles required for the work etc. complete in all respect as per the latest specification confirming to relevant IS Specification and direction of the Engineer-in-charge.		-	-	-
14.5.1	In Foundation and Plinth	Cum	108.00	4,494.00	4,85,352.00

14.5.2	Ground Floor	Cum	222.80	4,494.00	10,01,263.20
14.6	RCC work M-20 grade as per approved designs and drawings having a minimum compressive strength (in work test) 200 Kg./ Sqcm.in 15 cm. cubes at 28 days after mixing and test conducted in accordance with I.S.456 and I.S 516 using 12 mm. to 20 mm. size black hard crusher broken granite stone chips, screened and washed sharp sand for mortar of approved quality from approved quarry, to be mixed in concrete mixture with approved quality cement including hoisting, lowering, laying and compacting concrete by using vibrators, watering and curing for 28 days, centering and shuttering and finishing the exposed surface smooth providing grooves or beads wherever necessary including cost, conveyance, loading, unloading, royalties and taxes and cess of all materials, cost of all labours, sundries, T&P & all other machinaries required for the work but excluding cost and conveyance of M.S. or Tor steel and binding wires etc. Complete in all respect as per latest specification & direction of the Engineer in charge.		-	-	-
14.6.1	Pile cap & Grade beam	Cum	300.00	6,420.00	19,26,000.00
14.6.2	R.C.C. wall	Cum	70.80	6,420.00	4,54,536.00
14.6.3	Plinth Beam	Cum	24.40	6,420.00	1,56,648.00
14.6.4	Column & Beam- Ground Floor	Cum	144.00	6,420.00	9,24,480.00
14.6.5	Lintel-Ground Floor	Cum	8.80	6,420.00	56,496.00
14.6.6	65mm thick R.C.C.Chajja- Ground Floor	Sqm	88.40	588.50	52,023.40
14.6.7	Roof slab - Ground Floor	Cum	147.20	6,420.00	9,45,024.00
14.6.8	Staircase- Ground Floor	Cum	23.60	6,420.00	1,51,512.00
14.7	Cutting, Straightening coiled or bent up M.S. rods or Tor steel welding or jointing if necessary, bending, binding, tying the grills as required for R.C.C. works, providing fan hooks where necessary and hoisting, lowering and placing in proper position according to approved designs and drawings including cost, conveyance, loading, unloading, taxes of M.S. rods or Tor steel and binding wires of 18 to 20 gauge required for the work and cost of all labour, sundries, T&P and scaffolding complete in all respect as directed by the Engineer in charge (payment will be made according to the actual weight of M.S. rod / Tor steel consumed in the work and no separate payment will be made towards weight of binding wires which is to be borne by the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.		-	-	-
14.7.1	Ground Floor	MT	72.00	58,850.00	42,37,200.00
14.8	Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in floors of approved make with application of polymer modified cement based water resistant adhesive bed of required thickness of 10mm and filling joints with epoxy grout of approved quality including cost of all materials, takes labour T&P etc. required for the work etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	416.00	963.00	4,00,608.00
14.9	Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in dado of approved make with application of polymer modified cement based water resistant adhesive bed of required thickness of 10mm and filling joints with epoxy grout of approved quality including cost of all materials,	Sqm	36.80	963.00	35,438.40

	takes labour T&P etc. required for the work etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.				
14.10	Supplying, fitting and fixing Floor tile of size 40cmx40 cm / 30cmx30cm in floors on 25mm thick bed of cement mortar 1:1 (1cement : 1sand) jointed with neat cement slury mixed with pigment to match the shades of the tiles of required thickness of approved quality including cost of all materials, takes labour T&P etc. required for the work.etc complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	20.40	856.00	17,462.40
14.11	Providing fitting fixing Glazed /Ceramic tiles of size 20cmX30cm & 6.5 to 6.7mm thick of size up to 0.10sqm in wall dados skirting and on 12mm thick cement plaster (1:3) jointed with neat cement slurry mixed with pigments to match the shade of the tiles including rubbing and polishing complete including cost of precast tiles etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	107.20	802.50	86,028.00
14.1	Supplying, fitting and fixing 5"x2½" size Dressed seasoned Sal wood chaukaths including cost, conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.	Cum	1.00	80,250.00	80,250.00
14.13	Supplying, fitting and fixing 30mm/32mm flush door shutter (Non-Sal hard wood frame fixed with 4mm BWR ply on both sides of frame.including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.	Sqm	57.60	1,605.00	92,448.00
14.1	Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW	Sqm	124.00	2,354.00	2,91,896.00
14.15	Providing and fixing of FRP door frame including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the latest specification and direction of the Engineer-in-Charge.	Mtr	40.80	481.50	19,645.20
14.2	Providing and fixing of FRP door shutter including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the latest specification and direction of the Engineer-in-Charge.	Sqm	15.20	3,745.00	56,924.00
14.17	Providing 16mm. thick cement plaster with cement mortar of mix (1:6) with approved quality cement with screened and washed sharp sand for mortar and finished smooth to the surface over brick work after racking out the joints including watering and curing, rounding of corners etc. complete with cost,		-	-	-

	conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charge				
14.17.1	Ground Floor	Sqm	2,499.60	128.40	3,20,948.64
14.18	Providing 12mm. thick cement plaster with cement mortar of mix (1:6) with approved quality cement and screened and washed sharp sand for mortar and finished smooth to the surface over brick work after racking out the joints including watering and curing, rounding of corners etc. complete with cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charger in charge		-	-	-
14.18.1	Ground Floor	Sqm	1,588.40	107.00	1,69,958.80
14.19	Providing 12mm. thick cement plaster with cement mortar of mix (1:3) with approved quality cement with screened and washed sharp sand for mortar and finished smooth to the surface in ceiling and R.C.C. surface after chipping the surface in all floors including watering and curing, rounding of corners etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charge.		-	-	-
14.19.1	Ground Floor	Sqm	1,603.60	107.00	1,71,585.20
14.20	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge		-	-	-
14.20.1	Ground Floor	Sqm	5,655.20	6.42	36,306.38
14.21	Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in Charge.	Kg	3,166.80	80.25	2,54,135.70
14.22	Supplying fitting and fixing of M.S grill made out of M.S M.S.Flat 19 mm x 5 mm size, as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in Charge.	Kg	2,848.40	80.25	2,28,584.10
14.23	Wall painting 2 coats with acrylic distemper over one coat of wall primer of approved shade on new work to give an even shade in all floors at all height including scafolding cost of brushes including cost of paint cost conveyance royality of all materials labour,T&P articles required for the work etc.		-	-	-

	complete in all respect as per the latest specification and direction of the Engineer-in-charge.				
14.23.1	Ground Floor	Sqm	3,725.20	10.70	39,859.64
14.24	Painting two coats with weather coat on exterior walls surface of approved quality and approved shade over a coat of primer in all floors at all height of approved quality and shade including cleaning and sand papering the surface and making the surface smooth with cost, conveyance, loading, unloading, and taxes of all materials, cost of all labour, sundries, T&P, scaffolding etc. required for the work complete in all respect as directed by Engineer-in-charge		-	-	-
14.24.1	Ground Floor	Sqm	1,930.00	16.05	30,976.50
14.25	Painting two Coats with approved colour synthetic enamel paint on wood / iron work in all floors at all height including scafolding cost conveyance royality of all materials labour,T&P articles required for the work etc. complete in all respect as per the latest specification and direction of the Engineer-in-charge.	Sqm	418.40	32.10	13,430.64
14.26	Providing cement concrete (1:1.5:3) using 12mm size black hard crusher broken granite stone chips, screened & washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, loading, unloading, royalties and taxes of all materials and cost of all labours, cess, sundries, T&P & all other machinaries required for the work including shoring, shuttering and dewatering if required including hire & running charges of water pump etc. Complete in all respect as per latest specification & direction of the Engineer in charge.	Cum	123.60	6,420.00	7,93,512.00
14.27	Supplying, fitting and fixing of stainless steel of 304 grade in hand railing using 50mm dia of 2mm thick circular pipe with Balustrade of size 32mm x 32mm x 2mm @ 0.90mtr. C/C and stainless square pipe bracing of size 32mm x 32mm x 2mm in 3 rows in stair case as per approved design and specification, buffing, polishing etc. with cost, conveyance, taxes of all materials, labour, T&P etc. required for the complete in all respect.	Mtr	68.00	1,605.00	1,09,140.00
14.28	Providing and fixing M.S. fan clamp type-I of 16mm dia M.S. bar bent to shape with hooked ends in R.C.C. slab during laying including painting the exposed portion of loop as per standard design complete as directed by the Engineer-in-charge.	Nos	120.00	160.50	19,260.00
14.29	Providing 12mm. thick cement plaster in cement mortar of mix (1:4) with neat cement punning with approved quality cement with screened and washed sharp sand for mortar and finished smooth to the surface in ceiling and R.C.C. surface after chipping the surface in septic tank including watering and curing, rounding of corners etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding required for the work	Sqm	48.40	107.00	5,178.80

	etc. complete in all respect as desired by the Engineer in charge.				
14.30	Providing neat cement punning with approved quality cement finished smooth to the surface etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding required for the work etc. complete in all respect as desired by the Engineer in charge.	Sqm	958.00	16.05	15,375.90
14.31	40 mm thick grading concrete with cement concrete (1:2:4) using 12mm and down graded b.h.g. chips to the roof surface with water proofing cement compound finished smooth over RCC slab including hoisting and laying in position watering and curing for required number of days finished to smooth surface and desired slope including cost conveyance, royalty and taxes of all materials, labour T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in-Charge.	Sqm	550.80	235.40	1,29,658.32
15	P.H. Fitting (Internal & External) to Switch-Gear - Cum -Control Room		-	-	-
15.1	Supplying all materials , labours , taxes and tools and plants for fitting and fixing of PVC pipes of following nominal bore conforming to ASTM-D-1785 (Schedule-80) including fittings and laying as per the site requirement etc., all complete including testing as per the direction and specification of Engineer-in-charge		-	-	-
15.1.1	15 mm dia	Mtr	15.00	107.00	1,605.00
15.1.2	20 mm dia	Mtr	20.00	133.75	2,675.00
15.1.3	25 mm dia	Mtr	15.00	187.25	2,808.75
15.1.4	40 mm dia	Mtr	20.00	214.00	4,280.00
15.1.5	50 mm dia	Mtr	20.00	267.50	5,350.00
15.2	Supplying all material, labour , T&P & fitting ,fixing the following different water supply fittings of approved make with including supply of all necessary jointing materials etc. all complete as directed by the Engineer-in-charge.		-	-	-
15.2.1	25 mm dia Ball valve	Nos	2.00	695.50	1,391.00
15.2.2	50 mm dia Ball valve	Nos	2.00	1,070.00	2,140.00
15.2.3	25 mm dia F.W. valve	Nos	2.00	695.50	1,391.00
15.2.4	50 mm dia F.W. valve	Nos	2.00	1,070.00	2,140.00
15.3	Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer-incharge		-	-	-
15.3.1	For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall	Nos	10.00	133.75	1,337.50
15.4	Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the required depth and width for fixing pipes & fittings of sizes 15mm dia to 25mm dia in the grooves, testing the pipe line against leakage, and filling the grooves with cement mortar(1:4) to bring the surface to original level including cost of	Mtr	10.00	53.50	535.00

	mortars, curing and conveyance of materials etc. complete as per direction of the Engineer-in-charge.				
15.5	Supplying all materials , labour T&P and fittings of approved quality required for fixing of NP or CP Brass or GM fixtures of following sizes and specification with leak proof threaded joints tightened with spun yarn and white zinc or any tightened with spun yarn and white zinc or any including testing and rectification of detects, after testing complete as per direction of Engineer-in-charge.		-	-	-
15.5.1	Bibcock	Nos	5.00	160.50	802.50
15.5.2	Long Body Bibcock	Nos	2.00	321.00	642.00
15.5.3	Pillar cock	Nos	2.00	428.00	856.00
15.5.4	Angular stop cock	Nos	4.00	588.50	2,354.00
15.5.5	Soap Holder	Nos	2.00	80.25	160.50
15.5.6	Towel ring	Nos	2.00	160.50	321.00
15.5.7	Toilet paper holder	Nos	2.00	80.25	160.50
15.5.8	Glass self 22"	Nos	2.00	321.00	642.00
15.5.9	Towel rail 24"	Nos	2.00	374.50	749.00
15.5.10	Shower arm 190mm long light	Nos	2.00	749.00	1,498.00
15.5.11	CP Grating	Nos	2.00	80.25	160.50
15.5.12	Concealed stop cock	Nos	4.00	535.00	2,140.00
15.5.13	Connecting Pipe	Nos	2.00	160.50	321.00
15.5.14	Basin with pedestal	Nos	2.00	3,210.00	6,420.00
15.5.15	Providing and fixing vitreous China water closet (European with seat and lid), of Cerra Cascade “CASINO”, CP brass buffers, 10 liter cascade dual flushing cistern hinges & rubber with fittings and brackets, 40 mm flush bend of CP brass, 20 mm overflow pipe with specials & mosquito proof coupling complete, painting on brackets and making good the walls and floors wherever required.	Nos	1.00	16,050.00	16,050.00
15.5.16	Providing and fixing vitreous China water closet Indian type of Orissa pattern size (580mmx440mm) of approved quality with PVC Slimeline (Parryware make) 12.5 ltr capacity low level cistrn with hinges & rubber with fittings and brackets, 40 mm flush bend of CP brass, 20 mm overflow pipe with specials & mosquito proof coupling complete, painting on brackets and making good the walls and floors wherever required.	Nos	1.00	4,494.00	4,494.00
15.5.17	Providing and fixing vitreous China water urinal of Cerra/Parry ware with fittings and brackets, flush bend of CP brass, and making good the walls and floors wherever required.	Nos	2.00	2,675.00	5,350.00
15.6	Supply of all materials, labour, T&P , fitting and fixing in all floors fixed type bevelled plate glass mirror of size 600mm x 450mm x 5.5mm thick best Indian make ,supply of 13mm thick asbestos backing and CP Brass screw including cost conveyance, taxes of all materials complete as per specification and direction of Engineer-in-charge(Make-Modi Guard/Belgium)	Nos	2.00	802.50	1,605.00

15.7	Supply of all materials, joining materials ,labour and T&P and laying UPVC SWR PIPES of Standard make with ISI Mark duly approved by the Engineer-in-charge including jointing, earthwork in excavation of trenches in all kind of soil to the required depth and refilling of pipe line trenches in 0.3048 mtrs layers with 300 mm deep sand around cushion duly watered and rammed or fixing to walls, floors with supply of necessary clamps, nails and cutting the pipe to length with wastage including supply of all Clamps, Clips, Endcaps & jointing materials etc., complete as per standard specification and direction of Engineer-in-charge.		-	-	-
15.7.1	100mm dia (ISI Marked)	Mtr	10.00	535.00	5,350.00
15.7.2	150mm dia (ISI Marked)	Mtr	25.00	642.00	16,050.00
15.8	Supplying all materials, labour T&P for jointing of the UPVC SWR SEWER pipe fittings of standard make duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.		-	-	-
15.8.1	100mm dia "P" Trap	Nos	2.00	428.00	856.00
15.8.2	100mm dia Bend Plain	Nos	3.00	181.90	545.70
15.8.3	100mm Door Bend	Nos	3.00	160.50	481.50
15.8.4	100 mm dia Single Junction with Door	Nos	3.00	374.50	1,123.50
15.8.5	100 mm dia double Junction with Door	Nos	3.00	428.00	1,284.00
15.8.6	100mm dia Terminal Guard	Nos	2.00	214.00	428.00
15.8.7	100mm dia. Floor trap	Nos	3.00	267.50	802.50
15.9	Supplying all materials, labor T&P for jointing of the UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.		-	-	-
15.9.1	100mm Pipe	Nos	10.00	321.00	3,210.00
15.10	Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.		-	-	-
15.10.1	100mm Pipe	Mtr	4.00	428.00	1,712.00
15.10.2	100mm Vent Cowl	No	2.00	107.00	214.00
15.11	Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.		-	-	-
15.11.1	750mmx 750mm x450mm	No	1.00	4,815.00	4,815.00
15.12	Providing and fixing 2000 litres capacity P.V.C Over head (Sintex make) tank with all piping and valve arrangement with all labour & materials ,including cost, T&P , scaffolding etc., complete as directed by the Engineer-in-charge.		-	-	-

15.12.1	2000 Ltr Capacity	No	1.00	18,190.00	18,190.00
15.13	Supplying all material, labour, T&P and constructing manhole chamber of size as mentioned below with 250mm nominal size K.B. Brick having crushing strength 75kg to 99kg /cm2 in CM 1:4 over a bed of 150mm thick C.C(1:4:8) using 40mm size HG metal, plastering with 12mm thick cement mortar (1:3) on internal and external surface, inside finish with neat cement punning, providing & fixing step iron of appropriate quality & size with 3 coats anticorrosive paint, RCC (1:1.5:3) cover slab using 20m & down size graded HG chips along with factory made reinforced concrete cover with frame including breaking of pipe line where ever necessary and earth work in excavation in all kind of soil & rock and refilling the cavity by selective soil, leveling the surface around the chamber with disposal of surplus earth if any to a distance of 50mt as per specification, design & drawing including cost of curing and all taxes , royality , cost , conveyance etc. all complete as directed by the Engineer-in-charge.	No	1.00	10,700.00	10,700.00
15.14	Supplying all material, labour, T&P and constructing 1.80m dia x 2.60m deep soak way pit with dry brick walling upto 2.00m height and 1st class K.B. Brickwork in cement mortar (1:6) for the remaining 06.60m height at top, 12mm thick cement plaster (1:4) inside and outside , 100mm thick gravel backing in the rear of well staining, 125mm thick RCC cover slab fitted with with iron lifting handles including earth work in excavation in all kind of soil & rock and refilling the cavity by selective soil, leveling the surface around the pit with disposal of surplus earth if any to a distance of 50mt including cost of curing and all taxes , royality , cost , conveyance etc. all complete as directed by the Engineer-in-charge.	No	1.00	12,840.00	12,840.00
16	Watering system like 150 mm dia, 100 Mtr deep bore well (PVC pipe to be used) 1 HP submersivele pump, switch yard water hydrant system for pouring water into the earth pits, tap for garden, including PVC pipes & other accessories required etc.	LS	1.00	1,60,500.00	1,60,500.00
17	Small wicket (GI) gate one in between Main Gate & Security shed & another in front of Customer Care room of size 1.5 mtr width X 2 mtrs height single leaf with locking arrangement etc. as per above.	No.	2.00	5,350.00	10,700.00
18	RRHG retaing wall with 1:5 cement mortar Considering 0.6 mt height of retaining wall above the existing ground level per Meter as per Drawing TOTAL 74 Mtrs		-	-	-
18.1	Excavation in all type of soil(0.8 Cum / Mtr)	Cum	105.60	267.50	28,248.00
18.2	PCC (1:4:8) 200 mm thick. With cement (0.2 Cum / Mtr)	Cum	26.40	4,280.00	1,12,992.00
18.3	PCC (1:2:4) 50 mm thick With cement (0.02 Cum / Mtr)	Cum	1.58	5,778.00	9,152.35
18.4	RRHG Cement Masonary (1:5) With cement (0.86 Cum / Mtr)	Cum	63.64	3,745.00	2,38,331.80
19	Prefabricated RCC Foundation for RMU	Nos.	1.00	10,265.00	10,265.00
20	Design & providing Galvanised Chain Linking Fencing with 2 Mtr Height around RMUs, as per TPCODL specification.	Sq. mtr.	-	4,668.00	-
	Sub-Total for CIVIL WORKS with supply of all materials like Cement, MS tor rod, Brick, Coarse & Fine Agregrates & Labour,T&P etc. (In Rs.)				2,19,95,067.99

	Total Cost in Cr.				2.20
-					
-				All Prices in Cr.	
A	Total Cost for SUPPLY OF EQUIPMENT & MATERIALS (In Cr.)				4.18
B	Stock , Storage & Insurance @ 3 % of A				0.13
C	Sub - Total (A+B)				4.31
D	Contingency @ 3 % of C				0.13
E	Tools &Plants Charges @ 2% of C (NOT CONSIDERED)				-
F	Transportation @ 7.5% of C				0.32
G	Sub - Total (C+D+E+F)				4.76
H1	Total Cost for ERECTION,TESTING & COMMISSIONING WORKS (In Cr.)				0.32
H2	Total Cost for CIVIL WORKS with supply of all materials like Cement, MS tor rod, Brick, Coarse & Fine Agregrates & Labour,T&P etc. (In Cr.)				2.20
H3	Total Cost for Erection & Civil works (H1+H2)				2.52
H4	GST @ 18% of Erection & Civil works				
I	Total Cost of Erection & Civil works in Cr.(H3+H4)				2.52
J	Total Cost (G+I)				7.28
K	Other Overhead /(including Supervision Charges) @ 6 % of J				0.44
L	Total Estimated Capital Cost i.e. J+K				7.72
M	GST @ 18% of L				1.39
N	CESS @ 1% of L				0.08
O	Inspection Charges (As per Gov. Notification)				0.00050
P	Total Estimate to be deposit in Cr @ L+M+N+O (In Cr.)				9.18
					9,18,34,492.30

Part -C:-Constrcution of 33kv line (U/G) of 1 km length with one 33KV,3WAY RMU from T-off of 33kv Tangi feeder near shakti hotel to Proposed ODSSP Manguli PSS

Supply Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				
1.1	Supply of 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable	km	4	7,83,000.00	31,32,000.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG Cable kits for 1Core	Set	12	19,679.00	2,36,148.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	12	6,869.00	82,428.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	12	5,233.00	62,796.00
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	4	10,91,237.00	43,64,948.00
2	Supply of materials for 33kV, 1Core, 300sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				

2.1	Supply of 33kV, 1Core, 300sqmm Aluminium, XLPE insulation UG Cable	km	0	6,85,000.00	-
2.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, aluminium UG Cable kits for 1Core	Set	0	19,679.00	-
2.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core	Set		6,869.00	-
2.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core	Set		5,233.00	-
2.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
3	Supply of materials for 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
3.1	Supply of 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	20,32,000.00	-
3.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG Cable kits	Set	0	68,594.00	-
3.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	Set		33,255.00	-
3.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	Set		20,503.00	-
3.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
4	Supply of materials for 33kV, 3Core, 300sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
4.1	Supply of 33kV, 3Core, 300sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	17,56,000.00	-
4.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, aluminium UG Cable kits	Set	0	61,254.00	-
4.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG Cable kits	Set		33,255.00	-
4.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG Cable kits	Set		20,503.00	-
4.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
5	Supply of materials for 33kV, 3Core, 185sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
5.1	Supply of 33kV, 3Core, 185sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	13,66,000.00	-
5.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, aluminium UG Cable kits	Set	0	61,254.00	-

5.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG Cable kits	Set		25,125.00	-
5.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG Cable kits	Set		18,082.00	-
5.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	5,20,436.00	-
6	Supply of materials for 33kV, 3Core, 95sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
6.1	Supply of 33kV, 3Core, 95sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	10,24,000.00	-
6.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, aluminium UG Cable kits	Set	0	43,131.00	-
6.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG Cable kits	Set		19,384.00	-
6.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG Cable kits	Set		11,958.00	-
6.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	5,20,436.00	-
1	Supply of 33kV RMU				
1.1	Supply of 33kV, 630A, 25kA 3 Way NON-Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker Type LLV Model	Nos.	1	17,50,000.00	17,50,000.00
1.2	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker Type LLVV Model	Nos.	0	24,50,000.00	-
1.3	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker with metering panel Type LLV+M Model	Nos.	0	32,00,000.00	-
1.4	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker with metering panel Type LLVV+M Model	Nos.	0	45,00,000.00	-
1.5	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 3 Load Break Switch Type LLL Model	Nos.	0	15,50,000.00	-
1.6	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 4 Load Break Switch Type LLLL Model	Nos.	0	19,50,000.00	-
3	Earthing				
3.1	Earthing Conductor: 50X6 mm (2.4kg./mtr.) GI Flat for equipment, structure etc.)	kg	7.20	75.00	540.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,050.00	2,100.00
	Sub Total (Supply Portion) (in Rs.)				96,30,960.00

Erection Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 400sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	4	2,80,497.64	11,21,990.56
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG cable kits	Set	12	4,286.75	51,441.00
1.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	2,327.04	27,924.48
1.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	1,959.72	23,516.64
1.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,73,059.62	-
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	4	1,04,114.67	4,16,458.68
2	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 300sqmm, XLPE UG cable with one spare				
2.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	0	2,80,497.64	-
2.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, aluminium UG cable kits	Set	0	4,286.75	-
2.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	2,327.04	-
2.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	1,959.72	-
2.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,73,059.62	-
2.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
3	Erection, Commissioning & Testing of 33kV new line by 3Core, 400sqmm, XLPE UG cable with spare				

3.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 400sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	2,08,229.35	-
3.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG cable kits	Set	0	3,062.68	-
3.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG cable kits	Set	0	1,470.29	-
3.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG cable kits	Set	0	1,837.61	-
3.5	Laying, Commissioning & Testing of 33kV, 3Core, 1Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	14,13,306.01	-
3.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
4	Erection, Commissioning & Testing of 33kV new line by 3Core, 300sqmm, XLPE UG cable with spare.				
4.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 300sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	2,08,229.35	-
4.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, aluminium UG cable kits	Set	0	3,062.68	-
4.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG cable kits	Set	0	1,470.29	-
4.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG cable kits	Set	0	1,837.61	-
4.5	Laying, Commissioning & Testing of 33kV, 3Core, 300sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 300sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	14,13,306.01	-
4.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
5	Erection, Commissioning & Testing of 33kV new line by 3Core, 185sqmm, XLPE UG cable with spare				
5.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 185sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	1,95,980.63	-
5.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, aluminium UG cable kits	Set	0	3,062.68	-
5.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG cable kits	Set	0	1,470.29	-

5.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG cable kits	Set	0	1,837.61	-
5.5	Laying, Commissioning & Testing of 33kV, 3Core, 1Runs, 185sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 185sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 110mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,99,890.88	-
5.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
6	Erection, Commissioning & Testing of 33kV new line by 3Core, 95sqmm, XLPE UG cable with spare				
6.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 95sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	1,95,980.63	-
6.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, aluminium UG cable kits	Set	0	3,062.68	-
6.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG cable kits	Set	0	1,470.29	-
6.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG cable kits	Set	0	1,837.61	-
6.5	Laying, Commissioning & Testing of 33kV, 1Core, 1Runs, 95sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 95sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 110mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,99,890.88	-
6.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
1	Erection, Commissioning, Wiring and Testing of 33kV RMU				
1.1	Erection of 33kV, 630A, 25kA 3 Way NON-Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker Type LLV Model	Nos.	1	61,243.63	61,243.63
1.2	Erection of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker Type LLVV Model	Nos.	0	61,243.63	-
1.3	Erection of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker with metering panel Type LLV+M Model	Nos.	0	61,243.63	-
1.4	Erection of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker with metering panel Type LLVV+M Model	Nos.	0	61,243.63	-
1.5	Erection of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 3 Load Break Switch Type LLL Model	Nos.	0	61,243.63	-

1.6	Erection of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 4 Load Break Switch Type LLLL Model	Nos.	0	61,243.63	-
	Sub Total (Erection Portion) (in Rs.)				17,02,574.99
Civil Portion					
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of soil	Cum	700	201.62	1,41,134.00
1.1.b	Earth work excavation of hard rock	Cum	300	884.35	2,65,305.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	600	171.55	1,02,930.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	400	479.74	1,91,896.00
1.4	Back filling with excavated soil outside and above the trench	Cum	600	30.28	18,168.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	1	26,43,670.63	26,43,670.63
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	87,921.26	87,921.26
3	Supply of Galvanised Fencing around each RMU with height 2 mtr for external protection	sqmtr	20	4,668.00	93,360.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	96	1,607.00	1,54,272.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	33	376.13	12,412.29
	Sub Total (Civil Portion) (in Rs.)				37,15,883.18
A-1	Sub Total (Supply Portion)				96,30,960.00
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				96,30,960.00
B	Stock, Storage & Insurance @ 3 % of A				2,88,928.80
C	Sub Total (A+B)				99,19,888.80

D	Contingency @ 3 % of C	2,97,596.66
E	Tools & Plants Charges @ 2% of C (Not considered)	-
F	Transportation @ 7.5% of C	7,43,991.66
G	Total (C+D+E+F)	1,09,61,477.12
H-1	Sub Total (Erection Portion + Civil Portion)	54,18,458.17
H-2	Applicable Taxes to make it Landed Cost @18%	-
H	Total landed Cost (H=H1 + H2)	54,18,458.17
I	Total Cost (G+H)	1,63,79,935.29
J	Other Overhead /(including Supervision Charges) @ 6 % of I	9,82,796.12
K	Total Estimated Capital Cost i.e. (I+J)	1,73,62,731.41
L	GST @ 18% of K	31,25,291.65
M	CESS @ 1% of L	1,73,627.31
N	Grand Total (K+L+M)	2,06,61,650.38
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of Drawing Checking and Approval	400.00
R	Final decision by electrical Inspector	500.00
S	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	2,06,62,800.38

Construction of one number of 33KV Incomer DP with Isolator at Proposed Manguli PSS.

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	84	75	6,309.60
2	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	251	75	18,849.60
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	88	75	6,615.00
5	Pipe Earthing 40mm. GI Pipe	No.	2	1050	2,100.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	100	75	7,500.00
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	3	10350	31,050.00
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	4	75	300.00
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	1	71580	71,580.00
10	PG Clamp for 148 sq.mm AAA conductor	NO.	6	620	3,720.00
	MATERIALS OF 4 POLE				

11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	0	75	-
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator (0.4mtr X2) (GI)	KG	0	75	-
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	0	75	-
14	Pipe Earthing 40mm. GI Pipe	No.	0	1050	-
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	0	75	-
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	0	10350	-
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	0	75	-
18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	0	71580	-
19	PG Clamp for 148 sq.mm AAA conductor	NO.	0	620	-
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	0	75.00	-
	MATERIALS OF LINE				
21	WBP 160x160-13M 30.44KG/MTR	No	2	29679.00	59,358.00
22	33 KV V cross Arm (GI) 22Kg each	No.	0	1580.00	-
23	Top bracket 100x50mm MS channel (2kg each)/	No.	0	150.00	-
24	33KV pin insulator polymer	No.	6	480	2,880.00
25	H W fitting(B&S)90KN,4 Bolt	No.	6	500	3,000.00
26	Disc insulator (B&S)90 KN polymer	No.	6	1150	6,900.00
27	H.T. Stay set (Complete)	Set	2	1050.00	2,100.00
28	H.T. Stay Insulator	No.	2	40.00	80.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	2	125.00	250.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	30	75.00	2,250.00
31	Earthing of Support (Coil Type)	No.	0	166.00	-
32	148 mm2 AAAC	K.M.	0	82000.00	-

33	Red Oxide paint	Ltr	1	150.00	150.00
34	Alluminium Paint	Ltr	1	200.00	200.00
35	Black Paint	Ltr	2	220.00	440.00
36	Yellow Colour Paint for Background	Ltr	2	220.00	440.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	6	75.00	450.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	15	78.00	1,170.00
39	Danger Plate	No.	2	80.00	160.00
A-1	Total Cost of materials				2,27,852.20
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				2,27,852.20
B	Stock, Storage & Insurance i.e 3% of A				6,835.57
(A+B)	Sub Total				2,34,687.77
C	Contigency @ 3% of (A+B)				7,040.63
D	Tools & Plants @ 2% of (A+B)				4,693.76
E	Transportation @ 7.5% of (A+B)				17,601.58
F	Erection Charges @ 5% on Trf/Breaker/Joist				3,056.94
G	Erection Charges @ 10% of other items				17,354.90
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				2,84,435.58
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	2	2000.00	4,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	1.1	8446.00	9,290.60
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	2	676.00	1,352.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	2407	4,814.00
J1	Total Civil & Services				19,456.60
J2	Applicable Taxes to make it Landed Cost @18%				-
J	Total landed Cost (J=J1 + J2)				19,456.60
K	Total Material+Services (I+J)				3,03,892.18
L	Other overheads (Including 6% supervision charges)				18,233.53
M	SubTotal (K + L)				3,22,125.71
N	Total GST @ 18% of (M)				57,982.63
O	CESS @ 1% of (M)				3,221.26
P	Gross Total Material +Services (M+N+0)				3,83,329.59

Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	3,84,229.59

Construction of 11kv OH line of lentgh of 5 Ckm over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length with 11kv U/G,XLPE of lentgh of 0.8 km .Total no of 11kv feeders=3.

No of WBP POLE - 142nos, Cut point - 5nos , Pin points - 105nos,DP without ABS-6nos,DP with ABS-8nos

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	803	75	60,228.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	1542	75	1,15,668.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	756	75	56,700.00
5	Pipe Earthing 40mm. GI Pipe	No.	28	1050	29,400.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	1400	75	1,05,000.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	42	3550	1,49,100.00

8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	56	75	4,200.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	8	11850	94,800.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	84	580	48,720.00
	MATERIALS OF 4 POLE				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	229	75	17,208.00
12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator (3mtr X2) (GI)	KG	428.4	75	32,130.00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	252	75	18,900.00
14	Pipe Earthing 40mm. GI Pipe	No.	4	1050	4,200.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	200	75	15,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	3	7750	23,250.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	16	75	1,200.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	2	11850	23,700.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	6	580	3,480.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	172	75.00	12,906.00
	MATERIALS OF LINE				
21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter) (Each 335.06kg))	No	142	25113.00	35,66,046.00
22	11 KV V cross Arm (10.2 K.g. each)	No.	105	810.00	85,050.00

23	Top bracket 100x50 mm GI channel (2kg each)	No.	105	170.00	17,850.00
24	11 K.V. Pin Insulator (Polymer)	No.	315	200	63,000.00
25	11 K.V. H.W. Fitting (B & S) 70 KN 3 Bolt	No.	120	351	42,120.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	120	1150	1,38,000.00
27	H.T. Stay set (Complete)	Set	42	1050.00	44,100.00
28	H.T. Stay Insulator	No.	42	50.00	2,100.00
29	H.T. Stay clamp (1.95 K.g./ Pair)	Pair	42	125.00	5,250.00
30	7/10 SWG Stay Wire 15kg /stay	K.g.	630	75.00	47,250.00
31	Earthing of Support (Coil Type)	No.	110	166.00	18,260.00
32	100 mm2 AAAC	K.M.	15.45	55000.00	8,49,750.00
33	Red Oxide paint	Ltr	142	150.00	21,300.00
34	Alluminium Paint	Ltr	142	200.00	28,400.00
35	Black Paint	Ltr	142	220.00	31,240.00
36	Yellow Paint	Ltr	142	220.00	31,240.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	426	75.00	31,950.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	552.5	78.00	43,095.00
39	Danger Plate	No.	142	80.00	11,360.00

A-1	Total Cost of materials				58,93,151.00
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				58,93,151.00
B	Stock, Storage & Insurance i.e 3% of A				1,76,794.53
(A+B)	Sub Total				60,69,945.53
C	Contigency @ 3% of (A+B)				1,82,098.37
D	Tools & Plants @ 2% of (A+B)				1,21,398.91
E	Transportation @ 7.5% of (A+B)				4,55,245.91
F	Erection Charges @ 5% on Trf/Breaker/Joist				1,83,651.37
G	Erection Charges @ 10% of other items				2,39,691.82
H	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				0.00
I	Sum of (A + B to H)				72,52,031.91
Civil & Services					
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	42	2000.00	84,000.00
2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	63.9	8446.00	5,39,699.40
3	Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	142	676.00	95,992.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	32	2407	77,024.00
J1	Total Civil & Services				7,96,715.40
J2	Applicable Taxes to make it Landed Cost @18%				-

J	Total landed Cost (J=J1 + J2)	7,96,715.40
K	Total Material+Services (I+J)	80,48,747.31
L	Other overheads (Including 6% supervision charges)	4,82,924.84
M	SubTotal (K + L)	85,31,672.14
N	Total GST @ 18% of (M)	15,35,700.99
O	CESS @ 1% of (M)	85,316.72
P	Gross Total Material +Services (M+N+0)	1,01,52,689.85
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
T	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	1,01,53,789.85

Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable	km	0.8	15,00,000.00	12,00,000.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	25,317.00	-
1.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		9,582.00	-
1.4	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	13,904.00	1,11,232.00
1.5	Supply of HDPE PE 80-PN8 pipe of 160mm diameter (for 400sqmm HT cable laying)	km	0.8	10,91,237.00	8,72,989.60
2	Supply of materials for 11kV, 3Core, 300sqmm, XLPE insulation armoured UG cable with accessories				
2.1	Supply of 11kV, 3Core, 300sqmm, XLPE insulation armoured UG cable	km	0	11,95,000.00	-
2.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 300 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	25,317.00	-
2.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300 sqmm, HT UG cable for 3Core (Set)	Set		9,073.00	-
2.4	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300 sqmm, HT UG cable for 3Core (Set)	Set		13,220.00	-
2.5	Supply of HDPE PE 80-PN8 pipe of 160mm diameter (for 300sqmm HT cable laying)	km	0	10,91,237.00	-
3	Supply of materials for 11kV, 3Core, 185sqmm, XLPE insulation armoured UG cable with accessories				
3.1	Supply of 11kV, 3Core, 185sqmm, XLPE insulation armoured UG cable	km	0	8,55,000.00	-

3.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 185 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	23,184.00	-
3.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 185 sqmm, HT UG cable for 3Core (Set)	Set		8,505.00	-
3.4	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 185 sqmm, HT UG cable for 3Core (Set)	Set		11,756.00	-
3.5	Supply of HDPE PE 80-PN8 pipe of 110mm diameter (for 185sqmm HT cable laying)	km	0	5,20,436.00	-
4	Supply of materials for 11kV, 3Core, 120sqmm, XLPE insulation armoured UG cable with accessories				
4.1	Supply of 11kV, 3Core, 120sqmm, XLPE insulation armoured UG cable	km	0	6,59,000.00	-
4.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 120 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	23,149.00	-
4.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 120 sqmm, HT UG cable for 3Core (Set)	Set		8,505.00	-
4.4	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 120 sqmm, HT UG cable for 3Core (Set)	Set		11,756.00	-
4.5	Supply of HDPE PE 80-PN8 pipe of 110mm diameter (for 120sqmm HT cable laying)	km	0	5,20,436.00	-
6	Supply of materials for 11kV, 3Core, 95sqmm, XLPE insulation armoured UG cable with accessories				
6.1	Supply of 11kV, 3Core, 95sqmm, XLPE insulation armoured UG cable	km	0	5,71,000.00	-
6.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 95 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	17,483.00	-
6.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 95 sqmm, HT UG cable for 3Core (Set)	Set		7,106.00	-
6.4	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 95 sqmm, HT UG cable for 3Core (Set)	Set		10,949.00	-
6.5	Supply of HDPE PE 80-PN8 pipe of 110mm diameter (for 95sqmm HT cable laying)	km	0	5,20,436.00	-
2	Supply of 11kV RMU				
2.1	Supply of 11kV RMU 3 Way,2 Iso& 1 Brk 630A Outdoor (LLV)	Nos.	0	3,89,400.00	-
2.2	Supply of RMU, 3WAY, WITH ISOLATORS, 11KV, 630A (LLL)	Nos.	0	2,94,075.49	-
2.3	Supply of 11kV RMU 4 Way 2 Iso & Brk 630A OUTDOOR (LLVV)	Nos.	0	5,21,494.62	-
2.4	Supply of RMU, 4WAY, WITH ISOLATORS, 11KV, 630A (LLLL)	Nos.	0	3,92,526.82	-
2.5	Supply of RMU 3W 11kV with CTPT Unit motorized O/D (LLV+M)	Nos.	0	7,30,023.05	-
2.6	Supply of RMU 4W 11kV with CTPT Unit Non Ext O/D (LLVV+M)	Nos.	0	9,25,428.22	-
3	Earthing				

3.1	Earthing Conductor: 50X6 mm (2.4kg./mtr.) GI Flat for equipment, structure etc.)	kg	0.00	75.00	-
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	0	1,050.00	-
	Sub Total (Supply Portion) (in Rs.)				21,84,221.60
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0	2,08,229.35	-
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	3,062.68	-
1.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,470.29	-
1.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,837.61	14,700.88
1.5	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 160mm dia.	km	0.72	14,13,306.01	10,17,580.33
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
2	Laying, Commissioning, Testing of 11kV, 3core, 300sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
2.1	Laying, Commissioning, Testing of 11kV, 3core, 300sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0	2,08,229.35	-
2.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits for 3core (set)	Set	0	3,062.68	-
2.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,470.29	-
2.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,837.61	-
2.5	Laying, Commissioning, Testing of 11kV, 3core, 300sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 160mm dia.	km	0	14,13,306.01	-
2.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-

3	Laying, Commissioning, Testing of 11kV, 3core, 185sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
3.1	Laying, Commissioning, Testing of 11kV, 3core, 185sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0	1,95,980.63	-
3.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 185sqmm, aluminium UG cable kits for 3core (set)	Set	0	3,062.68	-
3.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 185sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,837.61	-
3.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 185sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,470.29	-
3.5	Laying, Commissioning, Testing of 11kV, 3core, 185sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 110mm dia.	km	0	13,99,890.88	-
3.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
4	Laying, Commissioning, Testing of 11kV, 3core, 120sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
4.1	Laying, Commissioning, Testing of 11kV, 3core, 120sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0	1,95,980.63	-
4.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 120sqmm, aluminium UG cable kits for 3core (set)	Set	0	3,062.68	-
4.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 120sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,837.61	-
4.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 120sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,470.29	-
4.5	Laying, Commissioning, Testing of 11kV, 3core, 120sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 110mm dia.	km	0	13,99,890.88	-
4.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
5	Laying, Commissioning, Testing of 11kV, 3core, 95sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
5.1	Laying, Commissioning, Testing of 11kV, 3core, 95sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0	1,95,980.63	-
5.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 95sqmm, aluminium UG cable kits for 3core (set)	Set	0	3,062.68	-
5.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 95sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,837.61	-
5.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 95sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,470.29	-

5.5	Laying, Commissioning, Testing of 11kV, 3core, 95sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 110mm dia.	km	0	13,99,890.88	-
5.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way,2 Iso& 1 Brk 630A Outdoor (LLV)	Nos.	0	3,587.96	-
2.2	Erection of RMU, 3WAY, WITH ISOLATORS, 11KV, 630A (LLL)	Nos.	0	3,587.96	-
2.3	Erection of 11kV RMU 4 Way 2 Iso & Brk 630A OUTDOOR (LLVV)	Nos.	0	4,813.03	-
2.4	Erection of RMU, 4WAY, WITH ISOLATORS, 11KV, 630A (LLLL)	Nos.	0	4,813.03	-
2.5	Erection of RMU 3W 11kV with CTPT Unit motorized O/D (LLV+M)	Nos.	0	4,813.03	-
2.6	Erection of RMU 4W 11kV with CTPT Unit Non Ext O/D (LLVV+M)	Nos.	0	4,813.03	-
	Sub Total (Erection Portion) (in Rs.)				10,32,281.21
Sl. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of soil	Cum	0	201.62	-
1.1.b	Earth work excavation of hard rock	Cum	0	884.35	-
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	0	171.55	-
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	0	479.74	-
1.4	Back filling with excavated soil outside and above the trench	Cum	0	30.28	-
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0	26,43,670.63	-
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.2	Prefabricated RCC foundation of 11kV RMU	Nos.	0	10,265.10	-

2.3	Prefabricated RCC foundation of 11kV RMU with metering unit	Nos.	0	11,735.61	-
3	Supply of Galvanised Fencing around each RMU with height 2 mtr for external protection	sqmtr	0	4,668.00	-
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,607.00	1,02,848.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	27	376.13	10,155.51
	Sub Total (Civil Portion) (in Rs.)				1,13,003.51
A-1	Sub Total (Supply Portion)				21,84,221.60
A-2	Applicable Taxes to make it Landed Cost @18%				-
A	Total landed Cost (A=A1 + A2)				21,84,221.60
B	Stock, Storage & Insurance @ 3 % of A				65,526.65
C	Sub Total (A+B)				22,49,748.25
D	Contingency @ 3 % of C				67,492.45
E	Tools & Plants Charges @ 2% of C (Not considered)				-
F	Transportation @ 7.5% of C				1,68,731.12
G	Total (C+D+E+F)				24,85,971.81
H-1	Sub Total (Erection Portion + Civil Portion)				11,45,284.72
H-2	Applicable Taxes to make it Landed Cost @18%				-
H	Total landed Cost (H=H1 + H2)				11,45,284.72
I	Total Cost (G+H)				36,31,256.53
J	Other Overhead /(including Supervision Charges) @ 6 % of I				2,17,875.39
K	Total Estimated Capital Cost i.e. (I+J)				38,49,131.92
L	GST @ 18% of K				6,92,843.75
M	CESS @ 1% of L				38,491.32
N	Grand Total (K+L+M)				45,80,466.99
O	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
P	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of Drawing Checking and Approval				400.00
R	Final decision by electrical Inspector				500.00
S	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)				45,81,616.99

8) Benefits

- Technical loss saving of 114kw on 33kv and 91kw on 11kv level
- N-1 redundancy for All important installations
- Minimization of interruption.
- Strengthening of distribution network.

9) Conclusion

Proposed s/s at Manguli is necessary after considering the length of 11 kV feeder and poor voltage profile which caters power supply to the subject areas. Based on the present and future

load growth, installation of 2x8 MVA s/s GIS Indoor is proposed along with SCADA compatibility. The cost is as per OERC approved rates and Capex rates. Rates of some of the items which are not available in OERC approved rates and Capex rates are considered from Competitive Market prices, SCRIPS. The BoQ and Cost estimate of 33/11 kV s/s (GIS Indoor), 33 kV line and 11 kV line are finalized in consultation with NEG, STS, Projects and Division.