

Record note of the Review Meeting on the Performance of OPTCL for the period from April 2023 to March 2024 (FY2023-24)

Date of Review : 23.08.2024 at 11:00 A.M.
 Period of Review : FY 2023-24 (April 2023 to March 2024)
 Representative of OPTCL Present : As per the list enclosed as Annexure-1.

The Performance of OPTCL for FY 2023-24 was reviewed by the Commission on 23.08.2024. The presentation was made by OPTCL on various performance parameters. During the review, financial status, the status of completed/ongoing/upcoming projects, major O&M activities, the status of telecom projects and steps taken by the IT & HRD wing of OPTCL were discussed/deliberated in detail.

1. The performance of OPTCL with reference to the existing transmission system and various ongoing transmission projects has been discussed in the following paragraphs.

In compliance with the observation of the Commission on the previous Annual Performance of OPTCL for FY 2022-23, OPTCL has highlighted the Key Performance Indicators (KPI) such as Transmission Loss and Transmission System Availability. OPTCL stated that since 2007-08, the Transmission Loss (%) has been decreasing and is lower compared to other states such as Assam, Maharashtra, Gujarat, and Uttar Pradesh. As per OPTCL, the Transmission System Availability for FY 2020-21 & FY 2021-22 is 99.98% and for FY 2022-23 is 99.97% and it is anticipated to achieve 99.98% in FY 2023-24. To reduce forced outages, OPTCL has also taken innovative steps such as Drone based condition monitoring of transmission assets, implementation of Automated Fault Analysis System (AFAS) & Remote Accessibility System (RAS), Nitrogen Injection Fire Prevention & Extinguisher System (NIFPES), PG-DARPAN software for patrolling of Transmission lines of OPTCL & Remote monitoring through SCADA. OPTCL has submitted that none of the ICT and power Transformers have failed during FY 2023-24. However, there are some breakdowns of CT, PT, LA, Isolator, and Wave Trap including the failure of 4 Nos. of transmission towers during the period.

2. The present status of the transmission assets available with OPTCL is as follows:

	Voltage Level	As on 31.03.2023	Addition during FY 2023-24	As on 31.03.2024
No. of Grid/ Sub-stations	132 kV	138	4	142
	220 kV	45	2	47
	400 kV	5		5
Total (Nos.)		188	6	194
EHT Line (CKT KM)	132 kV	8156.737	323.094	8479.831
	220 kV	6675.772	155.593	6831.365
	400 kV	1196.872	-	1196.872
Total (CKT KM)		16029.381	478.687	16508.068

Transformation Capacity (MVA)	132 kV	9843.5	317.5	10161
	220 kV	11666	606	12272
	400 kV	3835	-	3835
Total (MVA)		25344.5	923.5	26268

3. OPTCL has submitted that 09 nos. of transmission projects (06 nos. of Substations, 03 nos. of transmission line) have been completed during the FY 2023-24 with a total investment of about Rs.374.25 Cr. OPTCL has further submitted that the present status of 37 nos. of ongoing projects, which includes 25 Nos. of Substations along with associated transmission lines (one 400 kV, 11 Nos. of 220 kV, 13 Nos. of 132 kV) and 12 nos. of other transmission projects (mainly independent transmission lines and 1 no Bay extension)]. The 400 kV S/s at Paradeep is expected to be commissioned by April, 2025 and other ongoing 11 nos. of 220 kV Sub-stations & 13 nos. of 132 kV Sub-stations and 12 nos. of other projects are expected to be commissioned during the period from FY 2024-25 to FY 2025-26. The total cost of the ongoing projects is Rs.2598.36 Cr., but the actual expenditure incurred till 31.03.2024 is Rs.1115.74 Cr.
4. Regarding O&M activity, OPTCL has stated that many existing Substations at different voltage levels have been augmented with higher transformation capacity during the period under review due to increased load/overloading of transformers. During FY 2023-24, OPTCL has augmented 4 nos. of S/s with the addition of 77.5 MVA transformation capacity at an investment of Rs. 13.87 Cr. The increase in transformation capacity of 4 nos. of S/s has been carried out in the area of operation of TPWODL (Rourkela S/s: 145 MVA to 150 MVA), TPNODL (Barbil S/s: 25 MVA to 45 MVA) TPSODL (Muniguda S/s: 12.5 MVA to 32.5 MVA & Potangi S/s: 20 MVA to 32.5 MVA) and TPCODL (Goda S/s: 360 MVA to 380 MVA).
5. In addition to the above, OPTCL is in the process of executing the conversion of the New Bolangir-Sonepur 132 kV S/c line to D/c line and LILO of Akhusing – Parakhemundi 132 kV line at Gunupur at an investment of Rs.9.17 Cr. As a part of major activity under O&M, OPTCL is executing conductor replacement of 132 kV Kendrapara-Paradeep Ckt I & II (35 km.) and replacement of ACSR Zebra conductor to HTLS conductor of Bisra-Tarkera 220 kV D/c line (15 km) for improvement in reliability of existing transmission system.
6. As a part of major technical works under the O&M wing, OPTCL has issued a work order to M/s. PRDC for Automated Fault Analysis System (AFAS) and Remote Accessibility System (RAS) at an investment of Rs. 9.58 Cr. The Infrastructure of the Remote Accessibility System (RAS) is meant to gather the control of all IEDs (Intelligent Electronic Device) installed in the transmission system over a communication network where all IEDs can be accessed for configuration, DR data storage and analysis, data point monitoring etc. This will enable better facilities for

- fault data analysis and information processing. OPTCL is implementing the State Transmission Asset Management System (STAMS) of which RAS implementation is a part and shall be commissioned in due course of time. Further, the erection & commissioning of NIFPES (Nitrogen Injection type Fire Prevention & Extinguisher System) has been completed in 53 nos. of ICT & Auto transformers in 28 Nos. of GSS.
7. OPTCL has submitted that Substation Automation Scheme (SAS) has been completed in 27 nos. of existing Sub-stations (Brajarajnaragar, Karanjia, Basta, Anandpur, Argul, Shamuka, Kuchinda, Rayagada, Laxmipur, Bhawanipatna, Jajpur, Kendrapara, Aska, Banki, Chainpal, Dhenkanal, Phulnakhara, Kharagprasad, Khajurikata, Bhubaneswar, Puri, Rairangpur, Nayagarh, Ramasinghpur, Khurda, Balasore & Bidanasi) and SAS work for 6 nos. of Substations at Sunabeda, Paradeep, Budhipadar, Katapali, Narendrapur & New-Bolangir is under progress.
 8. Under Telecom activities, OPTCL has submitted that the installation of 78 Nos. of RTUs against the replacement of 51 Nos. of old RTUs and 27 Nos. of new RTUs has been completed. OPTCL has also laid 392 Ckt. km. of OPGW in FY 2023-24 resulting in total OPGW network of about 6332 Ckt km. (24 fibre) as on 31.03.2024, out of which OPTCL has used 25328 fibre km. and leased 26009 fibre km. and is earning a revenue of around Rs.11.75 Cr. by way of leasing dark fibres to Power Grid, BSNL, LWTPL, WEF, SITI Cables, New Moon Telelink, GTPL KCBPL, Airtel, Light storm, Vodafone, RailTel, Tata Communication, etc.
 9. Under IT activities, it is submitted that the development phase of SAP S4/ HANA implementation for OPTCL & SLDC is nearing completion and User Acceptance Testing (UAT) is currently underway. OPTCL has completed the Geographical Information System (GIS) survey of 28 Nos. of Grid S/s consisting of 3590 nos. of EHT towers & 863 route kms. Power Atlas has been prepared for 155 nos. of Grid Substation and 33046 nos. of EHT towers covering 9290.44 route kms. Further, in Phase III of the implementation of GIS, OPTCL has taken up 38 nos. of grid s/s consisting of 4598 nos. of EHT towers. The contract for implementing an Information Security Management System (ISMS) leading to ISO 27001:2022 certification for OPTCL, including its Data Centre, SLDC & GRIDCO is under progress.
 10. OPTCL has undertaken drone-based survey for the existing 220 kV Mendhasal – Bidanasi D/c line and 132 kV Puri-Nimapara D/c Line to take the photographs in the zoomed manner for 360-degree supervision and monitoring of the EHT towers. Higher resolution images of Towers can be captured through the camera fitted in a UAV (Drone) that cannot be seen well from the ground. Abnormalities that are invisible to the naked eye or binoculars from the ground level can be detected through drone-based monitoring. By using these outputs and evaluation, OPTCL has undertaken corrective action for vibration damper positioning, re-conductoring of spans, tower painting and member replacement, cross-arm fabrication, insulator replacement, etc.

Further OPTCL has invited bids for Drone-based survey of about 3000 Nos. of towers, which are critical & inaccessible and are part of highly loaded lines connected to 400 kV Substations.

11. OPTCL's Line Assets Monitoring and Patrolling (O-LAMP) is a Geo-Fencing enabled Android-based Based Mobile Application integration with the existing GIS application for taking corrective action based on the abnormalities found/observed in the drone-based survey. It can also be extended for the walk-over line patrolling. It is an extended version software service of PG-DARPAN being undertaken by PGCIL. The main purpose of this project is to ensure & facilitate systematic and periodic patrolling of EHT lines, towers and Substations by patrolling persons. Each lineman will be authenticated to carry an Android mobile phone and to visit each tower. The detailed location of each tower has already been geo-recorded and kept in the O-LAMP GIS database. When a patrolling person reaches within 50 meters of any tower location, the tower link will be activated and it will pop up a form that contains questionnaires relating to the condition of EHT towers such as stub condition; missing conductors; rusting of members; condition of cross arms, insulators & jumper, nut & bolt of members; position of vibration dampers; & OPGW connectivity, etc. The patrolling person will fill up the form and observe the abnormality in tower condition using binoculars and can take photographs, if necessary, which can be uploaded. In the backend, it will be uploaded after due validation into the database that is kept in the central server. The database will be analysed and based on the severity of the problem instructions will be issued through system-generated messages to the concerned persons in the hierarchy to take corrective actions. Senior executives will also be alerted when to carry out periodical patrolling of towers on a sample basis. This will ensure regular patrolling of the critical towers. Based on feedback from patrolling, corrective actions can be undertaken to maintain the healthiness of assets and improve system availability.
12. The status of the project including their cost as submitted by OPTCL during the review is mentioned below:

Sl. No.	Items	Details of Projects	Cost (Rs. in Cr.)
1	Projects completed	Sub-station - 06 Nos.	311.77
		Lines - 03 Nos.	62.48
		Total	374.25
2	Ongoing Projects	400 kV S/s – 01 No	2598.36
		220 kV S/s – 11 Nos.	(Expenditure till 31.03.2024 – Rs.1115.74 Cr.)
		132 kV S/s - 13 Nos.	
		Others - 12 Nos.	
3	Augmentation of S/s capacity (4 Nos. of S/s with 77.5 MVA capacity addition)	Two S/S in TPSODL's area of operation – 32.5 MVA	
		One S/S in TPWODL's area of operation – 05 MVA	4.15
		One S/S in TPNODL's area of operation – 20 MVA	3.87
		One S/S in TPCODL's area of operation – 20 MVA	2.8
		Total	13.87

4	Conversion of S/c line to D/c line	132 kV New Bolangir –Sonepur	6.27
		132 kV Akhusingh –Paralakhemundi LILO at Gunupur	2.90
		Total	9.17
5	Major technical works under the O&M wing	Automated Fault Analysis System (AFAS) & Remote Accessibility System (RAS)	9.58
		Nitrogen Injection type fire prevention & extinguishing system (NIFPES)	14.18
		Total	23.76
6	Telecom Projects	Provision of RTU under old RTU replacement scheme & for new S/s (Completed)	06.20
		SCADA interface point at vital 132 kV S/s of OPTCL by laying OPGW (1745 km.) Closed	52.54
		OPGW for balance line sections in OPTCL with PSDF support (2289 km) (Completed)	58.21
		Total	116.95

13. Under HRD activities, OPTCL has submitted that considering both executive & non-executive posts, there are about 3099 nos. of vacancies existing against the sanctioned strength of 5894 nos. OPTCL has recruited 92 nos. of officers/staff against various positions during the FY 2023-24 and has provided training to 1509 no. of participants under 72 no of training programme comprising of 15504 training man-days during FY 2023-24. Under Corporate Social Responsibility (CSR) OPTCL has spent Rs. 2.97 Cr. against various CSR activities such as Contribution to Odisha State Disaster Management Authority (OSDMA), free residential coaching to meritorious and EWS students, construction of hospital building, traffic awareness programme at Bhadrak, construction/repair of water supply system at Berhampur, distribution of safe & cold drinking water to public during summer. OPTCL has designed a grievance portal "OPTCL Samadhan Cell (eSamadhan)" to address the grievances of its employees regarding the service provided by OPTCL. Further, OPTCL has designed an Employee Portal named "My Portal" in which various HR-related works are performed.
14. OPTCL has submitted that it has an equity base of Rs.2442.78 Cr. and a total loan of Rs.2102.88 Cr. as on 31.03.2024. OPTCL has a capital expenditure of Rs.686.16 Cr. during FY 2023-24.
15. As submitted, OPTCL has handled 35,129 MUs (excluding IMFA, NALCO, BEL & ABREL) of energy against OERC's approval of 37,348 MUs during FY 2023-24. During this period, OPTCL has earned revenue of Rs.1155.74 Cr. against OERC's approval of Rs.1196.80 Cr. during the FY 2023-24 resulting in a gap of about Rs.119 Cr. The detailed comparative statement is presented in the Table below:

Approved vis-à-vis Actual for FY 2023-24

Source	APPROVED BY OERC FOR 2023-24			ACTUAL FOR 2023-24			
	Energy handled (MU)	Rate P/U	Amount Billed (Rs. Cr.)	Energy (MU)	Rate P/U	Amount Billed (Rs. Cr.)	Payment Received after rebate & TDS (Rs. Cr.)

TPCODL	11,191.62	24.00	268.60	11291.77	24.00	271.00	260.27
TPNODL	7,445.77	24.00	178.70	7032.01	24.00	168.77	162.02
TPWODL	13,261.33	24.00	318.27	12483.89	24.00	299.62	287.64
TPSODL	4,771.28	24.00	114.51	4321.73	24.00	103.74	100.63
TOTAL DISCOMs	36,670.00	24.00	880.08	35129.40	24.00	843.13	810.55
CGPs Wheeling	678.00	24.00	16.27	Billing is done as per the Contracted Capacity	24.00	22.08	
Sale to CPP							
Misc. Receipts			300.45			290.53	
SUBTOTAL	678.00		316.72			312.61	
GRAND TOTAL	37,348.00		1,196.80	35129.40	24.00	1155.74	
Total Expenditure		1,196.63				1274.85	
GAP		0.17				(119.10)	

16. OPTCL has reported that during the FY 2023-24 total cash inflow is Rs.2148.35 Cr. which includes receipt of Transmission charges of Rs. 808.62 Cr. from DISCOMs, other revenue & miscellaneous income of Rs.309.19 Cr. and the other Capital receipts is Rs. 1030.54 Cr. Similarly, the total cash outflow is Rs.2246.48 Cr. which includes employee expenses & terminal benefits of Rs.923.06 Cr, capital works of Rs. 770.58 Cr., repayment of loan and interest and financial charges of Rs. 272.06 Cr., R&M and A&G expenses of Rs.190.08 Cr. and other liabilities of Rs.90.69 Cr. The breakup of the above are given below: -

(Rs. in Crore)

Particulars	Revenue	Capital	Total
Receipts	1117.81	1030.54	2148.35
Expenditure	1346.14	900.34	2246.48

17. OPTCL has reported that many transmission projects remain unutilized/idle or underutilized due to the lack of connectivity with the downstream network of DISCOMs. Further, OPTCL has shared the list of the projects with DISCOMs that are going to be charged in this financial year and has requested DISCOMs to complete the downstream network within a scheduled time frame to ensure that the Grid Substation is not left idle.
18. TPCODL & TPWODL emphasized upon early completion of transmission projects to mitigate low voltage issues and to cater the load growth. Further, the Substation having a single transformer should be provided with additional transformers considering N-1 contingency.
19. The Commission has the following observations/ directions for necessary action:
- (i) The Commission observed that, as per the 14th Intra State Transmission

Planning study report, transmission loss for FY 2023-24 is 2.76% whereas the actual transmission loss for the same period is 3.11%. States like Andhra Pradesh, Madhya Pradesh, and Karnataka, which have larger networks than Odisha, have managed to maintain lower transmission losses (less than 3%). Therefore, OPTCL should investigate the reasons behind the high transmission loss and implement various measures to reduce it.

- (ii) The Commission raised concerns regarding the low average loading of the Substations which is also one of the reasons for high Transmission Loss. To reduce the transmission loss, OPTCL should take steps to increase the average loading of the GSS instead of adding more Substations in close vicinity of the existing substations. Further, the Commission directs OPTCL to consider expansion of the transmission network at 220 kV level like the upgradation of its existing 132 kV Grid Substations to 220 kV level wherever feasible, etc. to meet future load growth and to reduce transmission loss.
- (iii) OPTCL should consider the use of drone technology for route survey & stringing of transmission lines in inaccessible areas in addition to condition monitoring of transmission line tower members, insulators, conductors & hot spots at jumper locations, etc.
- (iv) OPTCL has evaluated/calculated the system availability of 99.97% for FY 2023-24 based on the provision of relevant Regulations. The Commission directs OPTCL to indicate the actual & deemed availability and outage duration due to overvoltage on account of light loading of transmission lines.
- (v) As understood, the modern Nitrogen Injection Fire Prevention & Extinguisher System (NIFPES) is capable of operating in prevention as well as protection mode unlike the old system which operates only in prevention mode, minimizing the damage to the transformer due to both internal & external fire avoiding the spread of fire. Accordingly, OPTCL needs to take action for the procurement of such fire protection systems in consultation with suppliers of such systems.
- (vi) The Commission had directed earlier for implementation of the Islanding Scheme in some of the major cities on a pilot basis, for which support from PSDF is available, but no action has been taken yet in that direction. Therefore, the Commission directs OPTCL to explore/plan the Islanding Scheme for a city like Rourkela/Sambalpur/Bhubaneswar etc. on a pilot basis and engage a consultant, if required, for carrying out relevant study and assistance for implementing the scheme.
- (vii) It is observed that OPTCL primarily depends upon external agencies for conducting transmission system studies for the long-term planning of

transmission networks. Considering the role of OPTCL as STU, the Commission had advised OPTCL earlier to strengthen the in-house system study group as system study is an ongoing process and is the core activity of STU and after the implementation of GNA Regulations at the state level, the importance of transmission system study will increase further.

- (viii) The low voltage issue in the distribution system is one of the major concerns that can be resolved through proper coordination with DISCOMs. OPTCL need to ensure/ maintain the desired voltage at the 33 kV bus of the Grid Substations (the sending end voltage for DISCOMs) using the automatic operation of the On Load Tap Changer (OLTC) and locate the GSS of OPTCL considering the requirement of DISCOMs to address the low voltage issue. Further, as far as the installation of Capacitor Bank is concerned, the installation of Capacitor Banks at the HT level is more effective than at the EHT (132 kV/ 220 kV) level for improvement of voltage at the HT level. So, it is advisable to install Capacitor Banks by DISCOMs in PSSs to improve the voltage profile and power factor.
- (ix) The Commission observed that the failure rate of the Substation equipment (CT, PT & SA) is quite high. The reasons for the failure of transmission towers, CTs, PTs, SAs, etc. need to be analysed by OPTCL and corrective measures need to be taken to avoid repetition of such failure in future. The reason for such failure and remedial measures taken by OPTCL need to be submitted to the Commission.
- (x) The Commission directs OPTCL to consider “Dynamic Line Rating” for some corridors as a pilot project for optimum utilization of transmission lines which will help in avoiding additional transmission lines in some corridors.
- (xi) The Commission observed that many of the transmission projects are delayed for more than 4 years, particularly Grid Substation projects. The delay in execution of transmission projects results in increased costs and time overruns which ultimately burdens the end user/consumers. OPTCL has submitted that transmission line projects are often delayed due to various reasons such as Right of Way (RoW) issues, statutory clearances, forest clearances, administrative and contractual issues, etc. However, there is a mismatch in the completion schedule of the Substations and associated transmission lines. Furthermore, it is a matter of concern that completed substations are not being charged for years together due to delays in the commission of associated transmission line works for which the Substation equipment including transformers remain idle without energization leading to possible degradation of the transformer oil & winding and also in the process sacrificing the warranty period without operation of equipment. OPTCL need to execute

intrastate transmission projects (Substations, associated transmission lines) to match with upstream (ISTS system) and downstream distribution networks to avoid cost and time overruns, reducing the unnecessary burden of increased tariffs on consumers and for optimum utilization of assets created at upstream and downstream level.

- (xii) Number of substations and transmission lines of OPTCL have been in service for more than 40 years. Regular condition monitoring of such transmission assets and Residual Life Assessment (RLA) is required and proper planning is essential to replace such assets in a phased manner to improve reliability and availability of power supply.
 - (xiii) The Commission has repeatedly directed & advised OPTCL to go for standardization of the MVA capacity of the GSS as well as transformers in substations in line with National level guidelines and to keep adequate provision for future expansion in new GSS, which would help in the optimum utilization of assets and reduction in O&M cost. However, no visible action has been taken yet.
 - (xiv) OPTCL should ensure that the equity infusion is in line with the provision stipulated in the Regulations to minimize the tariff burden on the end consumers.
 - (xv) There is a need for capacity building and training at all levels (officers & staff) to strengthen the Human Resources of the organization and for the smooth running of the organization as a good number of experienced personnel are retiring every year.
 - (xvi) OPTCL is directed to inform about the status of GIS mapping of transmission assets covering each tower location and Substations at different voltage levels (132 kV, 220 kV & 400 kV) and the status of OPGW connectivity between Grid Substations. Further, OPTCL should take action so that the PLCC system can be phased out as early as possible.
20. The Chairperson, OERC in his concluding remarks while appreciating the good works done by OPTCL, stressed for the compliance with the observations of the Commission in a timely manner.

Annexure-1

Representatives of OPTCL

1. Sri B.B. Mehta, Director (SLDC), I/c Director (Operation)
2. Sri S. Panda, ED, Western Zone
3. Sri P. K Pattnaik, Sr. GM (ELE.)
4. Sri S.K.Ray, Sr. GM (Telecom)
5. Mrs. Anita Mahapatra, Sr. GM (HRD)
6. Sri C. R Mishra, GM, OPTCL
7. Sr M. R Das, DGM (Fin.), RT & C
8. Sri B. K Behera. DGM (Ele.), RT&C