

ORISSA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
UNIT – VIII, BHUBANESWAR – 751012

Present : Shri B K Das, Chairperson
Shri K C Badu, Member
Shri B K Mishra, Member

In The Matter of: Petitions under Section 62 and 86(1) (e) of ‘The Electricity Act, 2003’ for Determination and Declaration of Tariff for Power Procurement by the Distribution licensee/GRIDCO in State of Orissa from Grid Interactive Solar Photovoltaic Power Projects under Rooftop PV and Small Solar Generation Programmes (RPSSGP) announced by MNRE, GOI, on 16th June, 2010.

Case No. 58/2010

M/s Sahara India Power Corpn. Ltd.	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 60/2010

M/s Moser Baer Active Power Ltd	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 61/2010

M/s RSB Energy Pvt. Ltd	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 62/2010

M/s Alex Solar Pvt. Ltd	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 63/2010

M/s Alex Solar Pvt. Ltd	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 64/2010

M/s Abcus Holding Pvt. Ltd	.....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 68/2010

M/s MB Active Power Ltd Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 69 /2010

M/s Pan Time Finance Company Pvt. Ltd Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 70 /2010

M/s Shri Mahavir Ferro Alloys Pvt. Ltd., ... Petitioner
Vrs.
GRIDCO & Ors. ... Respondents

Case No. 71 /2010

M/s Shri Mahavir Hi-Tech Chemicals Pvt. Ltd. ... Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 72/2010

M/s Raajratan Energy Holdings Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 73/2010

M/s D.V. Traders Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 74/2010

M/s Legend Steels Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 75/2010

M/s Lakshya Suppliers Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 76/2010

M/s RSB Energy Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 77/2010

M/s Shanti Energy Projects Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 79/2010

M/s e10 Six Solar India Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 80 / 2010

M/s Great Eastern Power Projects Pvt. Ltd. Petitioner
Vrs.
CEO, CESU & Ors. Respondents

Case No. 82 / 2010

M/s Ananya Energy Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 83 / 2010

M/s Molisati Vinimay Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 84 / 2010

M/s S. N. Mahanty Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 85 / 2010

M/s OCL Iron & Steel Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 86 / 2010

M/s Seashore Securities Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 87 / 2010

M/s MGM Minerals Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 88 / 2010

M/s IDEN Technologies Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 89 / 2010

M/s Pragati Electrocom Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 90 / 2010

M/s Vaishali Agencies Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 91 / 2010

M/s Himco Finlease Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 92 / 2010

M/s Udhav Builder Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 93 / 2010

M/s VASA Pharmachem Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 94 / 2010

M/s Ananth Technologies Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 95 / 2010

M/s Jay Iron & Steels Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 96 / 2010

M/s Lingaraj Infrastructure Pvt. Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 97 / 2010

M/s Max-Tech Oil & Gas Services (Pvt). Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 98 / 2010

M/s Karthik Enterprises Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 99 / 2010

M/s Shiv-Vani Oil & Gas Exploration Services Ltd. Petitioner
Vrs.
GRIDCO & Ors. Respondents

Case No. 100 / 2010

M/s Citygold Management Services Pvt.Ltd.	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 101 / 2010

M/s KTR Enterprises Pvt.Ltd.	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 102 / 2010

M/s Citygold Farming Pvt.Ltd.	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 103 / 2010

M/s Patnaik Minerals Pvt.Ltd.	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 104 / 2010

M/s Citygold Education Research Ltd.	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Case No. 105 / 2010

M/s Maa Bhagabati Solar Farms Pvt.Ltd.	....	Petitioner
Vrs.		
GRIDCO & Ors.	.....	Respondents

Date of Hearing: 07.07.2010

Date of Order: 09.07.2010

ORDER

1. A group of petitioners/developers have filed petitions for determination of tariff for the procurement of power by distribution licensee / GRIDCO in the State of Orissa from Solar PV Power Projects from 100 KW upto 2 MW under MNRE guidelines. As the prayers of all the petitioners are common in nature the petitions are taken together for analogous hearing.
2. During the hearing some Developers/petitioners in Case Nos.82 of 2010 to 105 of 2010 mentioned that they had filed their applications on 6th July, 2010 and on the date of hearing itself, and requested to take up the matters during the present hearing. They prayed that due to fast approaching deadline fixed by IREDA their petitions may be disposed of with other similar petitions. GRIDCO and other respondents have no objection to take up their matters. The Commission, in the interest of the State, allowed the prayer of the developers/petitioners and heard along with other similar petitions. Some developers who had previously applied for tariff determination of their 3 MW and 5 MW Solar PV Power Plants also requested the Commission to

consider their case as 2 MW plant to avail the MNRE incentive. The Commission allowed the same.

3. Heard the petitioners and the respondents at length.

4. The background of the cases are as follows:

Ministry of New and Renewable Energy (MNRE) in order to give a thrust to rooftop PV and other Small Solar Power Plants connected to distribution network at Voltage level below 33 KV has launched a programme called Rooftop PV and Small Solar Power Generation Programme (RPSSGP) to provide Generation Based Incentives (GBI). The key features of the programme are as under:

- *The Project Proponents would be selected as per these guidelines for development of solar power projects to be connected to distribution network at voltage levels below 33 KV.*
- *The projects should be designed for completion before March 31, 2013.*
- *The local distribution utility in whose area the plant is located, would sign a Power Purchase Agreement (PPA) with the Project Proponent at a tariff determined by the appropriate State Electricity Regulatory Commission (SERC).*

5. The MNRE has issued the final guidelines for installation of Rooftop PV and Small Solar Power Plants under Jawaharlal Nehru National Solar Mission (JNNSM) on 16.06.2010 based on GBI. Project schemes from States wherein tariff tenure for duration of 25 years with tariff structures on levelled basis has been determined by SERCs shall alone be considered to be eligible to participate in this programme (RPSSGP). The GBI shall be equal to the difference between the tariff determined by the Central Electricity Regulatory Commission (CERC) and the Base Rate which will be Rs.5.50 per KWh (for financial year 2010-11) which shall be escalated by 3% every year. The GBI shall be payable to the distribution utility for a period of 25 years from the date of commissioning of the project.

IREDA has been designated as 'Programme Administrator' by the MNRE for administering the generation based incentive programme for rooftop PV and other small solar power plants. It is proposed to develop solar capacity of 100 MW under these guidelines. This capacity addition has been divided into two categories and the projects connected at HT level of distribution network with installed capacity of 100 KW and upto 2 KW is now open for registration with IREDA.

6. The all application for registration with Project Administrator (IREDA) shall have to fulfill the following condition namely:

- (a) Issuance of relevant tariff from the concerned SERCs (in case of Orissa - OERC).
- (b) MoU with Utility (in case of Orissa – GRIDCO).
- (c) Pre-registration Certificates from State Competent Authority (in case of Orissa – OREDA).
- (d) Commitment Guarantee of requisite amount.

7. The time frame for the Programme Management by the Project Administrator (IREDA) has been specified as follows:
 - i. Commencement of Registration by Programme Administrator (IREDA)- 15.07.2010.
 - ii. Announcement of initial short-listing – 16.08.2010.
8. All the project developers prayed before the Commission that the commencement of registration by Programme Administrator for installation of Rooftop PV and Small Solar Power Plants under JNNSM would start on 15.07.2010 by which time the eligibility criteria should have been fulfilled including levelled tariff for RPSSG Scheme with a tenure for a duration of 25 years.
9. During hearing M/s. Moser Baer, New Delhi submitted that the Solar power plant is a must run plant. While giving any scheduling instruction the principle of the must run plant should be kept in mind. The tariff from time to time may be revised but it should not be less than the solar energy purchase agreement initially agreed between the parties. They have applied to OREDA for Pre-registration certificate required for registering the project with the Programme Administrator (IREDA) and subsequently reporting progress on implementation of the project.
10. All the project developers submitted that their proposed power plants should be connected with nearest 33/11 KV sub-stations of DISCOMs and metering arrangement should be made at generating bus bar. They unanimously requested the Commission to direct the DISCOMs to bear the cost of interconnection arrangement from their generating bus bar. OPTCL prayed that Renewable Energy generator of 5 MW size should be connected to 33 KV side of Grid sub-station.
11. All the DISCOMs submitted that the connectivity cost upto DISCOM interconnection point should be borne by the Project Developers. The representative of Project Development Consultant urged the Commission that if OPTCL/DISCOMs failed to provide interconnection with their network in time then deemed generation Clause should be incorporated in the PPA.
12. Mr. R P Mohapatra representing some of the developers requested the Commission to direct GRIDCO to sign PPA with project developers quickly so that registration of the project could be made with IREDA on 15.07.2010 otherwise State would lose a big opportunity.

Commission's Observations:

13. The Commission heard all the petitioners and the respondents including OREDA, GRIDCO, OPTCL, DISCOMs and SLDC. The Commission also very carefully perused the guidelines of the MNRE and the statutory provision under section 86(1)(e) of the Electricity Act, 2003 which mandates the Commission to promote co-generation and generation of electricity from renewable sources of energy. Based on these inputs and statutory mandates the Commission decides to lay down the following for Power Plants coming up under Rooftop PV and Small Solar Power Generation Programme (RPSSGP) of MNRE.
14. Rooftop PV and Small Solar Power PV projects connected at HT level of distribution network with installed capacity of 100 kW and upto 2 MW would be eligible for

getting the preferential tariff determined by the Commission under this order. While issuing the order the Commission is purely guided by the Guidelines for Rooftop and Other Small Solar Power Plants issued by MNRE under Jawaharlal National Solar Mission and Draft Tariff Guidelines for Rooftop PV and other Small Solar Power Plants issued by CERC on 9th June, 2010.

15. As per the above guidelines, IREDA has been designated as Programme Administrator by the Ministry of New and Renewable Energy. The power projects selected under this scheme shall be connected to HT level of distribution network at voltage levels below 33 KV i.e. at 11 KV in Orissa. The project size shall vary from 100 kW upto 2 MW. The MNRE Guidelines also state that the projects under this scheme shall be designed for completion before 31st March, 2013. A PPA/MOU shall be signed between the local distribution utility in whose area the plant is located with the project proponent at a tariff by the concerned SERC. Further, MNRE shall consider the project schemes from states wherein levelised tariff has been determined for the full tenure of 25 years. The MNRE has designed scheme of Generation Based Incentive (GBI) which shall be payable to the distribution utility for power purchased from solar power projects selected under these guidelines. The GBI shall be equal to the difference between the tariff determined by the CERC and Base rate, which will be Rs.5.50 per kWh for (financial year 2010-11) and shall be escalated by 3% every year. Base Rate of Rs.5.50 per kWh to be considered for the purpose of computation of GBI, shall remain constant over duration of 25 years. Thus, GBI determined for a project (which is the difference of CERC determined tariff and Base Rate) shall remain constant for entire duration of 25 years. Base rate for projects to be commissioned for each subsequent year shall also be modified at escalation factor of 3% per annum and such escalated Base Rate shall remain constant over duration of 25 years. There shall be pre-registration by the project developers with the State Competent authority and registration with the Programme Administrator (i.e. IREDA). This registration process with IREDA shall commence from 15th July, 2010. The developers under this scheme fulfilling four conditions viz. (a) issuance of relevant tariff order from concerned SERC (b) MOU with utility, (c) pre-registration certificate from State competent authority and (d) commitment guarantee of requisite amount shall be eligible for registration with IREDA.
16. The Govt. of Orissa has declared Orissa Renewable Energy Development Agency (OREDA) as the Nodal Agency (State Competent Authority) to pre-register the proposals from the prospective developers for holding Rooftop PV and other Small Solar Power Generation (RPSSGP) under Jawaharlal Nehru National Solar Mission. OREDA has issued an Expression of Interest inviting eligible independent power producers for pre-registration of solar power projects in the state of Orissa under the scheme.
17. In order to enable the project proponents to get registered with IREDA, the Commission hereby determines the following generic tariff for Rooftop PV and other Small Solar Power Plants to be commissioned in the State of Orissa under Jawaharlal Nehru National Solar Mission.
18. The following tariff parameters are being considered while determining the generic tariff:

- (1) **Financial Parameters**
- (a) Capital Cost
 - (b) Debt equity ratio
 - (c) Loan and finance charges
 - (d) Depreciation
 - (e) Return on equity
 - (f) Interest on Working Capital
 - (g) Operation and maintenance expenses

19. Capacity Utilisation Factor (CUF) has been assumed at 18.5% which is the average of 18% recommended by Draft CERC guideline and 19% recommended by the study carried out by WISE taking into consideration the state specific parameters. Capital cost has been taken as Rs.17 cr. per MW which is very close to what is assumed in the draft tariff guidelines for rooftop PV and other Small Solar Power Plants dtd.09th June, 2010. Debt-equity ratio is assumed at 70:30 which is as per CERC Draft Guidelines. Interest on loan is assumed at 12.5% considering the recent 'base rate' of 7.5% specified by State Bank of India. Loan repayment period is considered as 10 years. Differential depreciation of 7% is allowed during 1st ten years of the tariff period and remaining depreciation shall be spread over the balance useful life of the project from 11th year onwards. Pre-tax return on equity of 19% per annum for 1st ten years and 24% per annum from 11th year onwards has been assumed. Interest on working capital has been taken at 12% considering 'base rate' of 7.5% of SBI. O & M expenses have been assumed at Rs.11 lakhs per MW with 5.72% escalation per annum. Levellised tariff is computed over useful life and will be applicable for 25 years.

Table-1

<i>No</i>	<i>Technical Parameters</i>	<i>Value</i>	<i>Unit</i>
1	Capacity Utilization Factor	18.50%	%
2	Annual Gross Generation	16.21	Lakh kWhs
3	Life of Plant and Machinery / Project Life	25	Years

<i>No</i>	<i>Financial Parameters</i>	<i>Value</i>	<i>Unit</i>
1	Cost of Rooftop Solar PV Project	1700	Rs Lacs
2	Debt	1190.00	Lacs
3	Equity	510.00	Lacs
4	Interest Rate on Term Loan	12.50%	%
5	Repayment Period	10	Years
6	Depreciation (Straight Line Method, Company Law) - for first 10 years	7.00%	%
7	O&M cost	11.00	Rs. Lakhs
8	O&M Cost Escalation	5.72%	%
9	Return on Equity - pretax (1-10 years)	19.00%	%
10	Return on Equity - pretax (11-25 years)	24.00%	%
11	Interest on working capital	12.00%	%
12	Levellised Tariff for 25 years	18.52	Rs./kWh

20. Based on the above financial and operational parameters the levelled tariff works out to Rs.18.52 per kWh. This tariff is comparable with the one given by TNERC at Rs.18.45 per kWh and MERC Draft Order at Rs.18.41 per kWh for FY 2010-11.
21. The Commission recognizes the need to encourage the roof-top and small SPV projects in order to fulfill the Renewable Purchase Obligation (RPO) as laid down in OERC (Renewable Purchase Obligation & its Compliance) Regulations, 2010 and also the national target specified under Jawaharlal Nehru National Solar Mission. Accordingly, the Commission directs GRIDCO (the State Nodal Agency to procure power) to procure energy from solar power projects which shall come up under the present scheme of MNRE. The Commission further directs as under:
22. Following the MNRE guidelines, GRIDCO, the State Nodal Agency for power procurement shall sign a Power Purchase Agreement (PPA)/ MOU with the project proponent at a tariff determined by this Commission and presented in Table-1 above on or before 12th July, 2010. It is further provided that the benchmark capital cost for Rooftop PV and Other Small Solar Power Projects may be reviewed annually by the Commission in line with Tariff Guidelines and its amendments, if any, published by CERC.
23. GRIDCO shall receive Generation Based Incentive (GBI) for power purchased from solar power projects selected under these Guidelines.
24. The GBI shall be equal to the difference between the tariff determined by the CERC and the Base Rate, which will be Rs.5.50 per kWh (for FY 2010-11), which shall be escalated by 3% every year.
25. The GBI shall remain constant for entire duration of 25 years. Base Rate for projects to be commissioned during each subsequent year shall also be modified at escalation factor of 3% per annum and such escalation base rate shall remain constant over duration of 25 years. The GBI shall be disbursed as per IREDA guidelines.
26. The project developer shall submit a letter from the concerned distribution utility in whose area the plant shall be set up confirming technical feasibility of connecting plant to the distribution transformers/substation.
27. The metering point for energy accounting shall be at HT side of generating transformer of RPSSGP. The RPSSGP shall be connected normally to the 11 KV bus of the nearest 33/11 KV bus of DISCOM's substation. With the consent of DISCOM in the specific cases the RPSSGP may also be connected to the nearest 11 KV line through LILO arrangement. The necessary interconnecting line shall be constructed by DISCOM and the cost of such interconnection shall be reimbursed by the project proponent to the DISCOM. The billing meter will be jointly read by the project proponent, GRIDCO and DISCOMs for proper energy accounting and billing by the project proponent to GRIDCO at OERC determined rate and GRIDCO to DISCOM at approved BSP rate.

Technical requirements for these Solar Power Plants shall be as specified in the Guidelines of CERC for Rooftop and other Small Solar Power Plants and as amended from time to time.

28. **Rebate:** For payment of bills of the Rooftop PV and Other Small Solar Power Projects through letter of credit or by cash within two working days (except holidays

under N.I. Act), a rebate of 2% shall be allowed. Where payments are made other than through letter of credit within a period of one month of presentation of bills by the generating company, a rebate of 1% shall be allowed.

29. **Late Payment Surcharge:** In case the payment of any bill for charges payable under these Guidelines is delayed beyond a period of 60 days from the date of billing, a late payment surcharge at the rate of 1.25% per month shall be levied by the generating company.
30. **Sharing of CDM benefits:** The proceeds of the carbon credit from approved CDM Project shall be shared between the project developers and GRIDCO in the following manner.
 - (a) 100% of the gross proceeds on account of CDM benefit to be retained by the developer in first year after the date of commercial operation.
 - (b) In the second year, the share of GRIDCO shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion by generating company and GRIDCO.
31. **Subsidy or incentive by the Central/State Government:** The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the project developers. Any developer availing accelerated depreciation, the same shall be internalized in the tariff and accordingly the tariff per kWh shall be reduced to the extent of Rs.3.13 per kWh. This means the effective tariff for developers availing accelerated depreciation shall be Rs.18.52 minus Rs.3.13 which equals to Rs.15.39 per kWh on a levelised basis.
32. In view of the urgency for registration of the Rooftop PV and Small Solar Generation Programmes with the Programme Administrator (IREDA) in time, Commission directs to implement the programme under following timelines:
 - (a) Issuance of relevant tariff order– as per this order.
 - (b) MoU with GRIDCO – on or before 12.07.2010
 - (c) Pre-registration Certificates from OREDA – on or before 14.07.2010.
 - (d) Commitment Guarantee of requisite amount with IREDA by project proponent positively by 15.07.10.
33. Accordingly, the matters are disposed of by this common order.

(B.K. Misra)
Member

(K.C. Badu)
Member

(B.K. Das)
Chairperson