

Delhi Electricity Regulatory Commission

Viniyamak Bhawan, 'C' Block, Shivalik, Malviya Nagar, New Delhi –110 017

No. F.11 (686)/DERC/2011-12/

Petition No. 31/2011

In Re: Petition seeking adoption of generic tariff for generation of electricity from grid interactive 25kWp Solar Photo Voltaic Project at TPDDL GTK Grid, Sub -station Delhi.

Tata Power Distribution Company Ltd.
Formerly known as NDPL
Through its: Sr. General Manager
33kV Sub Station Building
Hudson lane
Delhi 110 009

Coram:

**Sh. P.D. Sudhakar, Chairman, &
Sh. J.P. Singh, Member**

ORDER

(Date of Order: 07.01.2016)

1. The Petitioner, Tata Power Delhi Distribution Ltd. (TPDDL) has filed a petition before the Commission for adoption of generic tariff for generation of electricity from tail end grid interactive for 25 kWp Solar Photo Voltaic Project at TPDDL GTK Grid, Sub -station Delhi.
2. In order to finalise the tariff, the Petitioner was directed to furnish the requisite information along with the audited accounts of the company indicating Solar Capital assets separately from distribution capital assets and breakup of capital assets deployed in the different business divisions of the company.
3. On the basis of information provided by the Petitioner, the Commission came to know that the instant case is not entitled for any subsidy either in the form of capital subsidy or generation based incentive. In the absence of such subsidies and incentives the levelised generic tariff for the solar energy would be on a higher side, which will adversely affect the consumers of Delhi. The Commission, in order to safeguard the interest of

the consumers as well as to promote the generation of solar energy, vide Interim Order dated 11.06.2013 has advised the Petitioner to go for REC mechanism which is another instrument for promotion of generation of electricity through renewable energy sources. The relevant paragraphs of the said Interim Order are mentioned as under

4. The Commission directed that since no financial assistance is available for this project, therefore, Petitioner can approach the State Nodal Agency for REC registration/accreditation for obtaining REC, which shall be in the overall interest of the consumers of NCT of Delhi. This may be done with immediate effect.

5. The Commission also observed that in the case of such a project, a separate dispensation can be considered for energy fed into the generation till REC registration and accreditation, which shall in any case be not later than 31.03.2013.

4. TPDDL vide letter dated 06.01.2015 had submitted the certificate from Auditor pertaining to statement of assets & liabilities as on COD and bidding evaluation reports. The Commission vide letter dated 19.02.2015 had asked the petitioner to submit the reasons for considerable delay of almost two years whereas the cost of the solar PV system has reduced drastically.
5. The Petitioner vide letter dated 05.03.2015 had submitted that installations of this plant was originally planned at DERC office which could not be done as required approval was not granted. Due to relocation of the project redesigning for installations of plant was required, which had also taken some extra time. Further TPDDL has submitted that they had conducted bidding process earlier based upon assurances given to them by concerned authorities and the successful bidder had procured items after bidding only. TPDDL had not paid any extra amount for ideal charge or changes required for relocation and redesign by the vendor.
6. The Petitioner had asked for normative cost at Rs. 1690 lakh/MW as per CERC order dated 26.04.2010, which provides as follows:-

“(2) Notwithstanding anything contained in these regulations, a) the generic tariff determined for Solar PV projects based on the capital cost

and other norms applicable for the year 2010-11 shall also apply for such projects during the year 2011-12; and b) the generic tariff determined for Solar thermal projects during the year 2011-12; and b) the generic tariff determined for Solar thermal projects based on the capital cost and other norms for the year 2010-11 shall also apply for such projects during the years 2011-12 and 2012-13.

7. In this regard, the Commission observed that aforesaid normative cost of Rs. 1690/- may not be applicable in the instant case as the plant was commissioned on 06.10.2011, whereas bidding and procurement of the plant was done in 2009. The plea of the petitioner that no extra cost was paid for ideal charge or charges required for relocation and design is acceptable. However, there was in an inordinate delay of two years, which has an impact over the price of the plant especially keeping in view the downward charge in price of the solar plants. The quoted price of plant is Rs. 40 lakh, whereas as per the general normative cost decided by the CERC vide order dated 09.11.2010, the cost of the plant comes out to be Rs. 36 lakh.
8. As per the directions given in the Interim Order dated 11.06.2013, the Commission after considering the audited statements, other documents as submitted by the Petitioner and on the basis of following technical parameters as per CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2009 has determined a levelised tariff for the project at Rs.14.12/- per unit for the period from the Date of Commercial Operation (CoD) i.e. 06.10.2011 till 31.03.2013. (The detailed calculation sheet is attached at Annexure). The technical parameter considered are:-
 - I. **Capital cost:** the normative capital cost considered is 1442 lakhs/MW as per CERC dated 09.11.2010 for FY 2011-12 as COD is 06.10.2011. Therefore, the tariff is benchmarked as per CERC Order dated 09.11.2010 and the capital cost is capped accordingly at 36 lakhs (1442/1000 x 25).
 - II. **Subsidy:** The petitioner has stated that there is no subsidy for this project from Government of India.

- III. **Debt Equity Ratio:** In the audited financial statement as on 06.10.2011, the Head Office account has been shown with equity infused less than 30%. However, the audited financial statement as on 10.10.2011 and 01.07.2012 shows the Head Office account with equity more than 30%. Auditor's Statement of Assets & Liabilities pertaining to Solar plant as on 10.10.2011 shows that equity infused in the project is more than 30% whereas normative is 30%, therefore debt : equity ratio is considered at 70: 30 for tariff calculation.
- IV. **Return on Equity:** Return on Equity has been considered as per the norms specified in CERC (Terms and Conditions for Tariff determination from renewable Energy Sources) Regulations 2009 which is debt : equity ratio of 70:30 and rate of return is considered as per CERC Regulations as below:-
- i. Pre-tax 19% per annum for the first 10 years, and
 - ii. Pre-tax 24% per annum from the 11th year onwards."
- V. **Rate of Interest on loan Capital:** the Average Rate of Interest of 10.17 % as approved in Tariff Order of TPDDL dated 31.07.2013 for FY 2011-12 is considered in absence of any specific loan details; as the project has attained COD on 09.11.2011 for the purpose of rate of interest on loan.
- VI. **Depreciation:** As per CERC (Terms and Conditions for Tariff determination from renewable Energy Sources) Regulations 2009, depreciation has been considered upto 90% of the project cost. The depreciation rate for the first 10 years of the Tariff Period shall be 7% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 11th year onwards.
- VII. **Operation and maintenance expenses:** The Operation and maintenance expenses of Rs. 9.5 Lakh/ MW for FY 2010-11 with escalation factor of 5.72% p.a has been considered as per the norms specified in CERC Order dated 26.4.2010.
- VIII. **Working Capital :** Working capital is computed as per the norms specified in CERC (Terms and Conditions for Tariff determination from renewable Energy Sources) Regulations 2009.

- IX. **Interest on Working Capital:** the actual rate of Interest on working capital of TPDDL calculated in Tariff Order for FY 2013-14 dated 31.07.2013 for the year 2011-12 for allowing rate of interest on debt in carrying cost has been considered @ 11.43%.
- X. **Capacity Utilization Factor (CUF)** : The same capacity utilization factor of 19% as per the norms specified in CERC (Terms and Conditions for Tariff determination from renewable Energy Sources) Regulations, 2009 has been considered.
- XI **Discount Rate** : Discount rate of 13.72% has been considered as average rate of ROE as per CERC norms
9. For the period beyond 31.03.2013 till the completion of 25th year from the Date of Commercial Operation (COD), the Tariff for sale of electricity from this project shall be at the Average Pooled Power Purchase Cost (APPC) of the petitioner viz. TPPDL-D. During this period the petitioner would also be entitled for REC as per CERC (Terms and Conditions for Recognition and Issuance of REC for Renewable Energy Generation) Regulations 2010 as amended from time to time.
10. Ordered accordingly and the petition stands disposed of with the order that for the period from COD i.e. 06.10.2011 till 31.03.2013 the levelised tariff is determined at Rs. 14.12 per unit. Thereafter, the tariff shall be at the Average Pooled Power Purchase Cost (APPC) of the petitioner viz. TPDDL-D, with REC entitlement under CERC Regulations.

Sd/-
(J. P. Singh)
MEMBER

Sd/-
(P. D. Sudhakar)
CHAIRMAN

25 kW Grid Interactive Solar Photovoltaic Plant-GTK

Assumptions

Rating of the Plant	0.0250	MW
Project Cost	0.35	Rs. Crores
Debt	0.30	0.35
Equity	0.05	0.11
Rate of Interest on loan	10.17%	Actual
Return on Equity	19.88%	24.00%
Tax Rate	10.00	Years
Loan Repayment Period	10.00	Years
Depreciation	1.00%	1.35%
Cost of Capital	10.10	INR Crores/MW
Rate of Return on Working Capital	10.11%	Actual
WACC	10.17%	1.06
Payback (CAGR)	10.00%	

Years	1	2	3
Interest on Loan Capital	0.0244	0.0218	0.0192
Depreciation	0.0232	0.0232	0.0232
Cumulative Depreciation	0.0232	0.0464	0.0696
Cumulative Depayment	0.0232	0.0464	0.0696
Loan c/s at the end	0.0271	0.0218	0.0165
Return on Equity	0.0205	0.0205	0.0205
LOAN Expenses	0.0225	0.0227	0.0228
Interest on Working Capital	0.0013	0.0014	0.0014
Annual Fixed Cost:	0.0742	0.0717	0.0692
Units Generated in the year (MU)	0.0416	0.0416	0.0416
Unit Cost (Rs / Unit)	17.8224	17.2208	16.6192
Discounting Factor	1.0000	0.8794	0.7733
Discounted tariff	17.8224	16.1512	12.8907
Levelized Tariff/unit	14.12		

Actual
CERC Benchmark
0.4088
0.36

INR Crores
INR Crores