

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

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Present : Shri B.K. Das, Chairperson  
Shri K.C. Badu, Member  
Shri B.K. Misra, Member

**Case Nos. 62, 96, 97 & 98/2009**

**IN THE MATTER OF :** Application under Sections 62 & 86(1)(e) of the Electricity Act, 2003 read with Regulations 10, 51 & 73 of OERC (Conduct of Business) Regulations, 2004 - Regarding determination of tariff for Solar Grid connected PV Power in Orissa

**AND**

**IN THE MATTER OF :** **Case No.62/2009**  
M/s. Solitaire Energy Pvt. Ltd. ... Petitioner  
Vrs.  
GRIDCO & Others ... Respondents  
**Case No.96/2009**  
M/s. LANCO Solar Pvt. Ltd. ... Petitioner  
Vrs.  
GRIDCO & Others ... Respondents  
**Case No.97/2009**  
M/s. Sahara India Corporation Ltd. ... Petitioner  
Vrs.  
GRIDCO & Others ... Respondents  
**Case No.98/2009**  
M/s. New Era Power Corporation Ltd. ... Petitioner  
Vrs.  
GRIDCO & Others ... Respondents

**For the petitioners :** Shri Dinesh Narang, Vice-President, M/s. Solitaire Energy Pvt. Ltd.  
Shri D.L. Sapra, Asst. Sr. Manager, M/s. Sahara India Power Corporation Ltd. (SIPCL)  
Shri Saibaba Vutukuri, CEO, M/s. LANCO Solar Pvt. Ltd.  
Nobody is present on behalf of M/s. New Era Power Corp. Ltd.

For the respondents : Ms. Sasmita Patajoshi for GRIDCO  
Shri S.K. Dasgupta, CEO, CESU  
Shri P.K. Pradhan, CEO, WESCO  
Shri P.K. Sahoo, Company Secretary, NESCO  
Shri S.C. Mohanty, Law Officer, DoE, GoO  
Shri R.P. Mahapatra, Objector/Respondent  
Shri K.C. Mohapatra, Chairman, PDC  
Nobody is present on behalf of SOUTHCO &  
Dr. K.K. Das, Objector/Respondent

**Date of Hearing : 25.08.2009**

**Date of Order : 09.09.2009**

### **ORDER**

M/s. Solitaire Energies Pvt. Ltd. (SEPL), New Delhi, a subsidiary of M/s. Moserbaer Photovoltaic Ltd. had applied to the Commission for setting up of a 5 MW Grid interactive solar PV project at Katapalli village in Jharsuguda District. The applicant has submitted the Detailed Project Report (DPR) to the Commission along with the application. The petitioner stated that OREDA has given an in-principle clearance to the above project. The Petitioner has enclosed the tariff model and has prayed that the Commission may approve a tariff of Rs.15/kWh for 20 years. The tariff incentives, as received from MNRE (Rs.12/KWh if the project is completed by December, 2009) for first 10 years of operation, will be reduced from the total tariff payable by GRIDCO.

2. The Commission conducted a public hearing on the matter on 22.5.2009. In response to public notice the following persons submitted their views:

- i) Shri R.P. Mahapatra
- ii) Dr. K.K. Das
- iii) Shri K.C. Mohapatra

The views of the objectors are summed up as follows:

- (i) The Commission may determine at present a provisional tariff which will enable the developer to arrange financial closure. After completion of the project and commissioning, final tariff may be re-determined on the computed cost, after due diligence by STC.
- (ii) The proposed tariff as mentioned by the petitioner is Rs.15.00/kWh for 20 years assuming an MNRE incentive of Rs.12.00/kWh for 10 years. The

Commission may approve appropriate tariff rates once MNRE subsidy is withdrawn after 10 years.

- (iii) Proposed voltage for evacuation of power from the SPV power project and point of interconnection with GRIDCO may be finalised.
- (iv) GRIDCO should not purchase its RPO power at Rs.15.00/kWh and may purchase the power only at the rate of Rs.3.00/kWh and the developer should claim incentive directly from MNRE. The responsibility of claiming incentive should remain with the seller and not with the purchaser.
- (v) The objectors further suggested that for availing MNRE subsidy for the 5 MW Grid interactive solar PV project, a tariff of Rs.3.00/- per kWh including evacuation cost may be approved and GRIDCO may be advised to sign PPA and submit the same to OERC before 25<sup>th</sup> May, 2009. Further, OPTCL may provide necessary connectivity to the power plant by that date so that the developer may start work and complete the same by 31.12.2009 as per target fixed by MNRE for availing subsidy.
- (vi) Fixation of tariff for Solar PV projects falling outside the purview of MNRE's Generation Based Incentive for which the present petition proposes a tariff of Rs.15.00/kWh may be deferred till August, 2009. After getting inputs from the Govt. of India and the consultants on competitive bidding, Commission may consider a reasonable tariff for such projects.

GRIDCO in its submission before the Commission has prayed for the following: -

- i) The tariff structure may be formulated in general for all solar PV power plant proposals instead of being project specific.
  - ii) GRIDCO shall pay a maximum of Rs.3.00/- per kWh for the entire useful life of the project and it should be the duty of the developer to avail the incentive of Rs.12.00/kWh from MNRE by completing the project before 31.12.2009.
  - iii) The PPA should be executed for a period of 20 years.
3. The Vice President (Finance) of SEPL submitted his rejoinder on behalf of SEPL on the various comments/petitions received in response to the public notices of 27.4.2009 and 15.5.2009.

4. In the meantime, three other developers namely, M/s. LANCO Solar Pvt. Ltd., M/s. Sahara India Corporation Ltd. & M/s. New Era Power Corporation Ltd. filed their applications for fixation of tariff for solar PV grid connected power in the State of Orissa.

M/s. Lanco Solar Pvt. Ltd. has proposed to set up a 5 MW solar PV power plant at Ramdaspur, Cuttack under the MNRE scheme. In the 2<sup>nd</sup> phase they propose to set up a 200 MW solar PV power project at Jharsuguda district later.

M/s. Lanco has also submitted a copy of their DPR for the proposed 200 MW of solar PV power plant at Jharsuguda with a total project cost of Rs.2884.74 cr. with a debt-equity ratio of 70:30. M/s. Lanco expects a tariff of Rs.12.50/unit for 20 years and Rs.4/unit for balance 5 years. The project is expected to be completed in phases by 2011-14.

M/s. Sahara India proposes to set up a 5 MW solar PV power plant at a project cost of Rs.84.00 cr. under the MNRE scheme. Sahara India expects a tariff of Rs.15.00/Kwh. With MNRE benefits, the tariff would be Rs.3.00/Kwh for first 10 years.

M/s. New Era Power Corporation proposes to set up a 5 MW solar PV power plant at Khurda with a project cost of Rs.84.00 cr. under the MNRE scheme. The developer expects a tariff of Rs.15.00/Kwh. With MNRE benefits, they expect a tariff of Rs.3.00/Kwh for first 10 years.

5. In response to these applications, Commission issued a public notice on 19.8.2009 inviting views, suggestions, objections from interested persons/institutions/organizations on the matter. Commission heard the applicants, objectors, DISCOMs, Govt. of Orissa and respondents on 25.8.2009.
6. Shri D. Narang, Vice President, M/s. Solitaire Energy Pvt. Ltd. stated that they had not received any objections in response to the notice published by the OERC. He further stated that M/s. Solitaire Energy was looking for non-MNRE tariff from OERC.
7. Shri Saibaba Vutukuri, CEO, M/s. Lanco Solar Pvt. Ltd. in addition to the contents in the filing stated that they had done the necessary homework for assembling 1000 acres of land at Jharsuguda for setting up the 200 MW of Grid Interactive Solar PV Plant under a regular tariff without any Generation Based

Incentive currently in operation by MNRE. In reply to a query regarding tariff at a reduced rate after 20 years he stated that this was because they were setting up a fully integrated manufacturing unit which reduces the capital cost and hence a reduced tariff.

8. Shri D.L. Sapra, Asst. Sr. Manager, M/s. Sahara India Power Corporation Ltd. stated that the tariff may be fixed as per the MNRE guidelines and accordingly the PPA would be signed with GRIDCO.
9. Shri K.C. Mahapatra, Consultant, OREDA stated that there had been inordinate delay in signing the PPA by GRIDCO which should be expedited in order to encourage the developers of non-renewable energy sources to set up their plants in Orissa.
10. Shri R.P. Mahapatra participating in the discussion stated that Commission should approve a tariff of Rs.15/KWh on a provisional basis inclusive of Rs.12/KWh as MNRE incentive and the balance of Rs.3/KWh may be borne by GRIDCO. This would be applicable for a period of 10 years as per the present MNRE guidelines and after 10 years the tariff may be determined as per revised MNRE guidelines. He also emphasized that GRIDCO should by this time have a standardized PPA in place.
11. Mrs. Sasmita Patajoshi representing GRIDCO stated that GRIDCO had already prepared the draft PPAs for the various Solar PV projects and sent them to the Department of Science and Technology, Department of Energy and OREDA for their views. GRIDCO is also taking keen interest in encouraging the setting up of renewable plants in Orissa in view of the “Renewable Purchase Obligation” of the DISCOMs.
12. Shri S. Dasgupta, CEO, CESU and Shri P.K. Pradhan, CEO, WESCO stated that the Commission should take into consideration the impact of power purchase from the renewable sources by GRIDCO in the ARR of DISCOMs.

### **Statutory provisions**

13. Section 61(h) of the Electricity Act, 2003 provides that while specifying terms and conditions for determination of tariff, the SERCs shall be guided, inter-alia, by the promotion of co-generation and generation of electricity from renewable sources. Section 86(i)(e) of the Act specifies that one of the functions of the SERCs is to

promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and to promote sale of such power to any person. The SERCs are also required to specify the purchase of electricity from such sources, as a percentage of total consumption of electricity in the area of a distribution licensee.

14. The National Electricity Policy (NEP) and Tariff Policy notified by the Ministry of Power, Govt. of India under the provision of the Electricity Act, 2003 emphasizes encouragement of generation of electricity from non-conventional, renewable energy sources.
15. OERC, keeping in view the provisions of Electricity Act, 2003, the National Electricity Policy and Tariff Policy, has addressed this issue in its Order dtd. 20.08.2005 in Case No. 14 of 2005. The extract of this order as under:
  - (a) *The procurement of power from non-conventional and renewable energy such as, small hydro, wind, biomass, co-generation of electricity from waste heat products etc. would be allowed by the supply licensees for use of consumers within the State upto 3% of the total purchase during the FY 07-08 to go up at the rate of 0.5% per annum for each subsequent year to reach a level of 5% by the year 2011-12.*
  - (b) *The project cost fixed by the State Technical Committee after due diligence will be taken as the ceiling cost for determination of tariff.*
  - (c) *The tariff for procurement of the power from this sources will be determined by the Commission under Section 62(1)(a) so long as this power is being supplied to the State consumers through distribution companies.*
  - (d) *To encourage competition for reduction in cost of power purchase of by DISCOMs shall be through competitive bidding process within the same sources of generation where the price determined by the Commission under Section 62(1) shall be treated as the ceiling price.*
  - (e) *The generating companies of non-conventional and renewable sources may be permitted by DISCOMs/OPTCL to deliver the power at 11 KV or 33 KV as the case may be. Depending upon the techno-commercial viability of the project, the interconnection point for delivery of power may be at 132 KV.*

#### **Commission's Observations**

16. The Commission is aware that Grid Connected solar power technology is still in the infant stage of development and it may take some time before solar power technology can compete with other renewable sources or with conventional energy sources, as far as cost of generation is concerned. The Commission is also aware that the quantum of power generation from non-conventional sources including the proposed solar PV projects are likely to be marginal compared to

the generation from conventional sources. The effect of any higher purchase cost would be minimal in the overall cost of purchase obligation by the DISCOMs. The incremental increase in the weighted average cost of purchase will remain within 1 p/KWh. Therefore, procurement by the licensees from the solar generation plants may be done at a preferential tariff determined by the Commission as stipulated in para 6.4(1) of Tariff Policy.

Since solar power plants are yet to be installed in the State, it is difficult to ascertain the capital cost of projects for tariff purposes. In the absence of financial closure too it is also not possible to finalise the norms for determination of tariff under the Cost-Plus method.

17. Considering the deadline of 31<sup>st</sup> December, 2009 set by the MNRE for availing the subsidy of Rs.12/KWh and in the absence of data required for cost plus tariff setting, the Commission has decided to fix a ceiling tariff as per capital cost and other parameters proposed by the developers and data available from various sources. While proposing the tariff some developers have also considered a probable CDM benefit of Rs.1.00/KWh.
18. The Commission, after hearing the project developers and all the stakeholders, desired to fix a ceiling tariff of the initial projects likely to be developed in the current financial year 2009-10. The tariff is derived to be fixed for the entire useful life of the project for 25 years and not for the initial 10 years for which the tariff incentive is available from MNRE, in order to facilitate the developer to achieve financial closure of the project with their banker.
19. To fix a ceiling tariff, the Commission considered the capital cost and other parameters as proposed by the promoters and as available from various other sources. While determining tariff, it was observed that the promoters had inadvertently taken depreciation provision more than 100% of the capital cost which has been duly reduced to 90% of the capital cost in the life of the project. Return on equity (30% of capital cost) has been allowed at 17% to fix the ceiling of the cost. CDM benefit as Rs.1.00/KWh has been considered in the first 12 years of the project during which the project developer is expected to pay back the loan outstanding.
20. The Commission, in its order dtd.28.02.2009 had fixed a ceiling tariff of Rs.3.10 for co-generation plants for injection of their surplus power to the state grid in the

FY 2009-10. We have checked up the levelised tariff of the present proposals for the first 12 years and the next 13 to 25 years which work out to about Rs.15.00/KWh in the first 12 years and Rs.7.50/KWh for the rest of the life of the project.

The Commission also referred to the various orders of the other SERCs regarding tariff of solar PV projects as notified by them.

The Commission observes that the international price of SPV modules and the raw materials for manufacture of SPV modules has recently gone down quite appreciably. It was also expected that the prices of SPV modules would go down in the future years which might translate into much lower capital cost in future projects. Considering all the above and after careful consideration the Commission fixes the ceiling tariff of such solar PV projects which could be established in the state by March, 2010 as follows: -

For the 1<sup>st</sup> to 12<sup>th</sup> years : Rs.15.00/KWh

For the 13<sup>th</sup> to 25<sup>th</sup> years : Rs.7.50/KWh

The above tariff is generic in nature and all incentives/subsidies received by the developers from MNRE/ GoI/ GoO shall be factored into the same. Therefore, GRIDCO shall pay to the developers the net amount after deducting such incentives/subsidies. However, both GRIDCO as well as the developers are free to negotiate for an agreed tariff within the above ceiling rate. The connectivity of these 5 MW solar PV projects shall be at 33 KV voltage level.

The above tariff is provisional. The Commission is in the process of formulating a comprehensive RE Policy, consequent to the Consultative Paper floated for the purpose and the subsequent public hearings/consultations in the matter. The Commission had also commissioned a study on the various RE sources by the World Institute of Sustainable Energy (WISE), PUNE. Their report is also in its final stages. The proposed policy on RE will undertake a comprehensive tariff determination for various sources of RE including Solar. The said policy paper would take a comprehensive look into Solar PV tariffs. In the meanwhile the CERC is also in the process of finalizing its Guidelines for RE tariff for various RE sources. The Commission would, therefore, re-determine the tariff for Solar



PV as soon as the above exercises have been completed and final tariff would be issued accordingly.

The Commission desires that with the above fixation of ceiling tariff and connectivity issue being finalized, project proponents/OREDA would take expeditious action for setting up of projects and negotiate with Bankers/Financial Institutions for financial closure, acquire the necessary land, select the EPC contractor with a transparent bidding process for commissioning the project in time to avail of MNRE incentive.

21. Accordingly, these cases are disposed of.

Sd/-  
**(B.K. Misra)**  
**Member**

Sd/-  
**(K.C. Badu)**  
**Member**

Sd/-  
**(B.K. Das)**  
**Chairperson**