

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

**Present : Shri K.C. Badu, Member
Shri B.K. Misra, Member**

Case No.33/2010

IN THE MATTER OF: Petition under Sections 62 and 86 (1)(e) of Electricity Act, 2003 read with Regulation 10, 51, and 73 of OERC (Conduct of Business) Regulation, 2004 regarding determination of tariff for Grid Interactive Solar PV Power Plants in the State of Orissa.

AND

IN THE MATTER OF :

DUET India Infrastructure Pvt. Ltd.,
having its registered office at 815, ITT,
Nehru Place, New Delhi - 110019

... Petitioner

Vrs.

GRIDCO Ltd,
Janapath, Bhubaneswar and 2 others

... Respondents

**For the petitioners : Shri R Agarwal, General Manager (Energy) Ltd.
DUET India Infrastructure**

For the respondents : Shri A C Mallick, Director (Com.), GRIDCO

Shri A.K. Chaudhury, Dy. Director (Projects),
OREDA & Science & Technology Dept.,
Govt. Of Orissa.

Shri A K Mohanty, GM (R&T), OPTCL

Shri K.C. Mohapatra, Chairman, PDC

Date of Hearing: 04.05.2010

Date of Order : 23.06.2010

ORDER

1. The petitioner in this case is M/s. DUET Infrastructure Pvt. Ltd., 815, 177, Nehru Place, New Delhi in the matter of petition under Section 62 & 86(1)(e) of the Electricity Act, 2003 read with regulations 10, 51 and 73 of OERC (Conduct of

Business) Regulations, 2004 – regarding determination of tariff for Grid Interactive Solar PV power plants in the state of Orissa.

2. The fact of the case is as follows:

The petitioner proposes to set up a solar photo voltaic power project that uses sunlight for direct conversion into photo voltaic technology in the State of Orissa. The proposed power plant would have a total generating capacity of 20 MW Grid interactive Solar Photovoltaic Power at different locations in Orissa. The financial outlay for each of the 10 MW project is Rs.170 crore which is proposed to be funded in a debt-equity ratio of 70:30. The petitioner is presently exploring the proposed sites for 2X10 MW or 4x5 MW grid interactive solar power project. The proposed project would use concentrated solar power technology which uses direct sunlight and convert the same to electricity through PV cells which is accumulated and inverted to AC and suitably stepped up to feed the GRID. The technology specific parameters are in conformity with MNRE guidelines.

3. The petitioner has further submitted that the tariff announced by the Commission order dtd.09.09.2010 for solar PV grid interactive projects was available for projects completed before March, 2010. Due to shortage of time and non-availability of various mandatory clearances, the said tariff could not be availed. Petitioner has also identified some land for 20 MW Grid Interactive Solar Power Station. The technology proposed to be used is state of art requiring heavy capital expenditure in order to conserve energy at its maximum level and operate the plant in environment friendly manner thus making a clean and green environment.
4. The petitioner has thus prayed the Commission to consider its petition for fixation of tariff, notification of tariff and give direction to respondents to enter into Power Purchase Agreement (PPA).
5. The petitioner company was represented by Sri R. Agarwal, General Manager (Energy) who presented his arguments during the hearing. Sri Agarwal averred that CERC in its Suo-Motu order in the matter of Determination of Benchmark Capital Cost Norm for solar PV power projects commissioned during FY 2010-11 and FY 2011-12 and Benchmark Capital Cost Norm for Solar Thermal Power Projects commissioned during FY 2010-11, FY 2011-12 and FY 2012-13, February, 2010 fixed the levelised tariff of Rs.18.44 per unit for Solar Photovoltaic projects. OERC in its order regarding determination of tariff for solar Grid connected PV power in Orissa dtd.09.09.2010 has fixed the ceiling generic tariff of Rs.15.00 Kwh for the 1st to 12th years and Rs.7.50/Kwh for 13th to 25th year of the project.
6. Shri Agarwal submitted that the Internal Rate of Return (IRR) calculated for the SPV Projects calculated with OERC generic tariff is roughly at 11%. The banks and the lending agencies are not willing to approve the projects with 11% of IRR and they only approve projects which have IRR of more than 11%. He, therefore, pleaded to review the order of the OERC dtd.09.09.2009 in order to allow generic tariff of Rs.18.44 per unit in line with suo-motu order of CERC on determination of benchmark capital cost norm for solar PV power projects.

7. The respondent No.2, M/s. OPTCL in its written reply to the Commission has raised certain issues regarding connectivity of the proposed Grid Interactive Solar PV power plants. The issues raised are as follows:
 - i) As per the guidelines of Ministry of New and Renewable Energy (MNRE), Govt. of India and observation of the Commission in the order dtd.09.09.2009 passed in case No.62, 96 & 98 of 2009, connectivity of 5 MW SPV projects shall be at 33 KV voltage level. For better reliability of power injection/drawal from the grid, SPV projects are to be connected on the 33 KV side of 132/33 KV grid substation of OPTCL. In such cases, 33 KV bay cost is to be borne by the SPV project developer.
 - ii) The PV model, electronics, cables, controls and structures shall be in accordance with the latest BIS or IEC 61215 or any international standard acceptable to OPTCL.
 - iii) The harmonic contents should remain within the limit as prescribed in the Orissa Grid Code.
8. Director (Commercial), GRIDCO, Sri A.C. Mallick submitted that the OERC's order on generic tariff for Grid connected solar PV projects gave a ceiling price of Rs.15.00/kwh for the 1st to 12th years and Rs.7.50/kwh for the 13th to 25th years. The said order further says that 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. The GRIDCO shall pay to the developers the net amount after deducting such incentives/subsidies. In view of such order GRIDCO is willing to sign PPA with the developers provided they fulfill these conditions.
9. OREDA & Department of Science & Technology, Govt. of Orissa was represented by Sri A.K. Choudhury, Dy. Director(Projects), OREDA. Mr. Choudhury, submitted that OREDA was taking necessary steps to encourage developing of solar PV projects in Orissa. They have forwarded the names of developers to Govt. of India who are willing to set up SPV projects in Orissa as required under the migration scheme of Jawaharlal Nehru Solar Mission.

Commission's observations:

10. Commission heard the submissions made by the petitioner M/s.DUET Infrastructure Pvt. Ltd., GRIDCO, OREDA and Department of Science and Technology, Govt. of Orissa in the matter. The petitioner in this case has prayed for fixation of tariff, its notification and directions to GRIDCO, OREDA and Department of Science and Technology, Govt. of Orissa to enter into Power Purchase Agreement (PPA) with the petitioner.
11. Before finalizing the case, Commission has to take into consideration the following orders, policies and Regulations which has linkages to the present case.
 1. OERC's order on fixing generic ceiling tariff for the SPV projects to be set up in Orissa dtd.09.09.2009. The relevant extract of our order is quoted below:

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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 1st to 12th years : Rs.15.00/KWh

For the 13th to 25th 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.

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12. As evident from the above order this ceiling tariff was fixed for such solar PV projects which could be established in the state by March, 2010. This tariff was announced taking into consideration the Generation Based Incentive (GBI) for Grid interactive Solar Power Generation projects being given by the Ministry of New and Renewable Energy, Govt. of India, which was also available till 31st March, 2010. Commission is aware that no SPV project could be set up in the state by March, 2010 and such incentive has also elapsed since then.

2. Jawaharlal Nehru Solar Mission, Ministry of New and Renewable Energy (MNRE) Govt. of India announced JNNSM in order to address India's Energy Security Challenge. The JNNSM envisaged among other things incentivising the solar power projects through an entity other than the GBI. The following provisions in the JNNSM describe such a mechanism of solar power purchase and selling.

In order to incentivise setting up of a large number of Solar Power Projects, while minimizing the impact on tariff various alternatives were explored. One of the options is to bundle solar power along with power out of the cheaper unallocated quota of Central stations and selling this bundled power to state distribution utilities at the CERC regulated price. This will bring down the gap between average cost of power and sale price of power. For the purpose of bundling, power has to be purchased by an entity and re-sold to the state power distribution utilities. Such function can be done only by a trading company/Discoms, as per the existing statutory provisions.

NTPC has a wholly owned subsidiary company engaged in the business of trading of Power – NTPC Vidyut Vyapar Nigam Ltd. (NVVN). NVVN will be designated as nodal agency by the Ministry of Power (MoP) for entering into a Power Purchase Agreement (PPA) with Solar Power Developers to purchase solar power fed to 33 KV and above grid, in accordance with the tariff and PPA duration as fixed by the Central Electricity Regulatory Commission. The Ministry of Power shall allocate to NVVN, equivalent megawatt capacity, from the Central unallocated quota, from NTPC power stations, at the rate notified by the CERC for bundling together with solar power. NVVN will undertake the sale of the bundled power to State utilities at

the rates determined as per CERC regulations. The above arrangement would be subject to review by Government, in case of, significant price movement in the market. The above arrangement will be limited to utility scale solar power generated from a maximum anticipated capacity of 1000 MW in the first phase. When NVVN supplies bundled power to State utilities at the rates determined as per CERC regulations, those State utilities will be entitled to use the solar part of the bundled power for meeting their Renewable Purchase Obligations (RPO) under the Electricity Act, 2003. The CERC may issue appropriate guidelines in this regard. At the end of the first phase, well-performing utilities with proven financial credentials and demonstrated willingness to absorb solar power shall be included in the Scheme, in case it is decided to extend it into Phase II.

13. As discussed earlier, the incentives as available under MNRE GBI scheme is already over and the only option left with the developers of solar PV projects is to obtain any subsidy/incentive under JNNSM through migration route. The guidelines for migration of upcoming Grid connected projects from existing arrangement to the JNNSM are quoted below:

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In order to facilitate grid connected solar power generation, a mechanism of bundling solar power with power from the cheaper unallocated quota of NTPC coal based stations and selling this power to Distribution Utilities at the CERC determined price, has been proposed in the JNNSM. In this regard, JNNSM stipulates that NTPC Vidyut Vyapar Nigam Ltd. (NVVN) will be designated as a Nodal Agency for entering into a Power Purchase Agreement (PPA) with Solar Power Generation Project Developers who will be setting up Solar Projects during the next three years, i.e., before March 2013 and are connected to the grid at voltage level of 33 kV and above. For each MW installed capacity of solar power for which PPA is signed by NVVN, Ministry of Power (MoP) shall allocate to NVVN an equivalent amount of MW capacity from the unallocated quota of NTPC coal based stations and NVVN will supply this bundled power to the Distribution Utilities.

Considering the fact that some of the grid connected solar power projects are at various stages of development, it is important that the projects that have made progress may be considered for migration from their respective existing arrangements to the ones envisaged under JNNSM, subject to the consent of the Distribution Utility/ State Government and willingness of the developer.

The specific objectives of these guidelines are as follows:

1. *To facilitate quick start up of the JNNSM*
2. *Ensure serious participation for projects to be selected under JNNSM*
3. *Facilitate speedier implementation of the projects under advanced stage of development.*
4. *Enhance confidence in the Project Developers.*

2. Scope of the Guidelines

- 2.1. *The scope of these guidelines is limited to the migration of existing under development grid connected solar project projects from their*

existing arrangements to JNNSM. These guidelines are not applicable for the projects, which have already been commissioned on or before November 19, 2009.

2.2. The guidelines for new solar projects to be selected under JNNSM will be issued separately.”

14. It was, however, informed by the petitioner that such proposals sent to JNNSM are devoid of PPA with GRIDCO which is a mandatory document and as such proposals are likely to be rejected. As per the terms and conditions of the migration proposals the date of submission of documents is already over by 26th Feb, 2010 and at this stage no other document can be submitted under the said proposal. Therefore, there is a bleak chance of any developer getting approval under JNNSM for setting up of solar PV plant in Orissa. The petitioner has, therefore, sought to avail generic tariff as fixed by the Commission in its order dtd.09.09.2009.
15. OERC invited the developers of solar photovoltaic (SPV) for a meeting to monitor the status of their projects to avail of generic tariff. All developers showed reluctance on OERC generic tariff and showed preference for tariff under migration scheme of JNNSM. Commission has also supported purchase through migration route for the likely allotment of any unallocated power by GoI under the JNNSM route to the State. The present unallocated quota for Orissa share is nil. It is a strange that of the Developers now contesting that they will not be qualifying under migration scheme and are now pleading for amendment of OERC generic tariff in line with CERC Regulation.
16. Commission observes that setting up of power plants from renewable sources of energy is of paramount importance. The alternate sources of energy provide answers to the growing demand of energy and dependence on conventional energy sources has major pitfalls including environment hazards. According to a study undertaken by the World Institute of Sustainable Energy (WISE) engaged by the Commission as consultants, about 10% of the 8368.69 sq km of potential wasteland is available and approximately 16740 MW SPV power projects or 30,000 MW solar thermal power projects could be set up in the State. There are about five potential locations in Orissa namely Angul, Dhenkanal, Jharsuguda, Talcher and Titlagarh where the solar isolation is maximum and these sites provide best Capacity Utilization Factor (CUF) averaging about 15.86% for solar PV fixed, 20.43% for solar PV-2 axis and 24.20% for Solar Thermal Parabolic trough. The Orissa is endowed with huge potential in terms of exploitation of solar PV projects and this need to be harnessed. This would only be possible with the active cooperation of OREDA, GRIDCO and developers.
17. Commission in the meantime has floated a draft OERC (Renewable Purchase Obligation and its Compliance) Regulation 2010 and invited suggestions/opinions on the Regulation. The draft Regulation has the provisions towards Renewable Purchase obligation which envisages fulfilling 5% of the overall renewable obligation from 2011-12 onwards and 0.5 percentage point out of the total RPO from the generation based on solar energy. The obligated entity, therefore, would have to fulfill the solar

obligation by way of procurement of power from solar projects or by procuring solar RECs. As we understand the proposals of developers forwarded under the migration scheme of JNNSM are still pending for consideration. The present petitioner is also one of the developers whose proposal has been forwarded under the migration scheme of JNNSM. The Commission is aware that under JNNSM- migration scheme the developer need to sign PPA with M/s ANVNNL. At this point of time we may await the outcome of those proposals since JNNSM scheme of Govt. of India. The proposal, if approved under the JNNSM, the NVVN would enter into Power Purchase Agreement (PPA) with Solar Power Developers to purchase solar power fed to 33 KV and above grid, in accordance with the tariff and PPA duration as fixed by the Central Electricity Regulatory Commission. In case the proposal is not approved by the Govt. of India under JNNSM, the petitioner may approach the Commission for a generic tariff for solar PV. In fact, the Commission would shortly determine generic tariff for all sources of renewable energy after a public hearing of all stake holders and based on WISE studies and CERC guidelines. By that time the results of the migration scheme under JNNSM may be known. The developers are advised to establish small solar photovoltaic Projects/ Roof top solar PV Project connected to the Grid at below 33KV under the MNRE “Generation Based Incentive” Scheme.

18. Accordingly, this case is disposed of.

Sd/
(B.K. Misra)
Member

Sd/
(K.C. Badu)
Member