

***Draft JSERC (Determination of  
Tariff for Procurement of Power  
from Solar PV Power Project and  
Solar Thermal Power Project)  
Regulations, 2015***



**JHARKHAND STATE ELECTRICITY REGULATORY COMMISSION**

In exercise of the powers conferred by Section 86 (1) (a), (b) and (c) read with (e), Section 61(a to h), and Section 62 (1) of the Electricity Act 2003 and all other powers enabling it in this behalf, the Jharkhand State Electricity Regulatory Commission hereby makes the following Regulations.

### **A1: SHORT TITLE, COMMENCEMENT AND INTERPRETATION**

- 1.1 This Regulation may be called the ‘Jharkhand State Electricity Regulatory Commission (Determination of tariff for procurement of power from solar PV power project and solar thermal power project) Regulations, 2015’.
- 1.2 These Regulations shall extend to the whole state of Jharkhand
- 1.3 These Regulations shall come into force on the date of its publication in the Jharkhand Gazette and unless reviewed earlier or extended by the Commission, shall remain in force upto 31<sup>st</sup> March, 2020.

### **A2: DEFINITION**

- 2.1 In this Regulation unless the context otherwise requires:
  - (a) **“Act”** means the Electricity Act, 2003 and subsequent amendment thereof;
  - (b) **“Banking of power”** is the process under which a Generating Plant supplies power to the grid not with the intention of selling it to either a third party or to a Licensee, but with the intention of exercising its eligibility to draw back this power from the grid;
  - (c) **“Capital cost”** means the cost inclusive of all capital work including plant and machinery, civil work, land including leasehold land, erection and commissioning, financing and interest during construction;
  - (d) **“CERC”** means The Central Electricity Regulatory Commission referred to in subsection (1) of section 76;
  - (e) **“Control Period”** means the period during which the norms for determination of tariff specified in these regulations shall remain valid;
  - (f) **“Day”** means a continuous period starting at 00.00 hours and ending at 24.00 hours;
  - (g) **“Distribution Licensee or Discom”** means a Licensee authorised to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply;

- (h) **“Extra High Voltage (EHV)”** means the voltage, which exceeds 33,000 volts subject, however, to the percentage variation allowed under the Indian Electricity Rules, 1956;
- (i) **“Grid”** means interconnected network of transmission lines, distribution lines and sub-stations at EHV and HV level;
- (j) **“Grid Code”** shall mean the JSERC (State Grid Code), Regulations, 2008 & its amendment from time to time;
- (k) **“High Voltage (HV)”** means the voltage higher than 650 volts but which does not exceed 33,000 volts 50 cycles under normal conditions subject, however, to the percentage variation allowed under the Indian Electricity Rules, 1956;
- (l) **“Infrastructure cost”** means the cost of auxiliaries, cost of land, site development charges and other civil works, transportation charges, cost of evacuation upto interconnection point;
- (m) **“Inter-connection Point”** means interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be;
  - (i). in relation to Solar Photovoltaic Projects, inter-connection point shall be line isolator on outgoing feeder on HV side of the pooling sub-station;
  - (ii). in relation to Solar Thermal Power Projects the, inter-connection point shall be line isolator on outgoing feeder on HV side of generator transformer;
- (n) **“JSERC or Commission”** means the Jharkhand State Electricity Regulatory Commission;
- (o) **“Month”** means a continuous period of one month commencing from 00.00 hours on the first day of the month and ending at 24.00 hours on last day of the month;
- (p) **“MNRE”** means the Ministry of New and Renewable Energy of the Government of India;
- (q) **“NLDC”** means the Centre established under sub-section (1) of Section 26 of the Act;
- (r) **“Non-firm power”** means the power generated from renewable sources, the hourly variation of which is dependent upon nature’s phenomenon like sun, cloud, wind, etc., that cannot be accurately predicted;

- (s) **“Operation and maintenance expenses”** or **“O&M expenses”** means the expenditure incurred on operation and maintenance of the project, or part thereof , and includes the expenditure on manpower, repairs, spares, consumables, insurance and overheads;
- (t) **“Project”** means a generating station or the evacuation system up to interconnection point, as the case may be;
- (u) **“Regional Load Despatch Centre (RLDC)”** means the Centre established under sub-section (1) of Section 27 of the Act;
- (v) **“Regional .Power Committee (RPC)”** means a Committee established by resolution by the Central Government for a specific region for facilitating the integrated operation of the power systems in that region;
- (w) **“RPC Secretariat”** means the Secretariat of the RPC;
- (x) **“Schedule”** denote the injection schedule in MW (in case of generator) or drawl schedule in MW (in case of consumer) provided by generator/consumer to the SLDC (in case of connected to transmission network) or to the Distribution Licensee (in case of connected to distribution network) in a manner as specified in this code;
- (y) **“SERCs”** means State Electricity Regulatory Commissions;
- (z) **“State Load Despatch Centre(SLDC)”** means the the Centre established under subsection (1) of Section 31 of the Act;
- (aa) **“State”** means the State of Jharkhand;
- (bb) **“State Transmission Utility (STU)”** means the Board or the Government Company specified as such by the State Government under sub-section (1) of section 39 of the Act;
- (cc) **“Tariff period”** means the period for which tariff is to be determined by the Commission on the basis of norms specified under these Regulations;
- (dd) **“Useful Life”** in relation to a unit of a generating station for a solar Photovoltaic and solar thermal power project including evacuation system shall mean 25 years from the date of commercial operation (COD);
- (ee) **“Year”** means a financial year.

- 2.2 All other expressions used herein although not specifically defined herein, but defined in the Act, shall have the meaning assigned to them in the Act. The other expressions used herein but not specifically defined in this regulation or in the Act but defined under any law passed by the parliament applicable to electricity industry in the State shall have the meaning assigned to them in such law. Subject to the above the expression used herein but not specifically defined in this regulation or in the Act or any law passed by the parliament shall have the meaning as is generally assigned in the electricity industry.

### **A3: APPLICABILITY OF THE ORDER**

- 3.1 These regulations shall be applicable to grid connected :
- (a) Solar Photovoltaic (PV) power projects that directly convert solar energy into electricity and are based on the technologies such as crystalline silicon or thin film etc. as may be approved by MNRE.
  - (b) Solar thermal power projects based on Concentrated solar power (CSP) technologies such as line focusing or point focusing, as may be approved by MNRE, and uses direct sunlight, concentrating it several times to reach higher energy densities and thus higher temperatures whereby the heat generated is used to operate a conventional power cycle to generate electricity.
- 3.2 These regulations shall be applicable to solar PV power projects and solar thermal power projects in the state commissioned on or after the date of issue of this order and intended for sale of electricity to the Distribution Licensees within the state.
- 3.3 The control period will start from the date of publication of these regulations in the Official Gazette of Government of Jharkhand and will extend upto 31<sup>st</sup> March, 2020. The tariff decided in a particular control period shall apply to all projects which come up within that control period.
- 3.4 The revision in Regulations for next Control Period shall be undertaken at least six months prior to the end of the this Control Period and in case Regulations for the next Control Period are not notified until commencement of next Control Period, the tariff norms as per these Regulations shall continue to remain applicable until notification of the revised Regulations subject to adjustments as per revised Regulations

### **A4: DETERMINANTS OF TARIFF**

- 4.1 Under Section 14 of the Act, no license is required for generation and distribution of power in notified rural areas. Hence, stand-alone solar PV power project and solar thermal power project supplying to rural areas will not have their tariffs determined by the regulator.

- 4.2 Solar PV and solar thermal power project feeding to the grid would require tariff at which Distribution Licensees would procure power from these plants. Determination of tariff by the Commission would also facilitate signing of power purchase agreement between developers and Distribution Licensee.
- 4.3 The Commission shall determine the generic tariff on the basis of suo-motu petition at least six months in advance at the beginning of each year of the Control period for solar PV and solar thermal power projects for which norms have been specified under these Regulations.

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 any year of the control period shall also apply for such projects during the next year; and

(b) the generic tariff determined for Solar thermal projects based on the capital cost and other norms for the any year of the control period shall also apply for such projects during the next two years,

Provided that

- (i) the Power Purchase Agreements in respect of the Solar PV projects and Solar thermal projects as mentioned in this clause are signed on or before last day of the year for which generic tariff is determined and
- (ii) the entire capacity covered by the Power Purchase Agreements is commissioned on or before 31<sup>st</sup> March of the next year in respect of Solar PV projects and on or before 31<sup>st</sup> March of subsequent two years in respect of Solar thermal projects
- 4.4 To accelerate investment in solar power generation projects for supply to the grid in Jharkhand, an appropriate tariff mechanism is the key requirement. In this regard, the Commission views that:
- (a) The tariff mechanism must meet the needs of investors as well as Distribution Licensees;
- (b) Renewable power may become unviable at market determined prices. On the other hand, cost-plus tariffs would provide greater surety to investors without affecting retail tariffs significantly (as renewable energy would only be a small fraction of the energy sold by the licensee).

- 4.5 Solar PV power projects and solar thermal power projects are eligible to receive benefits under the Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC). In order to encourage investment in the solar power projects, the Commission has not considered CDM as one of the parameters for tariff determination.

### **Tariff Principle**

- 4.6 While deciding the tariff for power purchase by Distribution Licensee from renewable sources, the Commission has considered the principles and methodologies specified by:
- (a) Central Electricity Regulatory Commission
  - (b) National Electricity Policy
  - (c) National Tariff Policy
  - (d) Forum of Regulators (FOR)
  - (e) Central and State Governments
- 4.7 Taking into consideration the capital cost involved in the solar power generation projects it is expected that the project size would be small and the number of projects might be large with different technology options. Therefore, determination of project specific tariff for each solar generation project would involve significant cost and time to understand the technical details of the proposed projects. Further it is pertinent to note that the development of grid connected solar power project is still at a nascent stage in the country. Hence, the Commission is of the view that differentiation in terms of technology for the purpose of tariff determination is not desirable and the selection of appropriate technology should be left to the discretion of the project developers. Therefore, the Commission has considered a Generalised Tariff determination approach in these regulations.
- 4.8 Energy generation from solar plant utilizes sunshine as a resource. It does not utilize any fuel for generation of electricity in case of solar PV generation whereas in case of solar thermal power plant salt is used. Hence, the tariff for solar power generation does not have a variable fuel cost component but has a significant fixed cost component. Hence the Commission has considered a single-part tariff for solar PV and solar thermal power projects.

- 4.9 Solar energy generation depends upon natural factor such as availability of solar density in the region where the plant is located and is inherently Non-firm power. It is pertinent to ensure that the project should be viable for the project developer and at the same time the interests of utility and consumers are protected by avoiding huge cost burden on them. Though there are several approaches for tariff determination, such as front loaded, back loaded, and average tariff etc but each of these approaches has its advantages and disadvantages. It is important to capture the time value of money in the tariff structure which is incorporated in the levelled tariff approach. The Commission has, therefore, considered a levelled tariff approach in these regulations.
- 4.10 For the purpose of levelled tariff computation, the discount factor equivalent to Post tax weighted average cost of capital shall be considered.
- 4.11 Levellisation shall be carried out for the ‘useful life’ of the Renewable energy project while tariff shall be specified for the period equivalent to ‘Tariff Period’

### **Components of tariff**

- 4.12 Tariff determination using a cost-plus approach requires assumptions on the following operational and financial parameters:
- (a) Capital cost;
  - (b) Capacity utilization factor;
  - (c) Auxiliary consumption;
  - (d) Debt-equity ratio ;
  - (e) Term of loan and Interest on long term debt;
  - (f) Depreciation;
  - (g) Operation and Maintenance expenditure;
  - (h) Working capital and interest on working capital;
  - (i) Return on equity.
- 4.13 The subsequent sections detail the terms and conditions of various components set by the Commission for determination of tariff from the solar PV and solar thermal power projects.

## **Solar PV power projects**

### **Capital cost**

- 4.14 The capital cost of a solar PV power project primarily consists of the cost of Photo Voltaic modules, balance of plant equipment, power conditioning equipment, taxes and duties, cost of inter-connection, civil works, land including leasehold lands and erection & commissioning.
- 4.15 It is important to note that with the advancement in the technology of the solar PV based installations and associated economies of scale the capital cost for Solar PV installations would also decrease in the near future. The Commission has, after taking into consideration the above aspect, proposed a normative capital cost of Rs 605.85 lacs/MW for FY 2015-16 in accordance with the capital cost considered in CERC order for determination of Benchmark Capital Cost Norm for Solar PV Power projects and Solar Thermal Projects applicable during FY 2015-16.

### **Capacity utilization factor**

- 4.16 Capacity utilization factor (CUF) of a solar PV project is defined as the ratio of actual energy generated by the project to the equivalent energy output at its rated capacity over the year. The energy generation for a solar PV project is dependent on solar radiation, and number of clear sunny days. Thus the capacity utilization factor depends upon site specific parameters like insolation, ambient conditions and conversion efficiencies of PV cell.
- 4.17 CERC in its Terms and Conditions for Tariff determination from Renewable energy sources Regulations, 2012 has mentioned under Technology specific parameters for solar PV projects a capacity utilization factor of 19%.
- 4.18 Accordingly, the Commission has considered CUF at 19% for tariff determination in line with the CUF as considered in CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012.

### **Life of plant**

- 4.19 The Commission has considered the plant life as 25 years in accordance with the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 and as considered by other SERCs.

### **Debt equity ratio**

- 4.20 Clause 5.3(b) of the National Tariff Policy stipulates a debt-equity ratio of 70:30 for financing of power projects. JSERC (Terms and Conditions for determination of Thermal generation tariff), Regulations 2004 notified by the Commission also provide a normative debt-equity ratio of 70:30 for Generating Company. Moreover, when the equity employed is more than 30%, the amount of equity for the purpose for determining the tariff will be limited to 30% only. However, in case the equity employed is less than 30%, the actual equity employed is to be considered.

- 4.21 Accordingly, the Commission has considered a debt-equity ratio of 70:30 in line with the provisions provided by most of the SERCs and CERC in the various Tariff regulations.

### **Term of loan and Interest on long term debt**

- 4.22 The Commission has considered the term of loan for determination of tariff as 12 years.
- 4.23 Notwithstanding any moratorium period availed for the solar power project, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.
- 4.24 The Commission has considered the normative interest rate on long term loan as average State Bank of India (SBI) Base rate prevalent during the first six months of the previous year plus 300 basis points.

### **Depreciation**

- 4.25 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission. The Salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the asset.
- 4.26 Depreciation per annum shall be based on 'Differential Depreciation Approach' over loan period beyond loan tenure over useful life computed on Straight Line Method'. The depreciation rate for the first 12 years of the Tariff Period shall be 5.83% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 13th year onwards.
- 4.27 Depreciation shall be chargeable from the first year of commercial operation. Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

### **Operation and Maintenance expenses**

- 4.28 Operation and Maintenance expenses consist of employee expenses, administrative and general expenses, repairs and maintenance expenses, cost of spares and insurance expenses. The central commission while notifying the CERC Regulations 2012, has stated that these expenses generally lie in the range of 1-1.5% of the initial investment costs.
- 4.29 As per CERC's Terms and Conditions for Tariff determination from Renewable energy sources Regulations, 2012, the Commission has proposed O&M expenses at Rs 11.88 Lacs/MW for the 1<sup>st</sup> year of control period with an annual escalation of 5.72% which shall be reviewed at the end of the control period.

### **Working capital requirement and interest on working capital**

- 4.30 The following norms for working capital are considered by the Commission which is based on the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012:

- (a) Operation & Maintenance expenses for one month;
- (b) Receivables equivalent to 2 (Two) months of energy charges for sale of electricity calculated on the normative CUF;
- (c) Maintenance spares @ 15% of operation and maintenance expenses.

4.31 Interest on Working Capital shall be at interest rate equivalent to the average State Bank of India Base Rate prevalent during the first six months of the previous year plus 350 basis points.

### **Return on equity**

4.32 The National Tariff Policy envisages that the appropriate Commission may determine preferential tariff for procurement of power by Distribution Licensee from non-conventional energy sources.

4.33 The return on equity considered by the Commission in these regulations shall be:

- (a) 20% per annum for the first 10 years.
- (b) 24% per annum 11th years onwards.

### **Solar thermal power projects**

#### **Capital cost**

4.34 The capital cost of a solar thermal power project will vary from technology to technology. The capital cost of a solar thermal power plant primarily consists of plant and machinery, civil works, commissioning work, land acquisition, land including leasehold lands and evacuation facilities upto inter-connection point etc.

4.35 CERC in its order for determination of Benchmark Capital Cost Norm for Solar PV Power projects and Solar Thermal Projects applicable during FY 2015-16 has decided the capital cost for thermal power projects at Rs 1200 lacs/MW.

4.36 Accordingly, the Commission has considered capital cost of Rs1200 lacs/MW for FY 2015-16 in line with the capital cost as considered by CERC.

#### **Capacity utilization factor**

4.37 Various SERCs have considered the capacity utilization factor (CUF) in the range of 22% to 24% while determining the tariff for solar thermal plants. CERC has considered a normative capacity utilization factor of 23%. Taking into consideration the above facts, the Commission has considered the capacity utilization factor at 23% for tariff determination.

**Auxiliary consumption**

- 4.38 The auxiliary consumption of a solar thermal power plant is dependent on the configuration and mode of operation of the power plant. The auxiliary system includes the use of auxiliary heater to ensure that the salt used to store heat is maintained in a molten state during non-sunny days.
- 4.39 In the absence of specific details on this aspect, the Commission has considered auxiliary consumption as 10% for the determination of the tariff as per CERC norms.

**Operation & Maintenance expenses**

- 4.40 There is no operating experience of MW scale solar thermal power plant in the country further none of the SERCs have specified break up of operating expenses for solar thermal power projects. The Commission, after considering the above aspects, has proposed the normative O&M expenses at Rs 17.16 Lacs/MW for 1<sup>st</sup> year of control period with an escalation of 5.72% per annum for the determination of the tariff in accordance with the CERC norms.
- 4.41 The value of parameters mentioned as under for determination of tariff for Solar Thermal Power project shall be as specified for the solar PV project:
- (i).Life of plant;
  - (ii).Debt equity Ratio;
  - (iii).Term of loan and interest on long term debt;
  - (iv).Depreciation;
  - (v).Working capital requirement and Interest on working capital;
  - (vi).Return on equity.
- 4.42 The cost parameters considered by the Commission to determine tariff for power generated from solar PV power projects and solar thermal power projects are summarized in the table below:

**Table 1: Cost parameters considered by Commission for tariff determination**

Parameters	Solar PV project	Solar Thermal project
Capital cost (Rs Lacs/MW)	605.85	1200
Capacity Utilization Factor	19%	23%
Auxiliary consumption	-	10%
Useful life /Life of the machine	25 yrs	25 yrs
Debt: equity ratio	70:30	70:30
Loan repayment period	12 yrs	12 yrs
Interest on loan	Average SBI Rate during first 6 months of previous years + 3%	Average SBI Rate during first 6 months of previous years + 3%

<b>Parameters</b>	<b>Solar PV project</b>	<b>Solar Thermal project</b>
Interest on Working Capital	Average SBI Rate during first 6 months of previous years + 3.5%	Average SBI Rate during first 6 months of previous years + 3.5%
O&M expenses	Rs 11.88 Lakhs/MW with annual escalation of 5.72 %	Rs 17.16 Lakhs MW with annual escalation of 5.72 %
Depreciation	1 to 12 yrs – 5.83% Remaining depreciation spread over useful life	1 to 12 yrs – 5.83% Remaining depreciation spread over useful life
Residual value	10% of capital cost	10% of capital cost
Return on equity (pre-tax)	20% - for first 10 yrs, 24% - from 11th yr to 25 yr	20% - for first 10 yrs, 24% - from 11th yr to 25 yr

## **A5: OTHER TERMS AND CONDITIONS**

### **Wheeling**

- 5.1 To promote investment in solar PV and solar thermal power projects and encourage third party sale and Captive Power Plants, a 50% discount on wheeling charges and other surcharge on wheeling charges applicable to conventional form of generation shall be applicable for solar PV and solar thermal power projects in Jharkhand.

### **Scheduling**

- 5.2 The solar PV and solar thermal power projects with installed capacity of 10 MW and above shall be treated as ‘MUST RUN’ power plants and shall not be subjected to ‘merit order despatch’ principles.
- 5.3 Solar generating plants with capacity of 5 MW and above and connected at the connection point of 33 KV level and above shall be subjected to scheduling and despatch code as specified under Indian Electricity Grid Code (IEGC) -2010, as amended from time to time.
- 5.4 However, System operator may instruct the solar generator to back down generation on consideration of grid security or safety of any equipment or personnel is endangered and solar generator shall comply with the same. For this, Data Acquisition System facility shall be provided for transfer of information to concerned SLDC and RLDC.

- 5.5 The schedule of solar generation shall be given by the solar generator based on availability of the generator, weather forecasting, solar insolation, season and normal solar generation curve and shall be vetted by the RLDC in which the generator is located and incorporated in the inter-state schedule. If RLDC is of the opinion that the schedule is not realistic, it may ask the solar generator to modify the schedule.
- 5.6 Concerned RLDC and SLDC shall maintain the record of schedule from renewable power generating stations based on solar from the point of view of grid security. While scheduling generating stations in a region, system operator shall aim at utilizing available solar energy fully.
- 5.7 In case of solar generation no UI shall be payable/receivable by solar generator. The host state, shall bear the UI charges for any deviation in actual generation from the schedule. However, the net UI charges borne by the host State due to the solar generation, shall be shared among all the States of the country in the ratio of their peak demands in the previous month based on the data published by CEA, in the form of regulatory charge known as the Renewable Regulatory Charge operated through the Renewable Regulatory Fund. This provision shall be applicable, with effect from 1.1.2011, for new solar generating plants with capacity of 5 MW and above connected at connection point of 33 KV level and above and, who have not signed any PPA with states or others as on the date of coming into force of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010.

### **Outage planning**

- 5.8 Annual outage plan shall be prepared in advance for the financial year by the RPC Secretariat in consultation with NLDC and RLDC and reviewed during the year on quarterly and Monthly basis. The outage planning of solar power plant and its associated evacuation network shall be planned to extract maximum power from these renewable sources of energy. Outage of solar power plant should be planned, if required during the rainy season.

### **Reactive power supply**

- 5.9 The charges applicable for reactive power supply to solar PV and solar thermal power project shall be as per JSERC (Open Access in Intra-State Transmission and Distribution) Regulations, 2005 and subsequent amendments thereof.

### **Metering and billing**

- 5.10 The metering and communication arrangements shall be provided in accordance with the JSERC (Open Access in Intra-State Transmission and Distribution) Regulations, 2005 and subsequent amendments thereof, Grid Code and Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 in consultation with Distribution Licensee/State Transmission Utility. The periodicity of testing, checking, calibration etc., will be governed by the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 and regulations issued by the Commission from time to time in this regard.
- 5.11 Main and Check Meters shall have facility to communicate its reading to State Load Dispatch Centre on real time basis or otherwise as may be specified by the Commission.

- 5.12 Meter reading shall be taken as per the procedure devised by the Distribution Licensee/State Load Despatch Centre. The term 'Meter' shall include Current transformers, voltage/potential transformers, wiring between them and meter box/panel etc.
- 5.13 Billing of the metered energy shall be carried out on a monthly basis.

### **Payment mechanism**

- 5.14 The Commission prescribes a settlement period of 60 days from the date of presentation of the bill for the net energy sold after deducting the charges for start up power and reactive power to the concerned Distribution Licensee where the power is injected, in order to ensure that the generating company has an assurance of cash inflow for the energy delivered to the grid.
- 5.15 In case of delay beyond the 60 days payment period, the Distribution Licensee shall pay a late payment surcharge at the rate of 1.25% per month to the generating company.
- 5.16 In case the Distribution Licensee makes the payment other than through letter of credit within 30 days from the date of presentation of bills by the generating company, a rebate of 1% billed amount shall be allowed by the generating company.
- 5.17 In case where payments of bills of the generating company are made through letter of credit within 1 month of presentation of bill, a rebate of 2% shall be allowed to the Distribution Licensee.

### **Third party sale**

- 5.18 In case of default in payment for more than three months continuously by the Distribution Licensee, the generating company can sell power to the third party.
- 5.19 In those cases where the developer has an existing arrangement for third party supply or for captive consumption and in case the generating company desires to terminate the agreement with third party and to supply to the Distribution Licensee, the Distribution Licensee with the prior permission of the Commission, shall purchase the power at the rate as determined by the Commission in these regulations.

### **Start up power**

- 5.20 The solar PV and solar thermal power generator shall be entitled to draw start up power from the Distribution Licensee's network. The drawal of energy by the generator during the start up from the Distribution Licensee shall be adjusted against the generated energy.

### **Drawing of power during shut down**

- 5.21 The solar PV and solar thermal power generator shall be entitled to draw power from the Distribution Licensee's network during shutdown period of its plant or other emergencies. The energy consumed shall be billed at the temporary rate applicable to HT Industrial category. The drawal by the solar PV and solar thermal power generator shall not normally exceed 11.5 % of the MW capacity it delivers to the Distribution Licensee.

### **Banking**

- 5.22 Jharkhand does not have a Renewable Policy as yet to deal with this issue. But it is recommended that facility for 100% banking of generated power is allowed on the condition that banked power will not be returned by more than a fixed quantity at one time.
- 5.23 Utilities should facilitate banking through proper arrangement so that power banked during off-peak period is not drawn during peak season.

### **Minimum purchase requirement**

- 5.24 Under the provisions of the National Tariff Policy, the Commission is required to fix a minimum percentage for purchase of energy from renewable sources. The target set under the Renewable Purchase Obligation (RPO) helps boost the confidence of investors as it offers an assured market for renewable energy.
- 5.25 Ideally, there should be technology wise procurement target so that all renewable energy technologies get an equal opportunity to grow. As in the present circumstances renewable energy technologies cannot compete with other technologies, due to higher cost of generation. It is important in the given context that all renewable energy technologies are assigned with some procurement target offering a level playing field.
- 5.26 The Commission has accordingly specified the procurement target for solar PV and solar thermal power in this control period as specified in the Jharkhand State Electricity Regulatory Commission (Renewable purchase obligation and its compliance) Regulations, 2010 and as amended from time to time.

### **Evacuation Infrastructure**

- 5.27 The State Transmission Utility (STU) shall bear 100% of the cost of evacuation infrastructure.

### **Sharing of CDM benefits**

- 5.28 The proceeds of carbon credit from the approved CDM projects shall be shared between the generating company and concerned beneficiaries in the following manner:
- (a) 100% of the gross proceeds on account of CDM benefit to be retained by the project developer in the first year after the date of commercial operation of the generating station ;
  - (b) In the second year, the share of the beneficiaries 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 the generating company and the beneficiaries.

### **Incentive by Central / State government**

5.29 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 generating company, for the renewable energy power plants while determining the tariff under these Regulations.

Provided that the following principles shall be considered for ascertaining income tax benefit on account of accelerated depreciation, if availed, for the purpose of tariff determination:

- i. Assessment of benefit shall be based on normative capital cost, accelerated depreciation rate as per relevant provisions under Income Tax Act and corporate income tax rate.
- ii. Capitalization of RE projects during second half of the fiscal year. Per unit benefit shall be derived on levellised basis at discount factor equivalent to Post Tax weighted average cost of capital.

### **Taxes and Duties**

5.30 Tariff determined under these regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government:

Provided that the taxes and duties levied by the government shall be allowed to pass through on actual incurred basis.

### **Financial benefits**

5.31 The Department of Industries, Government of Jharkhand notified the Industrial Policy in the year 2001. The policy delineates enabling policies and incentives promoting industrial investment in the state. The policy states that exploitation and development of non-conventional sources of power, such as geothermal energy, biomass based power, solar power, wind power etc. to generate power locally and provide it in the remote areas will be encouraged. The Government shall accord "Industrial Status" to such non-conventional sources of power generating units, which also would be allowed to wheel energy.

5.32 According to the policy:

- (a) All renewable energy based power generation projects in Jharkhand are entitled for exemption of electricity duty for 10 years from the date of commissioning of the project.
- (b) Renewable energy based power generation projects in Jharkhand are exempted from open access charges.
- (c) If government land is available, land use permission will be given to the power producer for duration of 30 years or project life whichever is less for a token land premium per year. If the power producer purchases private land for the project, then they will be eligible to get exemption of 50% on stamp duty.

- (d) Non-conventional energy equipment and other items related to the equipment will be exempted from commercial tax.
- (e) All renewable energy based power plants in Jharkhand will be given the status of industry and will be entitled to get all benefits available for industrial units.

### **Single Window Clearance**

- 5.33 The Industrial Policy, 2001 also suggests for an effective Single Window system to be established at the district level, the Industrial Area Development Authority Level and at the Directorate level to ensure timely disposal of various pending matters at such levels.
- 5.34 The Commission observes that renewable energy developers loose significant amount of time in getting approvals and clearances from various departments and authorities. The Commission also observes that there is requirement of a practical and implementable single window clearance arrangement within the state and suggests the State Government to facilitate such provision in Jharkhand.

### **Tariff period**

- 5.35 The Commission has considered the useful life of a Solar PV power plant as 25 years and it is proposed that the tariff determined by this order be applicable for 25 years for the projects having Commercial Operation Date (COD) up to 31<sup>st</sup> March, 2020.
- 5.36 The Commission has considered the useful life of a Solar Thermal power plant as 25 years and it is proposed that the tariff determined by this order be applicable for 25 years for the projects having Commercial Operation Date (COD) upto 31<sup>st</sup> March, 2020.

### **A6: POWER TO REMOVE DIFFICULTIES**

- 6.1 In case of any difficulty in giving effect to any of the provisions of this Regulation, the Commission may by general or special order, issue appropriate directions to Generators, Transmission Licensee(s), Distribution Licensee(s) etc., to take suitable action, not being inconsistent with the provisions of the Act, which appear to the Commission to be necessary or expedient for the purpose of removing the difficulty.
- 6.2 The generators, Licensees may make an application to the Commission and seek suitable orders to remove any difficulties that may arise in implementation of these regulations.

### **A7: POWER TO AMEND**

- 7.1 The Commission may from time to time add, vary, alter, suspend, modify, amend or repeal any provisions of this Regulation.

**A8: SAVINGS**

- 8.1 Nothing in these Regulations shall be deemed to limit or otherwise affect the inherent power of the Commission to make such orders as may be necessary to meet the ends of justice or to prevent abuses of the process of the Commission.
- 8.2 Nothing in this Regulations shall bar the Commission from adopting in conformity with the provisions of the Act a procedure, which is at variance with any of the provisions of these Regulations, if the Commission, in view of the special circumstances of a matter or class of matters and for reasons to be recorded in writing, deems it necessary or expedient for dealing with such a matter or class of matters.
- 8.3 Nothing in these Regulations shall, expressly or impliedly, bar the Commission dealing with any matter or exercising any power under the Act for which no Regulations or Regulations have been framed, and the Commission may deal with such matters, powers and functions in a manner it thinks fit.

**(By order of the Commission)**

**(A.K. Mehta)**

**Secretary**

**Jharkhand State Electricity Regulatory Commission**