

**JHARKHAND STATE ELECTRICITY REGULATORY COMMISSION, RANCHI**  
**(DETERMINATION OF TARIFF FOR BIOMASS AND NON-FOSSIL FUEL BASED**  
**CO-GENERATION PROJECTS)**

**REGULATIONS, 2009**

Draft Regulation inviting suggestions / comments  
Regulation No.\_\_\_\_\_, dated\_\_\_\_ - 10 -2009

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 (EA, 2003) and all other powers enabling it in this behalf, the Jharkhand State Electricity Regulatory Commission hereby makes the following Regulation, namely:

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

- 1.1 This Regulation may be called the ‘Jharkhand State Electricity Regulatory Commission (Determination of tariff for Biomass and non-fossil fuel based co-generation projects) Regulations, 2009.
- 1.2 These Regulations shall extend to the whole state of Jharkhand and shall apply to the Biomass and non-fossil fuel based co-generations Plants using such fuels.
- 1.3 These Regulations shall come into force on the date of its publication in the Jharkhand Gazette
- 1.4 The control period will start from the date of publication of these regulations in the Jharkhand Gazette and will end on 31.03.2015. The tariff decided in a particular control period shall apply to all projects which come up within that control period.

**A2: DEFINITION**

- 2.1 In this regulation unless the context otherwise requires:
  - (a) “Act” means the Electricity Act, 2003 and subsequent amendment thereof;
  - (b) “JSERC or Commission” means the Jharkhand State Electricity Regulatory Commission;
  - (c) “CERC” means The Central Electricity Regulatory Commission referred to in subsection (1) of section 76;
  - (d) “Day” means a continuous period starting at 00.00 hours and ending at 24.00 hours;

- (e) “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;
- (f) “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;
- (g) “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;
- (h) “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;
- (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 and the Indian Electricity Grid Code.
- (k) “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;
- (l) “State” means the State of Jharkhand;
- (m) “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;
- (n) “Auxiliary energy consumption” or “AUX” in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station, and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station;
- (o) “Biomass” means wastes produced during agricultural and forestry operations (for example straws and stalks) or produced as a by-product of processing operations of agricultural produce (e.g., husks, shells, deoiled cakes, etc); wood produced in dedicated energy plantations or recovered from wild bushes/weeds; and the wood waste produced in some industrial operations;

- (p) “Capital cost” means the cost inclusive of all capital work including plant and machinery, civil work, erection and commissioning, financing and interest during construction;
- (q) “Control Period or Review Period” means the period during which the norms for determination of tariff specified in these regulations shall remain valid;
- (r) “Gross calorific value” or “GCV” in relation to fuel used in generating stations means the heat produced in kCal by complete combustion of one kilogram of solid fuel or one litre of liquid fuel or one standard cubic metre of gaseous fuel, as the case may be;
- (s) “Gross station heat rate” or “GHR” means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals of a thermal generating station;
- (t) “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;
- (u) “Project” means a generating station or the evacuation system up to interconnection point, as the case may be;
- (v) “Tariff period” means the period for which tariff is to be determined by the Commission on the basis of norms specified under these Regulations;
- (w) “Year” means a financial year;

2.2 All other expressions used herein although not specifically defined herein, but defined in the EA, 2003, shall have the meaning assigned to them in the EA, 2003. The other expressions used herein but not specifically defined in this regulation or in the EA, 2003 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 EA, 2003 or any law passed by the parliament shall have the meaning as is generally assigned in the electricity industry.

### **A3: EXTENT OF APPLICATION**

3.1 This Regulation shall apply to,

- (a) **Biomass power project:** Biomass power projects with minimum steam pressure configuration of 62 bar and above, using new plant and machinery based on Rankine cycle technology and using biomass fuel sources, provided use of fossil fuel is restricted only to 15% of total fuel consumption on annual basis.

- (b) **Non-fossil fuel based co-generation project**: Any facility that uses non-fossil fuel input for the power generation with minimum steam pressure configuration of 40 bar and above and also utilises the thermal energy generated for useful heat applications in other industrial activities simultaneously provided that the sum of useful power output and one half of useful thermal output is greater than 45% of facility's energy consumption during season.

For the purpose of this clause,

- (i) 'Useful power output' is the gross electrical output from the generator. There will be an auxiliary consumption in the co-generation plant itself. In order to compute the net power output it would be necessary to subtract the auxiliary consumption from the gross output. For simplicity of calculation, the useful power output is defined as the gross electricity (kWh) output from the generator.
- (ii) 'Useful Thermal Output' is the useful heat (steam) that is provided to the process by the cogeneration facility.
- (iii) 'Energy consumption' of the facility is the useful energy input that is supplied by the fuel (normally bagasse or other such biomass fuel).

#### **A4: DETERMINANTS OF TARIFF FOR BIOMASS AND NON-FOSSIL FUEL BASED CO-GENERATION PROJECTS**

- 4.1 Under Section 14 of the Electricity Act 2003, no license is required for generation and distribution of power in notified rural areas. Hence, stand alone biomass power projects and non-fossil fuel based co-generation projects supplying to rural areas will not have their tariffs determined by the regulator.
- 4.2 Biomass power projects and non-fossil fuel based co-generation projects 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 developer and distribution licensee.
- 4.3 To accelerate investment in biomass power projects and non-fossil fuel based co-generation projects for supply to the grid in Jharkhand, an appropriate tariff mechanism is the key requirement. In this regard, it is observed 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).

- 4.4 Biomass power projects and non-fossil fuel based co-generation projects are eligible to receive benefits under the Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC). To encourage investment, tariffs for the biomass power projects and non-fossil fuel based co-generation projects are determined without taking CDM benefits into account.

### **Tariff Principle**

- 4.5 The 'Benchmark Tariff Determination' approach based on performance standards in terms of specific fuel consumption, auxiliary consumption, plant load factor, prices of fuels etc. has been adopted by the State Electricity Regulatory Commissions (SERCs) to determine tariffs and set performance targets.
- 4.6 This approach generally requires evaluation, detailed scrutiny and determination of each cost parameter separately. There is considerable diversity in the value of parameters across the projects, such as in respect of plant capacity, configuration, boiler technology (pressure levels), biomass fuel mix and availability, station heat rate, fuel procurement and storage plan, project cost, financing plan, etc.
- 4.7 The Commission considers that two part tariff is to be determined to allow recovery of fixed and variable costs separately through the fixed and variable components of tariff.
- 4.8 The process of project specific tariff fixation is cumbersome and time consuming whereas the generalised tariff mechanism provides incentive to the investors for use of most efficient equipment to maximise returns and for selecting the most efficient site.
- 4.9 The Commission adopts the cost-plus approach towards tariff determination so as to balance the requirements of various stakeholders.

### **Cost of generation from biomass and non-fossil fuel based co-generation projects**

- 4.10 Tariff determination using a cost-plus approach requires assumptions on the following parameters:
- (a) Capital cost
  - (b) Normative PLF for recovery of fixed charges
  - (c) Energy cost (derived from assumptions on heat rate, fuel cost & calorific value)
  - (d) O&M cost
  - (e) Debt-Equity ratio

- (f) Interest cost on long term debt
- (g) Depreciation
- (h) Return on equity
- (i) Normative working capital and interest on working capital

4.11 The subsequent sections detail the observations of JSERC on various tariff components.

### Capital cost

- 4.12 The Commission observes that the capital cost of the projects is dependent on factors such as type of technology used, lay out of plant and its configuration, and would also vary depending on the capital costs related to type of fuel used, transportation and storage of fuel and how environment friendly the plant is designed to be. The Capital cost specified here shall include all capital work including plant and machinery, civil work, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point.
- 4.13 **Biomass power projects:** The capital cost considered by the Commission for biomass (combustion) projects in Jharkhand is Rs. 4.25 Crore/MW.
- 4.14 Capital cost of biomass (gasifier) based power generation plant considered by the Commission is Rs. 5.50 Cr/MW.
- 4.15 **Non-fossil fuel based co-generation projects:** The capital cost of non-fossil fuel based co-generation projects considered by the Commission is Rs. 4.00 Crore/MW.
- 4.16 The capital cost of biomass as well as non-fossil fuel based co-generation projects shall be revised over the control period with changes in Wholesale Price Index (WPI) for steel and electrical machinery based on the following indexation formula.

Capital cost for n<sup>th</sup> year,  $CC_{(n)} = P\&M_{(n)} * (1+F_1+F_2+F_3)$

Plant & Machinery cost for nth year,  $P\&M_{(n)} = P\&M_{(0)} * (1+d_{(n)})$

$d_{(n)} = [a * \{(SI_{(n-1)}/SI_{(0)}) - 1\} + b * \{(EI_{(n-1)}/EI_{(0)}) - 1\}] / (a+b)$

Where,  $PM_{(0)}$  = Plant & Machinery cost for the base year

$d_{(n)}$  = Capital cost indexation factor for year (n) of Control Period

$SI_{(n-1)}$  = Average WPI Steel Index prevalent for fiscal year (n-1) of the Control Period

$SI_{(0)}$  = Average WPI Steel Index prevalent for calendar year (0) at the beginning of the Control Period

$EI_{(n-1)}$  = Average WPI Electrical Machinery Index prevalent for fiscal year (n-1) of the Control Period

$EI_{(0)}$  = Average WPI Electrical Machinery Index prevalent for calendar year (0) of the Control Period

a = Constant to be determined by the Commission from time to time for weightages to Steel Index, (in default it is 0.70)

b = Constant to be determined by the Commission from time to time for weightages to Electrical Machinery Index, (in default it is 0.30)

$F_1$  = Factor for Land and Civil work (0.10)

$F_2$  = Factor for Erection and Commissioning (0.09)

$F_3$  = Factor for IDC and Financing Cost (0.14)

#### **Plant load factor**

4.17 **Biomass power projects:** The technology used in biomass power projects and non-fossil fuel based co-generation projects is similar to conventional thermal power projects which have a plant load factor in excess of 85%. Hence the Commission considers a plant load factor of 80% for combustion as well as gasifier based biomass power projects.

4.18 **Non-fossil fuel based co-generation projects:** The capacity utilisation of non-fossil fuel based co-generation plants primarily depends on the availability of bagasse. For this reason, the Commission considers a capacity utilisation factor of 55% for non-fossil fuel based co-generation plants in Jharkhand.

#### **Auxiliary Consumption**

4.19 The auxiliary consumption is a function of efficiency and the energy conservation methods adopted by the generators. The Central Electricity Regulatory Commission (CERC), in its RE Tariff Regulations, 2009 has specified normative auxiliary consumption of 10% for biomass power projects and that of 8.5% for non-fossil fuel based co-generation projects. The auxiliary consumption norms considered by other SERCs fall in the range of 8-10%.

4.20 The Commission therefore considers an auxiliary consumption of 10% for biomass power projects and 8.50% for non-fossil fuel based co-generation projects.

### **Calorific value of fuel**

- 4.21 **Biomass power projects:** RE Tariff Regulations, 2009 notified by CERC, specify a maximum fossil fuel consumption corresponding to 15% of total fuel consumption on annual basis for biomass power projects. Also as per MNRE/GOI circular no. 14/8/2004-SHP, biomass power projects wishing to avail Central Financial Assistance (CFA) can use fossil fuel to provide a maximum of 15% of total energy consumption in kCals on annual basis or as per Detailed Project Report (DPR) whichever is less.
- 4.22 Considering usage of coal to the maximum permissible extent and the calorific value of fuel for biomass (combustion and gasifier) power projects is 3467 kCal/kg.
- 4.23 **Non-fossil fuel based co-generation projects:** The calorific value value of fuel for non-fossil fuel based co-generation projects considered by the Commission is 2250 kCal/kg.

### **Fuel cost**

- (a) **Biomass power projects:** Cost of fuel for biomass (combustion/gasifier) power projects during the first year of operation is Rs. 1797/Tonne and
- (b) **Non-fossil fuel based co-generation projects:** Cost of fuel for non-fossil fuel based co-generation projects during first year of operation is Rs. 1163/Tonne.
- 4.24 An annual escalation of 5% on fuel cost is provided by the Commission in line with other SERCs.

### **Gross Station Heat Rate**

- 4.25 Gross Station Heat Rate (GHR) is a key performance parameter for a power plant. The GHR depends on several factors such as plant capacity, plant design and configuration, technology (boiler type and pressure levels etc.), plant operation and maintenance practices, quality of fuel received, and operational performance over varying load conditions. The station heat rate considered by other SERCs fall in the range of 3600-3800 kCal/kWh.
- 4.26 **Biomass power projects:** For biomass (combustion) power projects and biomass (gasifier) power projects, the Commission considers station heat rate of 3800 kCal/kWh.
- 4.27 **Non-fossil fuel based co-generation projects:** Station heat rate considered by the Commission for non-fossil fuel based co-generation projects is 3600 kCal/kWh.

## Working Capital Requirement

4.28 The majority of biomass power projects and non-fossil fuel based co-generation projects will be based on crop residue in the state, which are thus seasonal in nature and would require good storage facility to store fuel for longer duration. In view of seasonal variation in availability of fuel, the Commission has considered a higher working capital for fuel stock. The following norms for working capital are considered by the Commission for biomass power projects and co-generation projects:

- (a) 4 months of fuel stock ,
- (b) 1 month of O& M cost and
- (c) 2 months of receivables.
- (d) Maintenance spares equivalent to 15% of O&M expenses

## Depreciation

4.29 In order to facilitate loan repayment by the developers within a period of 10 years (including 1 year moratorium), the Commission proposes depreciation rate of 7% for the first 10 years and 2% for the remaining 10 years of the total plant life considered as 20 years.

4.30 The cost parameters considered by the Commission to determine tariff for power generated from biomass power projects and non-fossil fuel based co-generation projects are as mentioned below:

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

Parameters	Biomass (Combustion)	Biomass (Gasifier)	Non-fossil fuel based co-generation
<b>Capital cost (Rs Cr/MW)</b>	4.25	5.50	4.00
<b>PLF</b>	80%	80%	55%
<b>Auxiliary consumption</b>	10%	10%	8.50%
<b>Heat rate (kCal/kWh)</b>	3800	3800	3600
<b>Calorific value (kCal/kg)</b>	3467	3467	2250
<b>Fuel cost (Rs/ MT)</b>	1797	1797	1163
<b>Fuel price escalation p.a</b>	5%	5%	5%
<b>O&amp;M as % of capital cost</b>	4.50%	4.50%	3.00%
<b>O&amp;M escalation per year</b>	5.72%	5.72%	5.72%
<b>D-E ratio</b>	70:30	70:30	70:30
<b>Return on equity (pre-tax)</b>	19% - 1st 10 yrs, 24% - 11 to 20 yr	19% - 1st 10 yrs, 24% - 11 to 20 yr	19% - 1st 10 yrs, 24% - 11 to 20 yr
<b>Depreciation</b>	1 to 10 yrs - 7% 11 to 20 yrs – 2%	1 to 10 yrs - 7% 11 to 20 yrs – 2%	1 to 10 yrs - 7% 11 to 20 yrs – 2%

## **A5: OTHER KEY DRIVERS**

### **Monitoring the utilisation of fossil fuel**

- 5.1 The State Nodal Agency, Jharkhand Renewable Energy Development Authority (JREDA), needs to ensure that the projects are sized in co-relation to the locally available non-fossil fuels. The Commission further suggests that JREDA should propose a policy under which if a site is identified by any developer for installation of a biomass power project or non-fossil fuel based co-generation project, JREDA should not allow any other plant in the nearby periphery. The decision shall be based on the capacity of plant that can procure biomass fuel optimally in that area. For example, the Government of Madhya Pradesh mentions in “Incentive Policy for encouraging generation of power in Madhya Pradesh through Non-conventional Energy sources (solar, wind, bio energy, etc.)”<sup>1</sup> that if a site is identified by any developer for installation of a biomass power project and the State Nodal Agency confirms that the site identified is suitable for 7 MW project, then no other biomass power project will be allowed within the 25 km periphery of the project.
- 5.2 However, it is important that the facility is given only on completion of project within the specified time.
- 5.3 As per MNRE/GOI circular no. 14/8/2004-SHP, biomass power projects wishing to avail Central Financial Assistance (CFA) can use fossil fuel to provide a maximum of 15% of total energy consumption in kCals on annual basis or as per Detailed Project Report (DPR) whichever is less. The CERC RE Tariff Regulations, 2009 also specify usage of fossil fuels by a biomass based power plant to a maximum extent of 15% of total fuel consumption an annual basis.
- 5.4 **Monitoring mechanism:**
- (a) Each month, project developers shall furnish to the beneficiary and JREDA, a statement on the monthly procurement and usage of fossil fuels duly certified by Chartered Accountant. The statement shall cover details such as –
- (i) Quantity of fuel for each fuel type consumed and procured during the month for power generation purposes,
  - (ii) Cumulative quantity of each fuel type consumed and procured till the end of that month during the year,
  - (iii) Break-up of delivered cost of fuel during the month for each fuel type. The break-up would include the cost of procurement payable to fuel suppliers, storage and handling cost, loading/un-loading, and transportation costs.

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<sup>1</sup> Government of Madhya Pradesh , Energy Department, August, 2006

- (iv) Actual (gross and net) energy generation during the month,
- (v) Cumulative actual (gross and net) energy generation until the end of that month during the year,
- (vi) Opening fuel stock quantity,
- (vii) Receipt of fuel quantity at the power plant site and
- (viii) Closing fuel stock quantity for each fuel type available at the power plant site.

### **Wheeling**

- 5.5 To promote investment in biomass power projects and non-fossil fuel based co-generation and encourage third party sale and CPPs, a 50% discount on wheeling charges and other surcharge on wheeling charges applicable to conventional form of generation would be viable for biomass power projects and non-fossil fuel based co-generation projects in Jharkhand.

### **Banking**

- 5.6 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.
- 5.7 Utilities should facilitate banking through proper arrangement so that power banked during off-peak period is not drawn during peak season.

### **Balancing & Settlement Code**

- 5.8 Biomass power projects with installed capacity of less than 10 MW shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles.
- 5.9 Biomass power projects with an installed capacity of 10 MW and above and all non-fossil fuel based co-generation projects shall be subjected to scheduling and despatch code as specified under Indian Electricity Grid Code (IEGC) and Jharkhand State Electricity Commission (Balancing and Settlement Code) Regulations, 2009 including amendments thereto.

### **Minimum Purchase Requirement**

- 5.10 Under the National Tariff Policy, the Commission is required to fix a minimum percentage for purchase of energy from renewable sources.
- 5.11 The following states have set target for procurement from renewable sources of the total procurement in a year. The target set under the Renewable Energy Obligation (REO) by the states help boost the confidence of investors as it offers an assured market for renewable energy.

**Table 2 Renewable energy obligations fixed by SERCs in various states**

State	REO	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Uttar Pradesh	Max REO	7.50%	7.50%	7.50%	7.50%		
Uttarakhand	Min REO		5.00%	5.00%	8.00%	9.00%	10.00%
West Bengal	Min REO			4.80%	6.80%	8.30%	10%
Orissa	Max REO		3.00%	3.50%	4.00%	4.50%	5.00%
Punjab	Min REO		1.00%	1.00%	2.00%	3.00%	4.00%
Haryana	Max REO	2.00%	2.00%	3.00%	10.00%		
Maharashtra	Min REO	3.00%	4.00%	5.00%	6.00%		
Gujarat	Min REO	1.00%	1.00%	2.00%			
Andhra Pradesh	Min REO				5.00%	5.00%	5.00%
Karnataka	Min REO		7-10%	7-10%	7-10%	7-10%	7-10%

Source: SERC Tariff Orders/regulations

5.12 Some State Electricity Regulatory Commissions have also set technology specific targets for procurement of renewable energy.

**Table 3: Technology specific REOs for FY 09**

Technology	Chhattisgarh	Madhya Pradesh	Kerala
Biomass	5%	2%	
Wind		5%	2%
SHP	3%		2%
Others	2%	3%	1%
<b>Total</b>	<b>10%</b>	<b>10%</b>	<b>5%</b>

5.13 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 some of the renewable energy technologies such as Solar PV and thermal can not 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.

5.14 From the experiences drawn from other states, procurement of power from renewable energy sources power has not been made available as per REO due to backing out, non-attractiveness of the scheme, project delays etc. However, in majority of the cases states which failed to meet the procurement target under REO, as illustrated in the Table below, the reason for failure has been due to improper and un-scientific manner of setting targets under REO.

**Table 4: REO compliance in some states (FY 07-08)**

State	REO Target	REO Compliance
MP	10%	0.11%
Maharashtra	4%	2.98%
Haryana	2%	0.01%
Orrissa	3.50%	1.96%
Uttar Pradesh	7.50%	2.50%

Source: SERC Tariff Orders

- 5.15 Central Electricity Regulatory Commission (CERC) is contemplating the introduction of Renewable Energy Certificates (RECs) in India to decrease the market risk of renewable energy and encourage investment in renewable energy sector. Introduction of RECs may witness, 'enforcement surcharge' being charged from utilities for non-compliance of RPS specified by the respective SERC. Therefore RPS is a pre-requisite for the introduction of RPS in India.
- 5.16 In view of the above, the Commission determines Renewable Portfolio Standard (RPS) for the state taking into account the available potential of various renewable energy technologies in the state, amount of power purchased by the distribution utility in the state, applicability of RPS, and non-compliance of RPS etc.

**Table 5: RPS for Jharkhand from FY 2011 to FY 2015**

<b>Technology</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
<b>SHP</b>	0.75%	1.25%	1.50%	2.00%	3.00%
<b>Biomass &amp; Co-gen</b>	0.75%	1.00%	1.50%	2.00%	3.00%
<b>Others</b>	0.00%	0.75%	1.00%	2.00%	3.00%
<b>Total</b>	<b>1.50%</b>	<b>3.00%</b>	<b>4.00%</b>	<b>6.00%</b>	<b>9.00%</b>

- 5.17 Target for respective technologies reflected in the table above, shall have the flexibility to accommodate other technologies till overall target is not achieved by the distribution utility. For example, if in the FY 2011-12, BSEB achieves the target of procurement of 1.25% of the total power procurement from SHP projects, nonetheless, it does not meet the overall target of 3% for the FY 2011-12, it can procure additional power from SHP projects till it meets the overall target of 3% of the total procurement.

### **Evacuation Infrastructure**

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

### **Sharing of CDM benefits**

- 5.19 The proceeds of carbon credit from the biomass power projects or non-fossil fuel based co-generation projects should be shared between the developer and the energy off-taker in the following manner:
- (a) 100% of the CDM benefits to be retained by the project developer in the first year after date of commercial operation of the generating station
  - (b) In the second year, the share of energy off-taker shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, where after the CDM benefits shall be shared in equal proportion by the project developer and energy off-taker.

## **Financial benefits**

- 5.20 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.
- 5.21 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**

- 5.22 The Industrial Policy, 2001 further 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.
- 5.23 The Commission notices that renewable energy developers loose significant amount of time in getting approvals and clearances from various departments and authorities. The Commission observes there is requirement of a practical and implement able single window clearance arrangement within the state and suggests the State Government to facilitate such provision in Jharkhand.

## **Tariff period**

- 5.24 The tariff period of biomass power projects and non-fossil fuel based co-generation projects shall be thirteen (13) years. The tariff determined as per these regulations shall be applicable for biomass power projects and non-fossil fuel based co-generation projects, only for a duration of thirteen (13) years.

## **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.
- 8.1 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**