# TRIPURA ELECTRICITY REGULATORY COMMISSION

## (Renewable Energy Regulations (Multi Year Tariff)), 2015, Dated : 16-10-2015 with amendment Dated: 28-09-2016

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<tr><td>3.</td><td>Tariff structure</td><td colspan="2">1. The tariff for RE projects shall be single part tariff consisting of the following fixed cost Components<br>(a) Return on equity;<br>(b) Interest on loan capital;<br>(c) Depreciation;<br>(d) Interest on working capital;<br>(e) Operation and maintenance expenses;<br>2. For RE having fuel cost component, like biomass power projects and non-fossil fuel based cogeneration, single part tariff with two components, fixed cost component and fuel cost component, is to be determined</td></tr>
<tr><td>4.</td><td>Levellised tariff</td><td colspan="2">Levelised Tariff is calculated by carrying out levelisation for ‘useful life’ of each technology considering the discount factor.</td></tr>
<tr><td>5.</td><td>Tariff design</td><td colspan="2">1. The generic tariff shall be determined on levelised basis for the Tariff Period.<br>2. Levelisation 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.</td></tr>
<tr><td>6.</td><td>Discount Factor</td><td colspan="2">The discount factor considered is equal to the Post Tax weighted average cost of the capital on the basis of normative debt: equity ratio (70:30).</td></tr>
<tr><td>7.</td><td>Debt-Equity Ratio</td><td colspan="2">70:30<br>If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.</td></tr>
<tr><td>8.</td><td>Return on Equity</td><td colspan="2">1. The value base for the equity shall be 30% of the capital cost.<br>2. The normative Return on Equity shall be:<br>(a) Pre-tax20% per annum for the first 10 years.<br>(b) Pre-tax 24% per annum 11th years onwards</td></tr>
<tr><td>9.</td><td>Loan and Finance Charges</td><td colspan="2">Loan Tenure-12 Years<br>For the purpose of computation of tariff, the normative interest rate shall be considered as average State Bank of India (SBI) Base rate prevalent during the first six months of the previous year plus 300 basis points.</td></tr>
<tr><td>10.</td><td>Depreciation</td><td colspan="2">1. 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.</td></tr>
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| | | 2. 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. | |
| **11.** | **Interest Rate on working Capital** | 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. | |
| **12.** | **Capital Cost** | **Renewable Energy Projects** | **Capital Cost Norm for FY 2015-16 (Rs. Lakh/MW)** |
| | | Wind Energy | 619.522 |
| | | Small Hydro below 5 MW | 850.000 |
| | | Small Hydro (5 MW-25 MW) | 775.000 |
| | | Biomass based on Rankine Cycle (For rice straw and juliflora (plantation)with water cooled condenser) | 610.437 |
| | | Non fossil fuel Co-generation | 452.479 |
| | | Solar PV | 600.000 for PV and 630.000 for rooftop PV |
| | | Solar Thermal | 1200.00 |
| | | Biomass Gasifier Power Projects | 592.532 |
| | | Biogas Power Projects | 1185.064 |
| | | | |
| **13.** | **Operation and Maintenance Cost** | **Renewable Energy Projects** | **O&M Expenses (Rs. Lakhs/MW)** |
| | | Wind Energy | 10.63 |
| | | Small Hydro below 5 MW | 30.00 |
| | | Small Hydro (5 MW-25 MW) | 21.60 |
| | | Biomass (For rice straw and juliflora (plantation)with water cooled condenser) | 44.71 |
| | | Non fossil fuel Co-generation | 18.91 |
| | | Solar PV | 13.25 |
| | | Solar Thermal | 18.00 |
| | | Biomass Gasifier Power Projects | 47.26 |
| | | Biogas Power Projects | 47.26 |
| | | | |
| **14.** | **Capacity utilization factor** | **Renewable Energy projects** | **CUF** |
| | | Wind Energy | 20% |
| | | Small Hydro | 45% |
| | | Solar PV | 19% |
| | | Solar Thermal | 23% |
| | | | |
| **15.** | **Plant Load factor** | **Renewable Energy projects** | **CUF** |
| | | Biomass based on Rankine Cycle | 60% |
| | | a) During stabilization (6 months) | 70% |
| | | b) During remaining period of the first year (after stabilization) | 80% |
| | | c) Second year onwards | |

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| | | Non fossil fuel based Co-Generation | 53% |
| | | Biomass Gasifier | 85% |
| | | Biogas | 90% |

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| **16.** | **Auxiliary Consumption** | **Renewable Energy Projects** | **Auxiliary Consumption Factor** |
| | | Small Hydro | 1% |
| | | Biomass (Project Using Water Condenser) | a) During first year of operation:11%<br>b) From 2nd year Onwards:10% |
| | | Non fossil fuel Co-generation | 8.5% |
| | | Solar PV | 0.25% |
| | | Solar Thermal | 10% |
| | | Biomass Gasifier Power Projects | 10% |
| | | Biogas Power Projects | 12% |

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| **17.** | **Station Heat Rate** | **Renewable Energy Projects** | SHR (kCal/kWh) |
| | | Non fossil fuel Co-generation | 3600 |
| | | Biomass based on Rankine Cycle | 4200 |

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| **18.** | **Calorific Value** | **Renewable Energy Projects** | CV (kCal/Kg) |
| | | Biogas Power Projects | 3100 |
| | | Non-fossil fuel co-generation projects (Bagasse) | 2250 |

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| **19.** | **Fuel Cost** | **Renewable Energy Technology** | **Fuel Price (Rs/ton)** |
| | | Biomass based on Rankine Cycle/Biomass Gasifier | 3144.80 |
| | | Non fossil fuel based Co-generation | 2010.58 |
| | | Biogas | 1257.41 |
| **20.** | **Subsidy** | 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. | |
| **21.** | **Obligated Entity** | 1. Distribution licensee (or any other entity procuring power on their behalf).<br>2. Any person consuming electricity (i) generated from conventional Captive Generating Plant having capacity of 1 MW and above for his own use and or (ii) procured from conventional generation through open access and third party sale. | |
| **22.** | **Renewable Purchase Obligation** | Total consumption of electricity will be excluding Hydro Power within the area for distribution Licensee: | |

| Financial Year | Solar (%) | Non-Solar (%) | Total (%) |
|---|---|---|---|
| 2015-16 | 5.00% | 6.00% | 11.00% |
| 2016-17 | 6.00% | 6.00% | 12.00% |
| 2017-18 | 7.00% | 6.00% | 13.00% |
| 2018-19 | 8.00% | 6.00% | 14.00% |
| 2019-20 | 9.00% | 6.00% | 15.00% |

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| **23.** | **Certificates** | 1. The Certificates issued under the Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 and amendments thereafter shall be the valid instruments for the discharge of the mandatory obligations set out in these Regulations for the obligated entities to purchase electricity under renewable energy sources.<br>2. In the event of the Obligated Entities fulfilling the RPO by purchase of certificates, the obligation to purchase electricity from generation based on solar as renewable energy source can be fulfilled by purchase of solar certificates only, and the obligation to purchase electricity from generation other than solar can be fulfilled by purchase of non-solar certificates.<br>3. The Power Sold through REC mechanism entails pricing of two components namely, electricity component and renewable energy component or REC. The effective electricity component price shall be equivalent to pooled cost of power purchase of the host utility purchasing such Power, whereas the price of RECs shall be discovered in Power Exchange. |
| **24.** | **State Agency** | 1. The Commission shall designate an agency as State Agency for accreditation and recommending the renewable energy projects for registration and to undertake functions under these regulations.<br>2. The Commission may from time to time fix the remuneration and charges payable to the State Agency for discharge of its functions under these regulations to be recovered from the accredited entities and obligated entities. |
| **25.** | **Effect of Default** | 1. In the event of the Obligated Entities not able to fulfill the RPO as provided in these regulations during any year and also does not purchase the certificates, the Commission may direct the obligated entity to deposit a penalty into a separate fund, to be created and maintained by such State Agency, such amount as the Commission may determine.<br>2. The amount of penalty shall be calculated on the basis of the shortfall in units of RPO and the forbearance price decided by the Central Commission and that fund so created shall be utilized, as may be directed by the Commission, partly for purchase of the certificates and partly for development of transmission infrastructure for evacuation of power from generating stations based on Renewable Energy Sources or any other expenses relating to development of RE. |
| **26.** | **Cross-Subsidy** | Third Party Sale from renewable energy sources shall be exempted from the cross-subsidy surcharge determined by the Commission from time to time. However, no banking facility shall be provided for supply (third party sale) from renewable energy sources through open access. Further, ABT compatible interface metering system capable of energy accounting for each block of 15 minutes shall be provided at both supply as well as drawal point. |