

ARUNACHAL PRADESH STATE ELECTRICITY REGULATORY COMMISSION- NOTIFICATION

(Summary of Order -Terms and Conditions for Tariff Determination from Renewable Energy Sources Regulation – 2012

Dated 9th April 2012

Sr. No.	Description	Summary of Regulations
1.	Title	Terms and Conditions for Tariff Determination from Renewable Energy Sources Regulation – 2012
2	Date of enforcement	Regulations to come into force from the date published in the Govt. Gazette unless reviewed earlier or extended by the Commission and shall remain in force for a period of 5 years from the date of commencement.
3	Applicability	In all cases where tariff, for a generating station or a unit thereof based on renewable sources of energy, is to be determined by the Commission under Section 62 read with Section 86 of the Act. Provided that in cases of Small Hydro projects, Biomass power based on Rankine cycle, Solar PV, Biomass gasific power project these regulations shall apply subject to the fulfillment of eligibility criteria specified in regulation 4 of these Regulations.
4	Eligibility Criteria	
(i)	Small Hydro Project	<ul style="list-style-type: none"> • Located at the sites approved by State Nodal Agency/ State Government • To use new plant and machinery • Installed power plant capacity to be lower than or equal to 25 MW at single location
(ii)	Biomass Power Project Based on Rankine Cycle Technology	<ul style="list-style-type: none"> • To use new plant and machinery based on Rankine cycle technology • To use biomass fuel sources • Use of fossil fuel to be restricted up to 15% of total fuel consumption on annual basis
(iii)	Solar Power Project	Based on Technologies approved by MNRE.
(iv)	Biomass Gasifier based Power Project	<ul style="list-style-type: none"> • The project shall qualify if it is using new plant and machinery • Having a Grid connected system that uses 100% producer gas engine, coupled with gasifier technologies approved by MNRE
5	Control Period	<ul style="list-style-type: none"> • Five years commencing from financial year 2012-13. • Benchmark capital cost for Solar PV projects to be reviewed annually by the Commission. • Tariff determined as per these Regulations for the RE projects commissioned during the Control Period shall continue to be applicable for the entire duration of the Tariff Period as specified in Regulation 6 below. • Revision in Regulations for next Control Period shall be undertaken at least six months prior to the end of the first Control Period • 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.
6	Tariff Period	<p>(a) Tariff Period for RE power projects except in case of Small hydro projects below 5 MW, Solar PV, Biomass Gasifier power projects - 13 years.</p> <p>(b) For Small hydro projects below 5 MW – 35 years.</p> <p>(c) For Solar PV power projects -25 years.</p> <p>(d) For Biomass gasifier power projects -20 years.</p> <p>(e) Tariff period under these Regulations to be considered from the date of commercial operation of the renewable energy generating stations.</p> <p>(f) Tariff determined as per these Regulations shall be applicable only for the duration of the Tariff Period as stipulated under Regulation 6 (a),(b), (c), (d) and (e).</p>

7	Project Specific tariff	<p>(a) Project specific tariff, on case to case basis, shall be determined by the Commission for the following types of projects:</p> <ul style="list-style-type: none"> • Municipal Solid Waste Projects • Any other new renewable energy technologies approved by MNRE • Renewable energy projects which have been commissioned before the notification of these Regulations but for which no PPA has been signed until the date of notification of these Regulations. • Solar PV Power projects, if a project developer opts for project specific tariff: • Hybrid Solar Thermal Power plants; • Other hybrid projects include renewable-renewable or renewable- conventional sources, for which renewable technology is approved by MNRE; • Biomass project other than that based on Rankine Cycle technology application with water cooled condenser; <p>(b) Determination of Project specific Tariff for generation of electricity from such RE sources shall be in accordance with such terms and conditions as stipulated under relevant Orders of the Commission.</p> <ul style="list-style-type: none"> • Financial norms as specified under Chapter-2 of these Regulations, except for capital cost, shall be ceiling norms while determining the project specific tariff.
8	Petition and proceedings for determination of tariff	As detailed in these Regulations
9	Tariff Structure	<p>Single part Tariff consisting of the following fixed cost components:</p> <ul style="list-style-type: none"> • Return on equity; • Interest on loan capital; • Depreciation; • Interest on working capital; • Operation and maintenance expenses; <p>Provided that for renewable energy technologies 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, shall be determined</p>
10	Tariff Design	As detailed in these Regulations
11	Despatch principles for electricity generated from RE Sources:	<ul style="list-style-type: none"> • All RE power plants except for biomass power plants with installed capacity of 10 MW and above, and non-fossil fuel based cogeneration plants shall be treated as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles • Biomass power generating station with an installed capacity of 10 MW and above and non-fossil fuel based co-generation projects shall be subjected to scheduling and despatch code as specified under Indian Electricity Grid Code (IEGC) and Central Electricity Regulatory Commission (Unscheduled Interchange and related matters) Regulations, 2009 including amendments thereto. • Solar generation shall be given by the generator based on availability of the generator, weather forecasting, solar insolation, season and normal solar generation curve
	FINANCIAL PRINCIPLES	For Details refer the REGULATIONS NOTIFICATION. However main Parameters for Fixation of Tariff are summarized below
12	Capital Cost	Detailed under Technology Specific Parameters for Different RE sources
13	Debt equity ratio	70:30
14	Loan and Finance Charges	<p>12 years</p> <ul style="list-style-type: none"> • For 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 • Notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of COD and shall be equal to the annual depreciation allowed
15	Depreciation	<ul style="list-style-type: none"> • Value base shall be capital cost of the assets • Depreciation to be calculated annually on straight-line method • Salvage value to be 10% and depreciation up to maximum 90% of the capital cost of the asset.

		<ul style="list-style-type: none"> • Depreciation rate for the first 12 years of the Tariff Period to be 5.83% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 13th year onwards. • Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.
16	Return on equity	<ul style="list-style-type: none"> • Value base for the equity shall be 30% of the capital cost or actual equity in case of project specific tariff determination • Normative Return on Equity: 20% per annum for the first 10 years and 24% per annum 11th years onwards
17	Interest on working capital	<p>To be computed as under:</p> <ol style="list-style-type: none"> 1. Small Hydro Power /Solar PV <ul style="list-style-type: none"> • O & M expenses for one month • Receivables equivalent to 2 months of energy charges for sale of electricity calculated on the normative CUF; • Maintenance spare @ 15% of O & M expenses 2. Biomass Power <ul style="list-style-type: none"> • Fuel costs for four months equivalent to normative PLF; • O & M expenses for one month • Receivables equivalent to 2 months of fixed and variable charges for sale of electricity calculated on the target PLF; • Maintenance spare @ 15% of O & M expenses 3. 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.
18	O & M expenses	<ul style="list-style-type: none"> • O&M expenses shall comprise repair and maintenance (R&M), establishment including employee expenses, and administrative and general expenses • Shall be determined for the Tariff Period based on normative O&M expenses for the first Year of Control Period. • Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2012-13) to be escalated at the rate of 5.72% per annum over the Tariff Period.
19	Rebate	<ul style="list-style-type: none"> • For payment of bills through LC: 2% • Payments made other than through LC within a period of one month of presentation of bills: 1%
20	Late Payment Surcharge	In case the payment of any bill for charges is delayed beyond a period of 60 days from the date of billing, a late payment surcharge at the rate of 1.25% per month shall be levied by the generating company.
21	Sharing of CDM Benefits	<p>Proceeds of carbon credit from approved CDM project to be shared between generating company and concerned beneficiaries as follows:</p> <ul style="list-style-type: none"> • 100% by project developer in the first year after the date of commercial operation of the generating station. • 2nd year – share of beneficiaries @ 10% to progressively increase by 10% every year up to 50% where after to be shared in equal proportion, by the generating company and the beneficiaries
22	Subsidy or incentive by the Central / State Government	Commission to consider any incentive/r subsidy offered by the Central/ State Government and income tax benefit on account of accelerated depreciation, if availed by the generating company while determining the tariff.
23	Taxes and Duties	Tariff determined shall be exclusive of taxes and duties as may be levied by the appropriate Government provided the Government allows the same as pass through on actual incurred basis.

Technology Specific Parameters										
Small Hydro Project										
24	Capital Cost	The normative capital cost during first year of Control Period (FY 2012-13) shall be as follows:								
		<table border="1"> <thead> <tr> <th>Region</th> <th>Project Size</th> <th>Capital Cost (Rs. Lakh / MW)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Arunachal Pradesh</td> <td>Below 5 MW</td> <td>700</td> </tr> <tr> <td>5 MW to 25 MW</td> <td>630</td> </tr> </tbody> </table>	Region	Project Size	Capital Cost (Rs. Lakh / MW)	Arunachal Pradesh	Below 5 MW	700	5 MW to 25 MW	630
		Region	Project Size	Capital Cost (Rs. Lakh / MW)						
Arunachal Pradesh	Below 5 MW	700								
	5 MW to 25 MW	630								
The capital cost for subsequent years shall be determined on the basis of indexation formula as outlined under Regulation 25 of the Regulations.										
25	Capacity Utilisation Factor	45%								
26	Normative Auxiliary Consumption	1%								
27	O & M expenses	<p>Normative O&M expenses for the first year of the Control period (i.e. FY 2012-13 shall be as follows.</p> <ul style="list-style-type: none"> For projects below 5 MW - Rs. 25 Lakh/MW For projects 5 MW to 25 MW - Rs. 18 Lakh/MW <p>Normative O&M expenses shall be escalated @ of 5.72% per annum for the Tariff Period for the purpose of determination of levellised tariff.</p>								
Biomass Power Projects based on Rankine Cycle Technology using Water Cooled Condenser.										
28	Capital Cost	Rs.445 Lakh/MW (FY 2012-13) during first year of Control Period and shall be linked to indexation formula as outlined in the Regulations								
29	Plant Load Factor	<ul style="list-style-type: none"> During Stabilisation: 60% During the remaining period of the first year (after stabilization): 70% From 2 Year onwards: 80 % <p>Stabilisation period shall not be more than 6 months from the date of commissioning of the project.</p>								
30	Auxiliary Consumption	10%								
31	Station Heat Rate	4000 kCal/ kWh								
32	O & M expenses	<ul style="list-style-type: none"> Normative O&M expenses for the first year of the Control period (i.e. FY 2012-13) shall be Rs. 24 Lakh/MW. Normative O&M expenses shall be escalated @ of 5.72% per annum for the Tariff Period for the purpose of determination of levellised tariff. 								
33	Fuel Mix	<ul style="list-style-type: none"> The biomass power plant shall be designed in such a way that it uses different types of non-fossil fuels available within the vicinity of the project such as crop residues, agro-industrial residues, forest residues etc. and other biomass fuels as may be approved by MNRE. Generating Companies shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements. 								
34	Use of Fossil Fuel	To be limited to the extent of 15% of total fuel consumption on annual basis.								
35	Monitoring Mechanism for the use of fossil fuel	As detailed in the Regulations								
36	Calorific Value	3300 Kcal/kg								
37	Fuel Cost	<ul style="list-style-type: none"> Biomass fuel price during first year of the Control Period (i.e. FY 2012-13) shall be Rs. 2283 per MT and shall be linked to index formulae as specified in the Regulation. Alternatively, for each subsequent year of the Tariff Period, the normative escalation factor of 5% per annum shall be applicable at the option of the biomass project developer. 								

Solar PV Power Projects		
38	Technology and Applicability	Applicable for grid connected PV systems 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
39	Capital Cost	1000Lakh/MW for FY 2012-13 Commission may deviate from above norm in case of project specific tariff determination
40	Capacity Utilisation Factor	19%. Commission may deviate from above norm in case of project specific tariff determination
41	O&M Expenses	<ul style="list-style-type: none"> • Rs. 11 Lakhs/MW for the first year of operation • Normative O&M expenses allowed at the commencement of the Control Period shall be escalated at the rate of 5.72% per annum.
Biomass Gasifier Power Projects		
42	Normative Capital Cost based on Rankine cycle	Rs.550 Lakh/MW (FY 2012-13 during first year of Control Period) and shall be linked to indexation formula as outlined under Regulation . After taking into account capital subsidy net project cost shall be Rs.400Lakh/MW for FY 2012-13.
43	Plant Load Factor	80%.
44	Auxiliary Consumption	10%
45	Specific fuel consumption	1.1 kg per kWh.
46	Normative O & M expenses	Rs.35 Lakh/MW (FY 2012-13 for first year of Control Period) O&M expenses to be escalated @ of 5.72% PA
47	Fuel Mix	Biomass Gasifier based power plant shall be designed in such a way that it uses different types of non-fossil fuels available within the vicinity of biomass power project such as crop, agro industrial & forest residues etc. and other biomass fuels as may be approved by MNRE
48	Fuel Cost	Same as detailed at Regulation37 above for Biomass Power Projects
Miscellaneous		
49	Deviation from Norms	Tariff for sale of electricity generated from a RE generating station may also be agreed between a generating company and a licensee, in deviation from the norms specified in these regulations subject to the conditions that the levellised tariff over the useful life of the project on the basis of the norms in deviation does not exceed the levellised tariff calculated on the basis of the norms specified in these regulations.
50	Power to Relax	Vested with the Commission