UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

(Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2018, Dated: 06-09-2018

<table>
<tr><th>Sl. No.</th><th>Description</th><th colspan="3">Summary</th></tr>
<tr><td>1.</td><td>Control Period</td><td colspan="3">5 Years (FY-2018-19)</td></tr>
<tr><td rowspan="6">2.</td><td rowspan="6">Renewable Purchase Obligation</td><td>Year</td><td>Non-Solar</td><td>Solar</td></tr>
<tr><td>2018-19</td><td>10.25%</td><td>6.75%</td></tr>
<tr><td>2019-20</td><td>10.25%</td><td>7.25%</td></tr>
<tr><td>2020-21</td><td>10.25%</td><td>8.75%</td></tr>
<tr><td>2021-22</td><td>10.50%</td><td>10.50%</td></tr>
<tr><td>2022-23</td><td>11.00%</td><td>11.00%</td></tr>
<tr><td>3.</td><td>Obligated Entity</td><td colspan="3">Distribution Licensee(s), Captive User(s), open Access user(s)</td></tr>
<tr><td rowspan="9">4.</td><td rowspan="9">Tariff Period</td><td colspan="2">RE Technology</td><td>Tariff Period/Useful Life (in years)</td></tr>
<tr><td colspan="2">Wind energy power project</td><td>25</td></tr>
<tr><td colspan="2">Biomass power project including Municipal Solid Waste (MSW) and Refuse Derived Fuel (RDF) based powerprojects with rankine cycle technology</td><td>20</td></tr>
<tr><td colspan="2">Non-fossil fuel cogeneration project</td><td>20</td></tr>
<tr><td colspan="2">Small Hydro Plant</td><td>35</td></tr>
<tr><td colspan="2">Solar PV/Solar thermal/grid interactive roof top and small solar PV plants /Solar PV power plants on Canal bank/Canal top</td><td>25</td></tr>
<tr><td colspan="2">Biomass Gasifier based power project</td><td>20</td></tr>
<tr><td colspan="2">Biogas based power project</td><td>20</td></tr>
<tr><td>5.</td><td>Debt Equity Ratio</td><td colspan="3">70:30 (for generic tariff)
For project specific tariff, 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>6.</td><td>Interest on Loan capital</td><td colspan="3">For generic tariff, the normative interest rate shall be considered as average State Bank of India (SBI) Marginal Cost of Funds based lending rate (MCLR) prevalent during the first six months from the date of petition plus 300 basis points.
Loan Tenure-13 yrs</td></tr>
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<tr><td>7.</td><td>Depreciation</td><td colspan="4">Savage Value =10% & Depreciation=max of 90% of the Capital Cost.
Depreciation Rate=5.38% per annum for first 13 Years
75% of the capital subsidy received by the generator shall be reduced from the capital cost for depreciation purposes.</td></tr>
<tr><td>8.</td><td>Return on Equity</td><td colspan="4">The Return on Equity shall be 16%:
Pre-tax ROE shall be 20% per annum for the first 10 years.
Pre-tax ROE shall be 22% per annum 11th year onwards.</td></tr>
<tr><td>9.</td><td>Interest on Working Capital</td><td colspan="4">At interest rate equivalent to the average State Bank of India Marginal Cost of Funds based lending rate (MCLR)(one year tenor) prevalent during the last six months from the date of petition plus 350 basis points.</td></tr>
<tr><td>10.</td><td>CDM Benefits</td><td colspan="4">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 or commissioning of the generating station.
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.</td></tr>
<tr><td>11.</td><td>Rebate</td><td colspan="4">For payment of bills through the letter of credit on presentation, or if payment made within 5 working days, a rebate of 2% shall be allowed.
Where payments are made by a mode other than through the letter of credit but within a period of one month of presentation of bills by the generating company, a rebate of 1% shall be allowed.</td></tr>
<tr><td>12.</td><td>Late payment Surcharge</td><td colspan="4">1.25%, In case the payment of bills is delayed beyond a period of 60 days from the date of billing.</td></tr>
<tr><td>13.</td><td>Subsidy or incentive by the Central / State Government</td><td colspan="4">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.</td></tr>
<tr><td rowspan="8">14.</td><td rowspan="8">Capital Cost</td><td>Sr. No.</td><td>RE Technology</td><td colspan="2">Capital Cost (in Rs)</td></tr>
<tr><td rowspan="4">1.</td><td>Small Hydro power Projects</td><td colspan="2"></td></tr>
<tr><td>Upto 5 MW</td><td colspan="2">1000 Lakhs/MW</td></tr>
<tr><td>> 5 MW &upto 15 MW</td><td colspan="2">950 Lakhs/MW</td></tr>
<tr><td>> 15 MW &upto 25 MW</td><td colspan="2">900 Lakhs/MW</td></tr>
<tr><td rowspan="3">2.</td><td>Biomass Power Projects based on Rankine Cycle Technology</td><td>Water cooled</td><td>Air cooled</td></tr>
<tr><td>Projects other than rice straw &Juliflora</td><td>559.03 Lakhs/MW</td><td>600.44 Lakhs/MW</td></tr>
<tr><td>Rice &Juliflora Projects</td><td>610.80 Lakhs/MW</td><td>652.20 Lakhs/MW</td></tr>
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		3.	Non-fossil fuel based Cogeneration Projects	492.50 Lakhs/MW
		4.	Biomass Gasifier Power Projects	625(Pine Leaves based) Lakhs/MW 592.88(Others) Lakhs/MW
		5.	Biogas based Power Projects	1185 Lakhs/MW
		6.	Solar PV Power Project	388.19 Lakhs/MW
		7.	Canal Bank Solar PV Plant	600 Lakhs/MW
			Canal Top Solar PV Plant	625 Lakhs/MW
		8.	Solar Thermal Power Project	1200 Lakhs/MW
		9.	Grid interactive roof top and small solar PV plants	Rs. 47153/KW(upto 10 kW) Rs.43224/KW(>10kW upto 100kW) Rs.40612/KW(>100kW upto 500kW) Rs.39135/KW(>500kW upto 1MW)
		10.	Wind Energy	515 Lakhs/MW
		11.	Municipal solid waste based projects	1500(MSW) Lakhs/MW
				900(RDF) Lakhs/MW
15.	**Operation and Maintenance Expenses**	**Sr. No.**	**RE Technology**	**O&M Expenses for the year of commissioning (in Rs)**
		1.	Small Hydro Power Projects	
			Upto 5 MW	45.00 Lakhs/MW
			> 5 MW &upto 15 MW	40.38 Lakhs/MW
			> 15 MW &upto 25 MW	36.00 Lakhs/MW
		2.	Biomass Power Projects based on Rankine Cycle Technology	42.29 Lakhs/MW
		3.	Non-fossil fuel based Cogeneration Projects	22.35 Lakhs/MW
		4.	Biomass Gasifier Power Projects	100 (Pine Leaves based project) Lakhs/MW 55.85 (Others) Lakhs/MW
		5.	Biogas based Power Projects	55.85 Lakhs/MW
		6.	Solar PV Power Project	12.30 Lakhs/MW
		7.	Canal bank Solar PV Power Plants and Canal top Solar PV Power Plants	12.30 Lakhs/MW

		8.	Solar Thermal Power Project	16.77 Lakhs/MW
		9.	Grid interactive roof top and small solar PV plants	Rs. 1627/KW(upto 10 kW) Rs.1448/KW(>10kW upto 100kW) Rs.1320/KW(>100kW upto 500kW) Rs.1230/KW(>500kW upto 1MW)
		10.	Wind energy	9.51 Lakhs/MW
		11.	Municipal solid waste based projects	6% of the project cost for 1 yr (MSW & RDF)
		*O&M expenses shall be escalated @5.72% p.a.		
16.	**Capacity Utilisation factor/Plant Load factor**	**Sr. No.**	**RE Technology**	**CUF/PLF**
		1.	Small Hydro power Projects	Generic Tariff-40% Project Tariff-45%
		2.	Biomass Power Projects based on Rankine Cycle Technology	60%(During Stabilisation-6 mon. max) 70%(remaning period of 1st yr) 80%(After 2nd yr)
		3.	Non-fossil fuel based Cogeneration Projects	45%
		4.	Biomass Gasifier Power Projects	85%
		5.	Biogas based Power Projects	90%
		6.	Solar PV Power Project	19%
		7.	Canal bank Solar PV Power Plants and Canal top Solar PV Power Plants	19%
		8.	Solar Thermal Power Project	23%
		9.	Grid interactive roof top and small solar PV plants	19%
		10.	Wind Energy	
			Annual Mean Wind Power (W/m^2)	
			Upto 220	22%
			221-275	24%
			276-330	28%
			331-440	33%
			>440	35%

		11.	Municipal solid Waste based projects	During Stabilisation& 1st yr	Second year onwards
				65%(MSW,RDF)	75%(MSW) 80%(RDF)
17.	**Auxiliary consumption**	**Sr. No.**	**RE Technology**	**Auxiliary Consumption**	
		1.	Small Hydro power Projects	1 %	
		2.	Biomass Power Projects based on Rankine Cycle Technology		During 1st yr / 2nd yr onwards
				Water Cooled Condenser	11% / 10%
				Air Cooled Condenser	13% / 12%
		3.	Non-fossil fuel based Cogeneration Projects	8.5%	
		4.	Biomass Gasifier Power Projects	10%	
		5.	Biogas based Power Projects	12%	
		6.	Solar Thermal Power Project	10%	
		7.	Municipal solid Waste	15%(MSW, RDF)	
18.	**Station Heat rate**	**Sr. No.**	**RE Technology**	**Quantity (kCal / kWh)**	
		1.	Biomass Power Projects based on Rankine Cycle Technology	Travelling Grate Boilers-4200 AFBC Boilers-4125	
		2.	Non-fossil fuel based Cogeneration Projects	3600	
		3.	Municipal solid Waste	4200(MSW,RDF)	
19.	**Calorific Value**	**Sr. No.**	**RE Technology**	**Quantity (kCal/ kg)**	
		1.	Biomass Power Projects based on Rankine Cycle Technology	3100	
		2.	Non-fossil fuel based Cogeneration Projects	2250	
		3.	Refused Derived Fuel Plants	2500	

20.	**Specific Fuel Consumption**	**Sr. No.**	**RE Technology**	**Quantity (kg/kWh)**
		1.	Biomass Gasifier Power Projects	1.50(Pine Leaves based) 1.25(Others)
		2.	Biogas based Power Projects	3.00
21.	**Fuel Cost**	**Sr. No.**	**RE Technology**	**Quantity**
		1.	Biomass Power Projects based on Rankine Cycle Technology	2355/MT
		2.	Non-fossil fuel based Cogeneration Projects	1954/MT
		3.	Biomass Gasifier Power Projects	2355/MT
		4.	Biogas based Power Projects	1327/MT
		5.	Refused Derived Fuel Plants	1800/MT
23.	**Transmission Charges, Wheeling Charges and Losses**	• For non-discriminatory 'open access' to the intra-State transmission system for carrying the electricity generated by the RE Based Generating Stations or Co-generating Stations to the destination of use, the RE generator or the consumer, as the case may be, shall have to pay the transmission charges and wheeling charges for use of intra-state transmission system and distribution system which shall be calculated based on the principles specified in UERC (Terms and Conditions of Intra-State Open Access) Regulations, 2015. • No Transmission and Wheeling Charges are payable for sale of electricity to distribution licensee or to local rural grid within the State.		
24.	**Evacuation of Power**	• Transmission Licensees and Distribution Licensees shall endeavor to provide connectivity to the RE Based Generating Stations and Co-generating Stations at nearest possible sub-station preferably within a range of 10 kilometers from the location of such generating station. • In case if the generating company opts to construct, the cost shall be borne by themProvided further that the land for extending the bay shall be provided by the owner of the sub-station free of cost.		
25.	**Connectivity (for Rooftop)**	Roof-top Solar PV sources shall be allowed connectivity at the following voltage level inthe distribution system of the licensee: (a) Load upto 4 kW: low voltage single phase supply. (b) Load >4 kW and upto 75 kW: low voltage three phase supply. (c) Load >75 kW and upto 1000 kW: at 11 kV.		
26.	**Metering arrangement (for Rooftop)**	• Supply of electricity to the consumer(s) from the licensee's sources and that to the licensee's distribution system from the roof-top Solar PV sources shall be measured either by two separate meters, the readings of which shall be used in each billing period for settlement on net basis or alternatively by an export-import type meter		

		suitable for directly measuring the net exchange. • The cost of switch gear, metering and protection arrangement at generator end shall have to be borne by the owner of solar generators. However, Check Meter with same specification of Main Meter shall be provided by distribution licensee.
27.	**Metering Arrangement**	For sale to State Distribution Licensees or Local rural Grid, RE based Generating Station shall provide meters at the point of interconnection complying with the Regulations on installation of meters specified by CEA and for sale to person other than the Distribution Licensees or Local Rural Grid ABT compatible Special Energy Meters are provided
28.	**Banking**	**(Applicable only in case of Captive Generating Plants & Non-fossil fuel based Co-generating Stations):** The Generating stations shall be allowed to bank power within a period of one calendar month with some conditions: • Banking of energy upto 100%, as agreed between the plant and the distribution licensee, shall be allowed during the period declared by the Commission as peak hours from time to time in its Tariff Orders. • Withdrawal of power shall be allowed only during the period other than the period declared by the Commission as peak hours from time to time in its Tariff Orders. • Banking charges shall be 12.5% of the energy banked. • In case of a Non-fossil fuel based Co-generating Stations, which is not a captive generating plant, the facility of banking shall apply only if it has a PPA with the distribution licensee in the State.