

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

‘Vidyut Niyamak Bhawan’, Near I.S.B.T., P.O.-Majra, Dehradun-248171

Draft Notification

February, 2016

.....: In exercise of powers conferred under section 181(2)(zp) read with Section 86(1)(e) of the Electricity Act, 2003, and all other powers enabling it in this behalf, and after previous publication, the Uttarakhand Electricity Regulatory Commission hereby makes the following amendments in the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2013 (Principal Regulations) and subsequent amendment made in the same, namely:

1. Short Title, Commencement and Interpretation:

(1) These Regulations may be called the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) (Fifth Amendment) Regulations, 2016.

(2) These Regulations shall come into force from the date of notification.

2. Amendment of Regulation 2 of the Principal Regulation: First and second provisos of sub-Regulation 2(1) of Principal Regulations shall be substituted as under:

“Provided that in cases of Wind, Small Hydro projects, Biomass power based on Rankine cycle, Non-Fossil Fuel based cogeneration projects, Solar PV, Canal Bank & Canal Top solar PV, Solar Thermal power projects, Grid Interactive Roof Top and Small Solar PV plants, Biomass gasifier and Biogas, Municipal Solid Waste and Refuse Derived Fuel based power project these Regulations shall apply subject to the fulfillment of eligibility criteria specified in Regulation 4 of these Regulations.

Provided further that Regulations in Chapter 4 & 5 shall not be applicable for generating stations commissioned prior to coming into effect of these Regulations and their present tariffs shall continue to be applicable except the Fuel Cost (Variable Charges) specified in Regulation 29(1), Regulation 30(2), Regulation 31(2) and Regulation 32(2) of these Regulations shall be applicable to the corresponding generating plants. However, these generating plants shall have to make an application seeking applicability of relevant Regulations in this regard. However, provision of normative levelised tariff of 12 paise/unit, over and above the generic tariff, for solar thermal/PV generating stations as specified in Regulation 15(1)(b) shall also be applicable to such stations commissioned prior to coming into effect of these Regulations. Provisions other than those in

Chapter 4 and 5 shall apply to other generating stations located in the State of Uttarakhand, which are based on Renewable Sources of Energy including non-fossil fuel based Co-generation and which transmit and/or supply electricity to any person other than the distribution licensee of the State utilizing State Transmission and/or Distribution System."

3. Amendment of Regulation 2 of the Principal Regulation: Sub-Regulation 2(3) of Principal Regulations shall be substituted as under:

"(3) The generic tariff specified for Solar PV, Canal Bank & Canal Top solar PV, Solar Thermal power projects under these Regulations shall be the maximum tariff and the distribution licensee shall invite bids from generators/developers for procurement of power from these generators/developers. The distribution licensee shall enter into a PPA with the generators/developers bidding lower tariff."

4. Amendment of Regulation 3 of the Principal Regulation:

4.1 Following definition shall be substituted under sub-regulation 3(1)(v) of Regulation 3:

"(v) "Inter-connection Point" in respect of all the RE based generating stations, except Grid interactive Roof Top and Small Solar PV Power Projects, shall mean interface point of renewable energy generating facility with the transmission system or distribution system which shall be line isolator on outgoing feeder on HV side of generator transformer; However, in respect of Grid interactive Roof Top and Small Solar PV Power Projects, Inter-connection Point shall mean the interface of solar power generation facility under net metering arrangement with the network of licensee and shall normally be the point where export/import meter is installed to measure the energy transfer between the licensee and the eligible consumer;"

4.2 Following definition shall be inserted after sub-regulation 3(1)(w) of Regulation 3 as under:

"(w1) 'Municipal solid waste' means and includes commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes."

4.3 Following definition shall be inserted after sub-regulation 3(1)(dd) of Regulation 3 as under:

"(ee1) 'Refuse Derived Fuel' means segregated combustible fraction of solid waste other than chlorinated plastics in the form of pellets or fluff produced by drying, de-stoning, shredding, dehydrating, and compacting combustible components of solid waste that can be used as fuel;"

4.4 Following definition shall be inserted after sub-regulation 3(1)(ii) of Regulation 3 as under:

“(ii1) ‘Solar PV power plants on Canal Bank’ means the Solar PV power plants installed on the banks of the canals.

“(ii2) ‘Solar PV Power Plants on Canal Top’ means the Solar PV power plants installed on the top of the canals.”

4.5 Sub-Regulation 3(1)(nn) (ii) of Regulation 3 shall be substituted as under:

“(ii) Municipal Solid Waste (MSW) and Refuse Derived Fuel (RDF) based power projects with rankine cycle technology. – 20 years”

4.6 Sub-Regulation 3(1)(nn) (vii) of Regulation 3 shall be substituted as under:

“(v) Solar PV/Solar thermal/grid interactive roof top and small Solar PV plants /Solar PV power plants on Canal bank/Canal top. – 25 years”

5. Amendment in Sub-Regulation 4 of the Principal Regulations:

5.1 Sub-regulation 4(2)(c) of the Principal Regulations shall be substituted and shall be read as:

“(c) Solar PV, Canal bank & Canal top Solar PV, Solar Thermal and Grid interactive Roof Top and Small Solar PV Power Projects – Based on Technologies approved by MNRE.”

5.2 Following shall be inserted after sub-regulation 4(2)(g) of Principal Regulations:

“(h) Municipal solid waste based power projects – The project shall qualify to be termed as a Municipal solid waste based power project, if it is using new plant and machinery based on Rankine cycle technology and using Municipal solid waste as fuel sources.”

5.3 Following shall be inserted after sub-regulation 4 (2) (h) of Principal Regulations:

“(i) Refuse derived fuel based power projects – The project shall qualify to be termed as a Refuse derived fuel based power project, if it is using new plant and machinery based on Rankine cycle technology and using Refuse derived fuel as fuel sources.”

6. Amendment in Sub-Regulation 11 of the Principal Regulations:

First Proviso of Sub-Regulation 11(1) of Principal Regulations shall be substituted as under:

“Provided that the benchmark capital cost of Solar PV, Canal Bank & Canal Top Solar PV, Solar Thermal, Municipal solid waste based power projects, Refuse Derived Fuel based power projects and Grid interactive Roof Top and Small Solar PV projects may be reviewed annually by the Commission.”

7. Amendment in Regulation 19 of the Principal Regulations:

In 1st line of sub Regulation (1) of Regulation 19 of Principal Regulation after word “Solar PV” the following words shall be inserted:

“Canal Bank & Canal Top Solar PV”

In 1st line of sub Regulation (2) of Regulation 19 of Principal Regulation after word “biomass power projects” the following words shall be inserted:

“municipal solid waste based power projects, refuse derived fuel based power projects”

8. Insertion of a new Regulation 33(A) after Regulation 33 of the Principal Regulations:

“33(A) Canal bank Solar PV Power Plants and Canal top Solar PV Power Plants

Norms for canal bank Solar PV Power Plants and canal top Solar PV Power Plants under these Regulations shall be applicable for grid connected PV systems that directly convert solar energy into electricity and are based on the technology specific parameters for determination of generic tariffs for such power projects shall be as below:

Projects Commissioned on or after date as mentioned sub-Regulation 1(2)

<i>Capital Cost</i>	<i>O&M Expenses for year of commissioning</i>	<i>Capacity utilization Factor</i>
<i>(Rs. Lakh/MW)</i>	<i>(Rs. Lakh/MW)</i>	
600	11.63	19%

9. Insertion of a new Regulation 36(A) after Regulation 36 of the Principal Regulations:

“36(A) Municipal solid waste based projects

(1) The norms for tariff determination specified hereunder are for power projects which use municipal solid waste and refuse derived fuel and are based on Rankine cycle technology application, combustion or incineration, Bio-methanation, Pyrolysis and High end gasifier technologies. Norms regarding Capital Cost, Plant Load Factor, Auxiliary Consumption etc. shall be as below:

Projects Commissioned on or after date as mentioned sub-regulation 2(1)

<i>Project</i>	<i>Capital Cost</i>	<i>O&M Expenses for year of commissioning</i>	<i>Plant Load Factor</i>	<i>Auxiliary Consumption</i>	<i>Station Heat Rate</i>	<i>Calorific value</i>
	<i>(Rs. Lakh/MW)</i>	<i>(Rs Lakh/MW)</i>			<i>kcal/kWh</i>	<i>kcal/kg</i>
MSW	800	6% of the project cost for 1 st year and shall be escalated @ 5.72% per annum	65% during stabilisation & first year.	10%	4200	-
			75% from second year onwards			
RDF	600	6% of the project cost for 1 st year and shall be escalated @ 5.72% per annum	65% during stabilisation & first year.	10%	4200	2500
			75% from second year onwards			

NOTE:

(a) No fuel cost shall be considered for determination of tariff for the power projects using municipal solid waste.

(b) RDF Fuel Price (P) for the first year after notification of these amendment Regulations shall be taken as Rs. 1800/MT, which shall be indexed for different years of tariff period based on annual inflation rate for fuel handling (WPI), Indexed Energy Charge Component (IRC) and transportation cost (price for high speed diesel: Pd) with 20%, 60% and 20% respective weightages as per following formula:

$$(P(n) = P(n-1) * \{0.2 * (WPI(n)/WPI(n-1) + 0.6 * (1+IRC)(n-1) + 0.2 * (Pd(n)/Pd(n-1))\})$$

(c) However, as the indices for nth year would be known only after close of nth year, the generating company shall be allowed to raise fuel cost bills for nth year based on normative escalation factor of 5% on previous year's fuel cost, which shall be adjusted based on actual index for the nth year

(d) 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.

Provided that the generating company has to give his option for normative or indexed fuel cost to the distribution licensee at least 3 months in advance of date of commissioning or one month after the date of issuance of these Regulations, whichever is later. The option once exercised shall not be allowed to be changed during the validity period of the PPA.

(1) The fuel cost component of the tariff for nth year shall be calculated as follows:

$$\text{Rate of Variable Charge (Rs./kWh) } VC_n = \frac{\text{Gross Station Heat Rate (GSHR)} \times P_n \times 10}{\text{Gross Calorific Value (GCV)} \times (100 - \text{AUX})}$$

10. Amendment of Form 2.1 appended to the Principal Regulations:

Title of Form 2.1 appended to the Principal Regulations shall be substituted as under:-

"Form-2.1: Form Template for (Biomass Power, municipal solid waste, refuse derived fuel or Non-fossil fuel based Cogen) Parameter Assumptions."

11. Amendment of Form 2.1 appended to the Principal Regulations:

Row 6 of Form 2.1 appended to the Principal Regulations shall be substituted as under:-

Assumption Head	Sub-Head	Sub-Head (2)	Unit	Values
Fuel related assumptions	Station Heat Rate	During stabilization	Kcal/kWh	
		Post stabilization	Kcal/kWh	
	Fuel types & mix	Biomass fuel type-1	%	
		Biomass fuel type-2	%	
		Municipal Solid Waste fuel	%	
		Refuse Derived Fuel	%	
		Fossil fuel (coal)	%	
		GCV of Biomass fuel type-1	kCal/kg	
		GCV of Biomass fuel type-2	kCal/kg	
		GCV of fossil fuel (coal)	kCal/kg	
		Biomass Price (fuel type-1):yr-1	Rs./MT	
		Biomass Price (fuel type-2):yr-1	Rs./MT	
		Fossil fuel price (coal) : yr-1	Rs./MT	
Fuel price escalation factor	% p.a.			

12. Amendment of Form 2.2 appended to the Principal Regulations:

Title of Form 2.2 appended to the Principal Regulations shall be substituted as under:-

"Form-2.2: Form Template for (Biomass Power, municipal solid waste, refuse derived fuel or Non-fossil fuel based Cogen: Determination of Tariff Components."

13. Amendment of Form 2.2 appended to the Principal Regulations:

Table for "Tariff Components (Variable Charge)" of Form 2.2 appended to the Principal Regulations shall be substituted as under:-

Tariff Components (Variable charge)	Unit	Year																																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35				
Biomass fuel type-1	Rs. Lakh																																							
Biomass fuel type-2	Rs. Lakh																																							
Municipal Solid Waste	Rs. Lakh																																							
Refuse Derived Fuel	Rs. Lakh																																							
Fossil fuel (coal)	Rs. Lakh																																							
Sub-total (Fuel Costs)	Rs. Lakh																																							
Fuel cost allocable to power	%																																							
Total Fuel Cost	Rs. Lakh																																							

14. Amendment of Annexure-1 of the Principal Regulations:

(i) Insert S.No. 2A after S.No. 2 of Annexure-1 of Principal Regulation as following:

"2A. "Levelling Rate of Fixed Charges (RFC) in Rs./kWh for Municipal Solid Waste (MSW) based Power Projects:

Particulars	Rate of Fixed Charges for MSW based projects (Rs./kWh)
Gross Tariff	3.60
Less : Acc. Dep. Benefit	0.20
Net Tariff	3.40

“

(ii) Insert S.No. 2B after S.No. 2 of Annexure-1 of Principal Regulation as following:

“2B. “Levelling Rate of Fixed Charges (RFC) & Variable Charges in Rs./kWh for Refuse Derived Fuel (RDF) based Power Projects:

Particulars	Rate of Fixed Charges for RDF based projects (Rs./kWh)
Gross Tariff	2.85
Less : Acc. Dep. Benefit	0.15
Net Tariff	2.70

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
RDF: Rate of variable charges for year 1 as FY in which 5th amendment to the regulations is being notified with 5% normative escalation subsequently	3.56	3.74	3.92	4.12	4.32	4.54	4.77	5.01	5.26	5.52	5.80	6.08	6.39	6.71	7.04	7.40	7.77	8.15	8.56	8.99

“

(iii) Insert S.No. 6A after S.No. 6 of Annexure-1 of Principal Regulation as following:

“6A. Levelling rate of Fixed Charges (RFC) for Canal Bank Solar PV and Canal Top Solar PV Power Projects:

Particulars	Canal bank and Canal top Solar PV Power Plants (Rs./kWh)
Gross Tariff	6.40
Less : Acc. Dep. Benefit	0.55
Net Tariff	5.85

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By the order of the Commission

(Neeraj Sati)
Secretary