

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

HIGHLIGHTS

Tariff Period	Technology		No. of Years	
	Wind, solar PV, solar thermal, grid interactive rooftop and small solar PV plants, solar PV power plants on canal-bank/canal-top.		25	
	Biomass Rankine cycle, biomass gasifier, biogas, non-fossil fuel based co-generation, municipal solid waste and refuse-derived fuel projects.		20	
	Small hydro power projects.		35	
Control Period	Five years, of which the first year shall be 2018-19.			
Useful Life of a Plant	Technology		No. of Years	
	Wind, solar PV, solar thermal, grid interactive rooftop and small solar PV plants, solar PV power plants on canal-bank/canal-top.		25	
	Biomass Rankine cycle, biomass gasifier, biogas, non-fossil fuel based co-generation, municipal solid waste and refuse derived fuel based projects.		20	
	Small hydro power projects.		35	
Technology-wise Tariff	Technology		Net Tariff (Rs./kWh)	
	Small hydro projects (40% CUF) (Gross Tariff).	Up to 5 MW.	6.33	
		Above 5 MW and up to 15 MW.	6.08	
		Above 15 MW and up to 25 MW.	5.70	
	Small hydro projects (45% CUF) (Gross Tariff).	Up to 5 MW.	5.63	
		Above 5 MW and up to 15 MW.	5.40	
		Above 15 MW and up to 25 MW.	5.07	
	MSW (Fixed charges).		6.59	
	RDF (Fixed charges).		4.27	
	Non-fossil fuel based co-generation (Fixed charges).		3.52	
	Biomass gasifier (Fixed charges).	Pine leaf based	4.16	
		Others	2.82	
	Biogas projects (Fixed charges).		4.09	
	Canal-bank solar projects.		6.29	
	Canal-top solar projects.		6.51	
	Solar PV.		4.48	
	Solar thermal.		13.26	
	Grid interactive rooftop and small solar PV.	Up to 10 kW	0% subsidy	5.62
			30% subsidy	4.92
			70% subsidy	4.00
			90% subsidy	3.63
		Above 10 kW up to 100 kW.	0% subsidy	5.09
30% subsidy			4.39	
70% subsidy			3.48	
90% subsidy			3.19	
			0% subsidy	4.72
			30% subsidy	4.12

Capacity Utilization Factor (CUF)/Plant Load Factor (PLF)	Technology		CUF/PLF(%)		
	Wind energy	Annual mean wind power density (W/m ²)	CUF (%)		
		Up to 220	22		
		221-275	24		
		276-330	28		
		331-440	33		
		Over 440	35		
	Small hydro generating plant	Up to 5 MW.	Generic tariff - 40.		
		Greater than 5 MW and up to 15 MW.	Project specific tariff - 45.		
		Greater than 15 MW and up to 25 MW.			
	Biomass based on Rankine cycle.		Stages	PLF (%)	
			Stabilization - maximum up to 6 months.	60	
			After stabilization - up to 1 year	70	
			Beyond 1 year	80	
	Bagasse based co-generation.	45			
	Biomass gasifier.	85			
	Biogas.	90			
	Solar PV.	19			
	Canal-bank solar PV.	19			
	Canal-top solar PV.	19			
Solar thermal project.	23				
Grid interactive and rooftop solar plants.	19				
MSW/RDF based on Rankine cycle.		Stages	PLF (%)		
			MSW	RDF	
		Stabilization - maximum up to 6 months.	65	65	
		After stabilization - up to 1 year.	65	65	
Beyond 1 year	75	80			
* Commission may deviate in case of project specific tariff.					
Auxiliary Consumption	Technology		Aux. Cons. (%)		
	Small hydro generating plant	Up to 5 MW.	1		
		Greater than 5 MW and up to 15 MW.			
		Greater than 15 MW and up to 25 MW.			
	Biomass based on Rankine cycle (water cooled condenser).		Stages	Aux. Con. (%)	
			1 st year.	11	
		2 nd year onwards.	10		
	Biomass based on Rankine cycle (air cooled condenser).		1 st year.	13	
			2 nd year onwards.	12	
	Non-fossil fuel based co-generation.	8.5			
	Biomass gasifier.	Pine leaf based	10		
		Others	10		
	Biogas.	12			
Solar thermal.	10				
MSW/RDF based on Rankine cycle.	15				
*Commission may deviate in case of project specific tariff					

		Technology	Capital Cost (in Rs. lakh/MW)
Capital Cost	Wind energy		515.00
	Small hydro generating plant	Up to 5 MW.	1000.00
		Greater than 5 MW and up to 15 MW.	950.00
		Greater than 15 MW and up to 25 MW.	900.00
	Biomass [other than rice straw and juliflora (plantation)] based projects with air cooled condenser.		600.44
	Biomass [for rice straw and juliflora (plantation)] based projects with air cooled condenser.		652.20
	Biomass [other than rice straw and juliflora (plantation)] based projects with water cooled condenser.		559.03
	Biomass [for rice straw and juliflora (plantation)] based projects with water cooled condenser.		610.80
	Non-fossil fuel based co-generation.		492.50
	Solar PV.		388.19
	Canal-top solar PV.		625.00
	Canal-bank solar PV.		600.00
	Solar thermal.		1200.00
	Grid interactive rooftop and small solar PV plants (Rs. /kW).	Up to 10 kW.	47153.00
		More than 10 kW and up to 100 kW.	43224.00
		More than 100 kW and up to 500 kW.	40612.00
		More than 500 kW and up to 1 MW.	39135.00
	Biomass gasifier based on Rankine cycle.	Pine leaf based.	625.00
		Others	592.88
	Biogas.		1185.00
MSW based on Rankine cycle.		1500.00	
RDF based on Rankine cycle.		900.00	
Operations and Maintenance (O&M) Expenses	Technology		O&M Expenses (Rs. lakh/MW) for Year of Commissioning
	Wind energy		9.51
	Small hydro generating plant	Up to 5 MW.	45.00
		Greater than 5 MW and up to 15 MW.	40.38
		Greater than 15 MW and up to 25 MW.	36.00
	Solar PV.		12.30
	Canal-bank solar PV.		12.30
	Canal-top solar PV.		12.30
	Solar thermal.		16.77
	Grid interactive rooftop and small solar PV plants (Rs./kW).	Up to 10 kW.	1627.00
		More than 10 kW and up to 100 kW.	1448.00
		More than 100 kW and up to 500 kW.	1320.00
		More than 500 kW and up to 1 MW.	1230.00
	Biomass based on Rankine cycle.		42.29
	Biomass gasifier.	Pine leaf based.	100.00
		Others	55.85
	Biogas.		55.85
	Non-fossil fuel based co-generation.		22.35
	MSW based on Rankine cycle.		6% of the project cost for the first year.
	RDF based on Rankine cycle.		6% of the project cost for the first year.
		• O&M cost shall be escalated @ of 5.72% per annum.	
Interest Rate on Loan	• 300 basis points above the average State Bank of India MCLR (1-year tenor) prevalent during the last available six months from the date of petition.		

Depreciation	5.38% per annum for the first 13 years and balance depreciation will be spread over the remaining useful life of the project.	
Return on Equity	<ul style="list-style-type: none"> • Pre-tax RoE shall be 20% per annum for the first 10 years after considering average MAT rate as on 1 April, 2018. • Pre-tax RoE shall be 22% per annum from 11th year onwards after considering average corporate tax rate as on 1 April, 2018. 	
Interest on Working Capital	<ul style="list-style-type: none"> • 350 basis points above the average State Bank of India MCLR (1-year tenor) prevalent during the last available six months from the date of petition. 	
Station Heat Rate (SHR)	Technology	
	Biomass with Rankine cycle.	Travelling grate boilers.
		AFBC boilers.
	Non-fossil fuel based co-generation.	
	MSW/RDF.	
SHR (kCal/kWh)		
4200		
4125		
3600		
4200		
Gross Calorific Value (GCV)	Technology	
	Biomass.	
	Bagasse based co-generation.	
	RDF	
GCV (kCal/kg)		
3100		
2250		
2500		
Specific Fuel Consumption (SFC)	Technology	
	Biomass gasifier.	Pine leaf based.
		Others.
	Biogas	
	SFC (kg/kWh)	
1.50		
1.25		
3.00		
Fuel Cost	Technology	
	Biomass	
	Bagasse	
	RDF	
	Fuel Cost (Rs./MT) (FY 2018-19)	
2355		
1954		
1800		
<ul style="list-style-type: none"> • Fuel cost shall be escalated @ 5% per annum. • No fuel cost shall be allowed for MSW based projects. 		

OTHER PROVISIONS

	Year	Non-solar & Solar RPO	
		Non-solar	Solar
Renewable Purchase Obligations	2018-19	10.25%	6.75%
	2019-20	10.25%	7.25%
	2020-21	10.25%	8.75%
	2021-22	10.50%	10.50%
	2022-23	11.00%	11.00%
	<ul style="list-style-type: none"> • After achievement of 85% of solar RPO and non-solar RPO, the remaining shortfall can be met respectively, by excess solar and non-solar energy purchase,. • . 		
Tariff Structure and Design	<ul style="list-style-type: none"> • Single part, levelised tariff with two components for projects having fuel cost component. • Single part levelised tariff for all other technologies. • Ex-bus tariff, i.e., after auxiliary consumption and transformation losses at the interconnection point. 		
Merit Order Dispatch Principle	Not applicable to supply of power from renewable energy sources to the distribution licensee or local rural grids within the state.		
Subsidy or/and Incentives by Government	Any incentive or subsidy offered by the government including accelerated depreciation benefit shall be considered.		
Taxes and Duties	<ul style="list-style-type: none"> • Tariff inclusive of direct taxes such as income tax. • Taxes, duties and cess, other than direct taxes, shall be allowed as pass through. 		
Rebate	<ul style="list-style-type: none"> • 2% for payment through Letter of Credit or payment within 5 working days. • 1% for payment within 1 month of bill presentation and not through Letter of Credit. 		
Late Payment Surcharge	<ul style="list-style-type: none"> • 1.25% if bill is paid after 60 days from the billing date. 		

Transmission and Wheeling Charges and Losses	<ul style="list-style-type: none"> • As per UERC (Terms and Conditions of Intra State Open Access) Regulations, 2015 with amendments from time to time for open access to intra-state transmission system. • No charges payable for sale of electricity to distribution licensee or local rural grid within the state. • For supplying electricity outside the state, charges for dedicated lines and substation, for evacuation of power, shall be payable as determined by the Commission on case to case basis. • Transmission and wheeling losses will be adjusted in kind as per UERC (Terms and Conditions of Intra State Open Access) Regulations, 2015 with amendments from time to time. • There will be no 'in kind' adjustment in losses for supply to the distribution licensee within the state or local rural grid.
Evacuation of Power	<ul style="list-style-type: none"> • Distribution licensee shall provide connectivity to the RE based generating stations having capacity up to 25 MW at its nearest distribution sub-station, preferably within a range of 10 kilometers from the location of such generating station. • Transmission licensee shall provide connectivity to the RE based generating stations having capacity above 25 MW at its nearest transmission sub-station, preferably within a range of 10 kilometers from the location of such generating station.
Connectivity and Metering Arrangement for Grid Interactive Rooftop and Small Solar PV Plants	<ul style="list-style-type: none"> • Connectivity allowed at following voltage levels: <ul style="list-style-type: none"> - Load up to 4 kW: low voltage, single phase supply. - Load above 4 kW and up to 75 kW: low voltage, three phase supply. - Load above 75 kW and up to 1000 Kw: at 11 kV. - Supply of electricity shall be measured either by two separate meters or by one bi-directional meter. - Interconnection shall be as per the Central Electricity Authority (Measures Relating to Safety and Electricity Supply) Regulations 2010, as amended from time to time.
Metering Arrangement	<ul style="list-style-type: none"> • RE based generating station shall provide meter at the point of interconnection.
Banking of Power	<ul style="list-style-type: none"> • Banking of energy up to 100% would be allowed during peak hours. • Withdrawal of power allowed only during off-peak hours. • Withdrawal of banked power is allowed during the same financial year in which the power was banked. • Banking charges shall be 12.5% of the energy banked. • Banked power remaining unutilized at the end of the financial year shall be treated as sale at tariff determined by the Commission in its tariff order or at the generation tariff specified by the Commission in case of a non-fossil fuel based co-generating stations. • Non-captive non-fossil fuel based co-generating stations will be eligible for banking only if they have a PPA with the distribution licensee in the state.

Links	http://www.uerc.gov.in/Rules%20and%20regulation/UERCRegulations/UERC%20Current%20Regulations.html
References	https://bit.ly/2Tl3jGs