

Staff Paper

Adoption of Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017 and Determination/Fixation of levellised generic Tariff for various Renewable Energy Technologies/ Projects for the year 2017-18

The Punjab State Electricity Regulatory Commission (Commission) in its Order dated 30.09.2010 in petition no. 32 of 2010 (Suo-Motu), after due process, adopted the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2009 (CERC RE Regulations, 2009), valid upto 31.03.2012, with State specific modifications in respect of fuel price for Biomass based Power Projects and normative plant load factor (PLF) for Non-fossil fuel based Co-generation Projects. In the same Order, the Commission also determined the generic levellised generation tariff for renewable energy power projects (other than Solar) to be commissioned during FY 2010-11. The tariff for Solar projects for FY 2010-11 was determined vide Order dated 07.07.2010 in petition no. 26 of 2010 (Suo-Motu). Thereafter, vide Order dated 31.10.2011 in petition no. 59 of 2011 (Suo-Motu), the Commission determined the levellised generic tariff for various renewable energy technologies/projects (RE Projects) to be commissioned in FY 2011-12.

2. On 06.02.2012, CERC notified the Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 (CERC RE Regulations, 2012) for the next 5 years control period (FY 2012-13 to FY 2016-17) valid upto 31.03.2017 and determined the levellised generic tariff for RE Projects. The Commission in its Order dated 19.07.2012 in petition no. 35 of 2012 (Suo-Motu), after due process, adopted the said Regulations with State specific modifications in respect of Non-fossil fuel based Co-generation Projects and also determined the levellised generic tariff for RE Projects for FY 2012-13.

Subsequently, the Commission determined the levellised generic tariff for RE Projects for FY 2013-14 vide its Order dated 25.06.2013 in petition no. 37 of 2013 (Suo-Motu). Further, the Commission determined the levellised generic tariff for RE Projects for FY 2014-15 vide its Order dated 05.09.2014 in petition no. 42 of 2014 (Suo-Motu). In the same Order, the Commission, after due process, adopted the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) (First Amendment) Regulations, 2014 dated 18.03.2014 (CERC Regulations First Amendment, 2014) partly with regard to normative capital cost for Biomass based Power Projects other than exclusive use of rice straw using water cooled condenser.

Thereafter, the Commission vide Order dated 24.07.2015 in petition no.43 of 2015 (Suo-Motu), considering the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) (Second Amendment) Regulations, 2014 dated 05.01.2015 (CERC Regulations Second Amendment, 2014) and CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) (Third Amendment) Regulations, 2015 dated 10.07.2015 (CERC Regulations Third Amendment, 2015), fixed the Station Heat Rate (SHR) & Calorific Value (CV) for Biomass based Power Projects as 4126 kCal/kWh & 3174 kCal/kg and determined the levellised generic tariff for FY 2015-16 accordingly.

In furtherance to the same, the Commission in its Order dated 22.03.2016 in petition no.3 of 2016 (Suo-Motu) adopted the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) (Fourth Amendment) Regulations, 2015 dated 07.10.2015 (CERC Regulations Fourth Amendment, 2015), vide which norms/parameters for Municipal Solid Waste (MSW) and Refuse Derived Fuel (RDF) based Power Projects were specified by CERC and tariff determined for such projects.

Thereafter, the Commission vide its Order dated 23.11.2016 in petition no.55 of 2016 (Suo-Motu) determined the levellised generic tariff for RE Projects for FY 2016-17 and also adopted the amendments with respect to (i) the remaining portion of the First Amendment in respect of (a) capital cost of

Biomass based Power Projects (other than exclusive use of rice straw) with air cooled condenser and capital cost for Biomass based Power Projects with exclusive use of rice straw, both with air cooled & water cooled condenser (b) auxiliary power consumption (c) normative O&M expenses; (ii) station heat rate with 15% use of fossil fuel on annual basis as per Third Amendment and (iii) O&M charges for Solar PV Power Projects as per Fifth Amendment.

As per the above, the Commission adopted the CERC RE Regulations, 2012 and all its amendments except (i) the PLF for Non-fossil fuel based Co-generation Projects which the Commission had fixed as 80% in its Order dated 19.07.2012 in petition no. 35 of 2012 (Suo-Motu) and (ii) the provision in the First Amendment, 2014 to CERC RE Regulations, 2012 for constituting a State level committee for deciding the biomass fuel price annually through an independent survey which was not agreed to by the Commission in its Order dated 05.09.2014 in petition no. 42 of 2014 (Suo-Motu) and Order dated 24.07.2015 in petition no. 43 of 2015 (Sou-Motu). In these above Orders, an alternative mechanism of applying the fuel price indexation mechanism was considered the preferred option by the Commission. Also, this provision has now been deleted from the CERC RE Regulations, 2017.

3. Central Electricity Regulatory Commission, vide Notification dated 17.04.2017 notified CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017 (CERC RE Regulations, 2017). These Regulations are effective from 01.04.2017 after the control period of five years of the CERC RE Regulations, 2012 expired on 31.03.2017 and shall remain in force for a period of 3 years from the date of commencement i.e. upto 31.03.2020. These Regulations shall continue to remain applicable until notification of the revised Regulations, for which the exercise shall be initiated six months prior to the expiry of these Regulations. The tariff determined under 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 the Regulations. Further, CERC has in petition no. 05/SM/2017 (Suo-Motu) also determined the levelled generic tariff for RE Projects for FY 2017-18

vide its Order dated 31.05.2017. CERC RE Regulations, 2017 and its aforementioned Order dated 31.05.2017 are available on the CERC website www.cercind.gov.in.

Keeping in view the above, the Commission approved preparation of Staff Paper for adoption of CERC RE Regulations, 2017 and determination of the levellised generic tariff for RE projects for FY 2017-18.

4. CERC, after the due process, determined State specific levellised generic tariff for different types of RE Projects for FY 2017-18 as per the norms/parameters specified in CERC RE Regulations, 2017 which stipulate State specific norms/parameters. As per past practice, it is proposed to consider adopting the CERC RE Regulations, 2017 and accordingly determine/adopt the tariff for RE Projects for FY 2017-18.

5. As brought out above, the Commission adopted CERC RE Regulations, 2012 fully except the PLF for Non-fossil fuel based Co-generation Projects. The Commission in its Order dated 19.07.2012 in petition no. 35 of 2012 (Suo-Motu) while adopting the said Regulations expressed the opinion that there is a need to optimize generation from the co-generation plants during off-season and accordingly specified the PLF for such projects as 80% instead of 53% specified by CERC in Regulation 49 of the said Regulations. The number of operating days on bagasse were fixed as 100 days [80 days (crushing) + 25% i.e. 20 days (off-season)] and the remaining period during the year (192 days) on biomass fuel mix for operation of such plants at a PLF of 80%. Accordingly, tariff for Non-fossil fuel based Co-generation Projects was determined every year from FY 2012-13 onwards on the basis of weighted average of various parameters viz. auxiliary consumption, heat rate, fuel price, GCV and O&M expenses for Bagasse and Biomass.

PSPCL in its various submissions over the period brought out that none of the sugar mills generate power using biomass fuel during off-season. PSPCL submitted that therefore, allowing weighted average cost of biomass fuel mix for Non-fossil fuel based Co-generation Projects for off-season period of 192 days

by the Commission was inequitable since cost of weighted average of various parameters for bagasse and biomass leads to higher tariff payable by PSPCL and additional financial burden on this account is passed on to the consumers.

Analysis of data of power procured by PSPCL from the co-generation projects from FY 2012-13, FY 2013-14, FY 2014-15, FY 2015-16 and FY 2016-17 reveals that overall average PLF of such projects was 17.4%, 16.9%, 15.7%, 22.3% and 28% respectively which appears to vindicate the submissions of PSPCL in this regard.

Accordingly, it is proposed to consider adoption of the CERC RE Regulations, 2017 as a whole without any modifications in respect of Non-fossil fuel based Co-Generation Projects. In that case, the levellised generic tariff for FY 2017-18 determined by CERC vide its Order dated 31.05.2017 in petition no. 05/SM/2017 (Suo-Motu) for various RE technologies i.e. Biomass based Power Projects, Biomass Gasifier Power Projects, Biogas based Power Projects, Small Hydro Power Projects and Non-fossil fuel based Co-Generation Projects as well, for the State of Punjab shall become applicable. For other technologies such as Solar PV, Solar Thermal, Wind, MSW and RDF based projects, project specific tariff shall be determined as provided in the CERC RE Regulations, 2017.

6. Accordingly, the generic tariffs for the various RE Projects/Technologies to be commissioned during the year 2017-18 are proposed as below:

Generic Tariff for RE technologies for FY 2017-18

Particulars	Levellised Total Tariff (FY 2017-18) (₹/kWh)
1	2
Small Hydro Power Projects	
Below 5 MW	6.00
5 to 25 MW	5.04

Levelling Fixed Cost (₹/kWh)	Variable Cost (FY 2017-18) (₹/kWh)	Applicable Tariff Rate (FY 2017-18) (₹/kWh)	Benefit of Accelerated Depreciation, if availed (₹/kWh)	Net Levelling Tariff Rate upon adjusting for Accelerated Depreciation benefit (3-4) (₹/kWh)
1	2	3	4	5
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with water cooled condenser and travelling grate boiler				
2.75	5.21	7.96	0.13	7.83
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with air cooled condenser and travelling grate boiler				
2.91	5.33	8.23	0.15	8.09
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with water cooled condenser and travelling grate boiler				
2.87	5.21	8.07	0.14	7.93
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with air cooled condenser and travelling grate boiler				
3.03	5.33	8.35	0.16	8.20
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with water cooled condenser and AFBC boiler				
2.75	5.11	7.86	0.13	7.73
Biomass Power Projects [other than Rice Straw and Juliflora (plantation) based project] with air cooled condenser and AFBC boiler				
2.90	5.23	8.13	0.15	7.98
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with water cooled condenser and AFBC boiler				
2.86	5.11	7.97	0.14	7.83
Biomass Power Projects [Rice Straw and Juliflora (plantation) based project] with air cooled condenser and AFBC boiler				
3.02	5.23	8.25	0.16	8.09
Bagasse based Co-Generation Projects				
2.74	3.55	6.29	0.17	6.12
Biomass Gasifier Power Projects				
2.60	4.75	7.35	0.10	7.25
Biogas based Power Projects				
3.37	4.19	7.56	0.23	7.33

7. The revised Tariff Policy notified by the Ministry of Power on 28.01.2016 provides under clause 6.4(2) as under:

“States shall endeavor to procure power from renewable energy sources through competitive bidding to keep the tariff low, except from the waste to energy plants. Procurement of power by Distribution Licensee from renewable energy sources from projects above the notified capacity, shall be done through competitive bidding process, from the date to be notified by the Central Government.

However, till such notification, any such procurement of power from renewable energy sources projects, may be done under Section 62 of the Electricity Act, 2003.....”

In this regard, it is brought out that Para 6.4 (2) of the Tariff Policy notified on 06.01.2006 provided that procurement of electricity from renewable sources of energy for future requirements shall be done, as far as possible, through competitive bidding under section 63 of the Electricity Act, 2003. The Commission in its earlier Orders for determination of tariff for RE projects for previous years held that till such time tariff based competitive bidding is resorted to, bidding may be carried out on the basis of discount to be offered by the prospective bidders on the generic tariffs determined by the Commission, which would be the maximum/ceiling tariff for the purpose. It is proposed that the same may continue in the interest of competitive tariffs for RE projects.