PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
SCO No. 220-221, SECTOR 34-A, CHANDIGARH

Petition No. 43 of 2015 (Suo-Motu)
Date of Order: 24.07.2015

In the matter of:	Determination of generic levellised generation tariff for Renewable Energy Power Projects for FY 2015-16.
Present:	Smt. Romila Dubey, Chairperson Shri Gurinder Jit Singh, Member

<u>Order</u>

The Punjab State Electricity Regulatory Commission (Commission) in its Order dated 19.07.2012 in petition no. 35 of 2012 (Suo-Motu) for adoption of Central Electricity Regulatory Commission (Terms & Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 (CERC RE Regulations, 2012) and determination of generic levellised generation tariff for Renewable Energy Power Projects (RE Projects) for FY 2012-13, 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 generic levellised generation tariff for RE Projects for FY 2012-13. Subsequently, the Commission determined the generic / 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 generic levellised generation 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 & Conditions for Tariff determination from Renewable Energy Sources) (First Amendment) Regulations, 2014 (First Amendment, 2014) dated 18.03.2014 partly with regard to normative capital cost for Biomass Power Projects with water cooled condenser.

2. CERC, vide its Order dated 31.03.2015 in petition no. SM/004/2015 (Suo-Motu), has determined the generic levellised generation tariff for RE Projects for FY 2015-16. The said CERC RE Regulations, 2012, First Amendment, 2014 and the Order dated 31.03.2015 are available on CERC website www.cercind.gov.in.

3. Keeping the above in view, the Commission directed that a Staff Paper be prepared for determination of the generic levellised generation tariff for RE Projects for FY 2015-16. Accordingly, the Staff Paper was prepared and a Public Notice published on 20.05.2015 and 21.05.2015 in the leading newspapers namely, The Tribune, The Indian Express, Punjabi Tribune, Amar Ujala and Hindustan Times inviting comments/suggestions from various stakeholders. The last date for receipt of suggestions and objections was 15.06.2015. Simultaneously, the Staff Paper was uploaded on the website of the Commission. Copy of the Public Notice was also sent to Government of Punjab, Punjab State Power Corporation Ltd., Punjab State Transmission Corporation Ltd. and Punjab Energy Development Agency for obtaining their views / comments on the Staff Paper. The Commission received five suggestions/objections before the due date and another four after the due date but before the Public Hearing held on 22.06.2015. The Commission decided to consider all the suggestions/objections received before the Public Hearing. The

following firms / developers/ agencies attended the Public Hearing and / or submitted their comments / suggestions:

i) Principal Secretary, Government of Punjab, Department of NRES, Chandigarh.

ii) JITF Urban Infrastructure Limited, New Delhi.

iii) Punjab Energy Development Agency, Chandigarh.

iv) Biomass Power Producers Association, Mohali.

v) Green Planet Energy Private Limited, Chandigarh.

vi) Hindustan EPC Company Limited, New Delhi.

vii) Punjab State Power Corporation Limited, Patiala.

viii) Punjab Biomass Power Limited, Patiala.

ix) Welspun Renewables Energy Private Limited, Mumbai.

A summary of the issues raised and views of the Commission thereon are contained in Annexure-1 of this Order.

4. With regard to the suggestions and objections by the objectors for adopting the norms for biomass based power projects in line with the First Amendment, 2014, the Commission notes that in the RE Regulations, 2012, in respect of biomass power projects, Regulation 38 specified 'Station Heat Rate' (SHR) as 4000 kCal/kWh, Regulation 43 specified 'Calorific Value' (CV) as 3300 kCal/kg and Regulation 41 specified that use of fossil fuel shall be limited to the extent of 15% of total fuel consumption on annual basis. In the First Amendment, 2014, CERC amended the said Regulations and specified SHR as 4200 kCal/kWh for projects using travelling grate boilers and 4125 for projects using AFBC boilers and further specified CV as 3100 kCal/kg and disallowed the use of fossil fuel by such projects. However, vide Second Amendment, 2014 notified on 05.01.2015, CERC amended Regulation 41 and allowed use of fossil fuels limited to the extent

of 15% in terms of calorific value on annual basis till 31.03.2017. Now vide Third Amendment, 2015 notified on 10.07.2015, CERC has specified, for projects using fossil fuel upto 15% of calorific value on annual basis, SHR as 4126 kCal/kWh for projects using travelling grate boilers and 4063 kCal/kWh for projects using AFBC boilers and further specified the CV as 3174 kCal/kg. The Commission in its Order dated 05.09.2014 in petition no. 42 of 2014 (Suo-Motu) while discussing First Amendment, 2014 had decided to continue with the existing provisions in respect of SHR, CV and use of fossil fuels as per RE Regulations, 2012. **Considering the Second Amendment, 2014 and Third Amendment, 2015 by CERC as brought out above post the Order of the Commission dated 05.09.2014, the Commission after careful consideration of the same and the objections, finds it prudent to fix SHR and CV as 4126 kCal/kWh and 3174 kCal/kg as against existing 4000 kCal/kWh and 3300 kCal/kg respectively for biomass based projects.**

Accordingly, the generic tariff for FY 2015-16 for Biomass Power Projects with water cooled condensers has been worked out with the normative capital cost as ₹ 558.705 Lakh/MW after applying indexation mechanism specified in CERC RE Regulations, 2012 on the normative capital cost of ₹ 544.19 Lakh/MW for FY 2014-15 determined by the Commission in its Order dated 05.09.2014, which is same as fixed by CERC in its Order dated 31.03.2015. Other parameters/norms (except SHR and CV as fixed above) including the biomass fuel price fixed as ₹ 3500.42 per MT for FY 2015-16 considering the escalation as per the fuel price indexation mechanism specified in Regulation 45 of

CERC RE Regulations, 2012 are the same as specified in these regulations adopted by the Commission.

Further, as decided in the Order dated 05.09.2014 in petition no.42 of 2014 (Suo-Motu), the Commission continues to hold that the normative capital cost for biomass power projects with air-cooled condensers is much higher and would lead to still higher tariff which may not be economical and therefore not in the interest of the consumers of the State. In case a developer proposes to set up a Biomass Power Project with air-cooled condenser which should be duly approved by Punjab Energy Development Agency (PEDA), it may approach the Commission for tariff applicability/determination for its project. Similarly, if a developer wishes to set up a Biomass Power Project with proven technology for exclusive use of rice straw duly approved by PEDA in this regard, it may approach the Commission for tariff applicability / determination for its project.

5. For working out generic tariff for Non-fossil fuel based Co-generation Projects for FY 2015-16, the normative capital cost and other parameters/norms are as per CERC RE Regulations, 2012 adopted by the Commission with State specific modifications in respect of such projects in its Order dated 19.07.2012 in petition no.35 of 2012 (Suo-Motu). In the said Order, the Commission had specified the PLF as 80% for Non-fossil fuel based Co-generation Projects and decided that such projects would operate for 292 days in a year i.e 100 days on bagasse and remaining 192 days on biomass fuel and tariff was determined on the basis of weighted average of various parameters for bagasse and biomass as also weighted average of bagasse and biomass prices. The tariff for

Non-fossil fuel based Co-generation Projects for FY 2015-16 has been determined accordingly. The weighted average cost of biomass fuel mix comprising bagasse and biomass fuel works out to ₹ 2993.65 per MT for FY 2015-16 by applying indexation mechanism specified in CERC RE Regulations, 2012 over the fuel price of ₹ 2801.11 per MT for FY 2014-15.

6. The generic tariff for FY 2015-16 in respect of Biomass Gasifier Power Projects, Biogas based Power Projects, Small Hydro Projects and Solar Power Projects (PV and Thermal) would be the same as determined by CERC in its Order dated 31.03.2015. As brought out in the said CERC Order, benefit of Accelerated Depreciation is not available for Small Hydro Projects and tariff without this benefit will be applicable for such projects. As regards tariff for Wind Energy Projects, as per the Wind Power Density Map in the Indian Wind Atlas published by Centre for Wind Energy Technology in August 2010, there is no installable potential for wind energy in the State. In the event of such a project being established, tariff for Wind Zone-1 as determined by CERC in its ibid Order would be applicable.

7. The variable component of tariff for Biomass Power Projects, Non-fossil fuel based Co-generation Projects, Biomass Gasifier Power Projects and Biogas based Power Projects for each year will change based on whether a RE project developer opts for fuel price indexation mechanism or escalation factor of 5% specified in the RE Regulations at the time of signing the PPA. Hence, while calculating the total applicable tariff for such projects for FY 2015-16, levellisation of only fixed component and the variable

component for the first year of operation i.e. FY 2015-16, have been considered.

8. **Accordingly, the generic tariffs for the various RE Projects/Technologies to be commissioned during the year 2015-16 will be as indicated in Table below:**

Generic Tariff for RE technologies for FY 2015-16

Levellised Fixed Cost (₹/kWh)	Variable Cost (FY 2015-16) (₹/kWh)	Applicable Tariff Rate (₹/kWh)	Benefit of Accelerated Depreciation, if availed (₹/kWh)	Net Applicable Tariff Rate upon adjusting for Accelerated Depreciation benefit (3-4) (₹/kWh)
1	2	3	4	5
Biomass Power Projects(other than rice straw) with water cooled condenser				
2.70	5.06	7.76	0.18	7.58
Non-Fossil Fuel based Co-Generation Projects				
2.23	4.57	6.80	0.14	6.66
Biomass Gasifier Power Projects				
2.66	4.86	7.52	0.13	7.39
Biogas based Power Projects				
3.57	4.29	7.86	0.26	7.60

Particulars	Applicable Tariff Rate (₹/kWh)	Benefit of Accelerated Depreciation, if availed (₹/kWh)	Net Applicable Tariff Rate upon adjusting for Accelerated Depreciation benefit (2-3) (₹/kWh)
1	2	3	4
Small Hydro Power Projects			
Below 5 MW	5.47	-	5.47
5 to 25 MW	4.65	-	4.65
Wind Energy Power Projects			
Wind Zone-1	6.58	0.71	5.87
Solar Power Projects			
Solar PV	7.04	0.69	6.35
Solar Thermal	12.05	1.25	10.80

9. It is clarified that as per Regulation 8(2) of the RE Regulations, 2012, the generic tariff shall be applicable for solar PV projects upto 31.03.2017 and for solar thermal projects upto 31.03.2018 provided the Power Purchase Agreements (PPAs) are signed on or before 31.03.2016 and the entire capacity covered by the PPAs is commissioned on or before 31.03.2017 for solar PV projects and on or before 31.03.2018 for solar thermal projects.

10. The Commission observes that in accordance with Regulation 22 of the CERC RE Regulations, 2012 adopted by the Commission, any incentive or subsidy offered by the Central or State Governments if availed by a RE Project developer is to be taken into consideration while determining tariff. Accordingly, any subsidy including capital subsidy/Central Financial Assistance or generation based incentive (which is a substitute for accelerated depreciation benefit) available to the developer shall be required to be passed on to PSPCL on actual disbursement basis. Although per unit reduction on account of accelerated depreciation benefit has been quantified, reduction in tariff on account of other incentives and subsidies has not been specified. However, such incentives/subsidies cannot be generically determined and will have to be worked out by PSPCL on case to case basis.

In the circumstances, Punjab State Power Corporation Ltd. will, before signing the power purchase agreement with the developer, work out subsidy availed by the developer as per the formulae indicated in the applicable scheme framed by MNRE and reduce the tariff to that extent for a period of 12 years. However, for Biomass Gasifier Power Projects and Biogas based Power

Projects, the subsidy granted by MNRE has already been accounted for, in the tariff calculations.

11. Further, Para 6.4 (2) of the Tariff Policy notified by Ministry of Power, Govt. of India on 06.01.2006 provides 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. Accordingly, the Commission decides that if tariff based competitive bids are invited for purchase of electricity from RE Power Projects and the per unit tariff offered by the lowest bidder is less than the aforementioned tariff, a petition shall be filed by the procurer for consideration and adoption of tariff by the Commission under Section 63 of The Electricity Act, 2003. The Commission further decides 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 in this Order, which would be the maximum/ceiling tariff for the purpose.

12. The Commission also observes that as per Regulation 21 of the CERC RE Regulations 2012 adopted by the Commission, the proceeds of carbon credit from approved Clean Development Mechanism (CDM) project are to be shared between the generating company and concerned beneficiaries in the second year onwards after the Commercial Operation Date (COD) of the generating station. Thus 100% of the gross proceeds on account of CDM benefit are to be retained by the project developer in the first year after the COD and the share of beneficiaries shall be 10% in the second year and progressively increase by 10% every

year till it reaches 50%, whereafter the proceeds are to be shared in equal proportion. It is, however, clarified that sharing of the CDM benefit, if any, shall be applicable after the sale proceeds from Carbon Emission Reductions (CERs) are received by the project developer and not from the date of commissioning.

Sd/-	Sd/-
(Gurinder Jit Singh)	**(Romila Dubey)**
Member	**Chairperson**

Date: 24.07.2015
Place: Chandigarh

Click here for Annexure - I