**Concept Paper on amendment of UPERC (Captive and Renewable Energy Generating Plants) Regulations, 2014**

**Need for review of UPERC CRE Regulations, 2014**

The current control period i.e. FY 2014-15 to FY 2018-19 is scheduled to expire on 31.03.2019. Over the years RE sector has not only grown in size but it has further matured also. To incorporate benefit of maturity and learning of sector, to address new perceived challenges, to make existing Regulatory framework reflective of the current scenario of the sector and since the current control period is about to end in few months, it is incumbent upon the Commission to revisit the existing Regulations.

**Objective of the Concept Paper**

The objective of formulating this Concept Paper is:

1. To generate a debate amongst the stakeholders on the various aspect of the Regulatory framework for RE sector.
2. To solicit views of all the concerned stakeholders in the state of Uttar Pradesh on the approach that the Commission adopts with regard to different aspects of tariff setting.

**Points of Discussion**

The following are the key points of discussion that need to be discussed and pondered upon:

1. **Control Period**

The control period of current UPERC CRE Regulations, 2014 as well as its preceding Regulations, is of five (5) years, whereas, the control period for current CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017 is three (3) years i.e. from 01.04.2017 to 31.03.2020. Likewise, some other states such as Himachal Pradesh, Assam, Haryana have a control period of three (3) years for Renewable Energy Regulations.

**Options for Regulatory Framework**

The control period should be taken same as earlier Regulations i.e. five (5) years or it should be taken as three (3) years like CERC and other states.

1. **Tariff- Competitive Vs Preferential**

One of the objectives of the Electricity Act, 2003 is the promotion of competition in the Electricity sector so that the benefit of cost may go the consumer. The relevant clauses of the National Tariff Policy, 2016 dated 28.01.2016 are as follows:

***“6.4 Renewable sources of energy generation including Co-generation from renewable energy sources:***

1. *Pursuant to provisions of section 86(1)(e) of the Act…………*

*…………….*

*(ii) Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy plants in the State, in the ratio of their procurement of power from all sources including their own, at the tariff determined by the Appropriate Commission under Section 62 of the Act.*

*…………….*

*(2) States shall endeavour 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. While determining the tariff from such sources, the Appropriate Commission shall take into account the solar radiation and wind intensity which may differ from area to area to ensure that the benefits are passed on to the consumers.*

*……………..*

*(4) In order to incentivize the Distribution Companies to procure power from renewable sources of energy, the Central Government may notify, from time to time, an appropriate bid-based tariff framework for renewable energy, allowing the tariff to be increased progressively in a back-loaded or any other manner in the public interest during the period of PPA, over the life cycle of such a generating plant. Correspondingly, the procurer of such bid-based renewable energy shall comply with the obligations for payment of tariff so determined.*

*……………*

*(6) In order to further encourage renewable sources of energy, no inter-State transmission charges and losses may be levied till such period as may be notified by the Central Government on transmission of the electricity generated from solar and wind sources of energy through the inter-state transmission system for sale.*

*……………..***”**

To encourage RE, the Commission decided to adopt preferential tariff while framing CRE Regulations, 2014 for various Renewable Energy technologies considering that at that point of time these technologies were evolving. The preferential tariff structure ensured Regulatory certainty for development of RE sector in the State.

However, during the control period of 2014-19, the Commission observed that renewable energy market has now reached a level of maturity particularly for solar, bagasse and bio-mass based generation and co-generation. During this control period, the solar power (except Rooftop Solar Power) is purchased by state DISCOMs through bidding route only. Regarding bagasse based generation and cogeneration, considering the development in the state after due discussion during the Hearings, the Commission vide its Order dated 13.12.2016 in petition no. 1136/2016 directed that in future procurement of bagasse-based power will be done only through bidding route. Lately, DISCOMs have initiated for procurement for bio-mass based power through bidding process only.

As far as procurement from waste-to-energy plants in the State is concerned, tariff policy 2016 clause 6.4 (1) (ii) states that Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy plants at the tariff determined by the Commission under Section 62 of the Act.

For Rooftop Solar power projects under RSPV Regulations based on Gross metering, vide Order dated 23.08.2017 the Commission decided the tariff as APPC of previous FY for every year i.e. in FY 2017-18 the tariff under gross metering mechanism was the APPC of FY 2016-17 and so on.

For Small Hydro Plants (SHP), in current control period no PPA was tied under the CRE Regulations. Though, the tariff for Sheetla SHP (3×1.2 MW) was decided by the Commission as per CRE Regulations and for Belka and Babail SHP (2×1.5 MW each) tariff was decided under UPERC (Terms and Conditions of Generation Tariff) Regulations, 2014 but tariff for other SHPs was discovered through bidding route only.

**Option for Regulatory Framework**

1. Whether in future all procurement of RE power particularly for solar, bagasse and bio-mass based generation and co-generation should be through bidding route only?
2. For compulsory procurement of 100% power from waste-to-energy plants, whether Project specific tariff or feed-in tariff should be determined by the Commission?
3. For Solar power projects under RSPV Regulations based on Gross metering, whether any change in tariff is required.
4. As power from SHPs is bought through bidding route, thus should only project specific tariff be decided for new SHPs.
5. **Tariff structure of Captive and Renewable Energy Generation**

It is felt that existing feed-in tariff structure does not promote economic efficiencies thus needs to be revised.

CERC in its Consultation Paper on “Terms and Conditions of Tariff Regulations for Tariff period 01.04.2019 to 31.03.2024” has suggested option for introducing three- part tariff. The relevant extract is shown below:

*“7.2.2 ………………. one option may be to introduce three part tariff structure.*

*7.2.5 ……………….. namely, fixed charge (for recovery of fixed cost consisting of the components of debt service obligations allowing depreciation for repayment, interest on loan and guaranteed return to the extent of risk free return and part of operation and maintenance expenses), variable charge (incremental return above guaranteed return and balance operation and maintenance expenses) and energy charges (fuel cost, transportation cost and taxes, duties of fuel).*

*7.2.6 The recovery of fixed component could be linked to target availability, whereas variable component could be linked to the difference between availability and dispatch. Fuel charges could be linked with dispatch.”*

It is also necessary that certain changes should be considered for scheduling of RE power under merit order operation as the tariff of the renewable generation, which is single part tariff, is compared with the variable cost of the other generation (excluding the fixed cost component from two part tariff).

**Option for Regulatory Framework**

1. There can be three- part tariff structure for renewable generation covered under Section 62 of the Act similar to proposed tariff structure of CERC as provided above, for conventional plant providing only partial recovery of fixed cost for the quantum falling short of targeted PLF.
2. For existing captive and RE projects, for their fixed cost component, a levelized tariff for their remaining useful life can be set. Whereas, the variable/ fuel cost component may be specified on coal equivalent basis - weighted average coal price of pit head plants of UPRUVNL for last Quarter of previous FY which shall be applicable for that FY.
3. **Suggestion on normative parameters (for all technologies)**

**Financial parameters-** Capital cost, Debt- Equity ratio, Loan tenure, Interest on Loan, Rate of Depreciation, Return on Equity, Operation and maintenance expenses (and its annual rate of escalation), Working capital, Interest on working capital etc.

**Operating parameters-** Station Heat Rate, Secondary fuel oil consumption, Auxiliary energy consumption, Plant load factor (PLF), Cost of fuel, GCV of fuel, transportation cost etc.

**Option for Regulatory Framework**

1. These aforementioned parameters can be reviewed for RE power with reference to prevailing parameters, CERC and other states.
2. Whereas for captive power plant based on conventional fuel, it is proposed that GSHR shall be kept at 2840 Kcal, Specific oil consumption at 0.25 ml and Auxiliary Power Consumption (APC) at 9.5%.
3. **Applicability of ABT mechanism**

Implementation of Intra-state ABT mechanism helps bring uniformity of forecasting, scheduling, accounting and commercial settlement procedures at state and regional level. This can help remove the different deviation settlement mechanisms for renewables at the inter-state and intra-state levels as currently proposed by the Forum of Regulators (FOR).

When the share of renewable generation is low in the grid, the renewable generation may get exemption from scheduling and regulations, as the variations can be met from other source of generation. But as the share of renewable generation has increased in the grid, it’s imperative to regulate its supply.

UPERC has already put forward draft Regulations on Forecasting, Scheduling and Imbalance handling of the Renewable Energy plants on 13.03.2018 for wind and solar. This Regulation is in line with the CERC framework on Forecasting, Scheduling and Imbalance handling of the Renewable Energy plants.

**Option for Regulatory Framework**

Whether, in view of developments in centre as well as state sector, all RE should be brought into ABT regime?

1. **Banking issues**

In past the Commission has been approached by different captive/ RE generators regarding issues of banking. It is also to mention that in CRE Regulations, 2014 for captive generations the Commission had allowed banking subject to availability of power and taking into account technical and commercial feasibility subject to the provisions and relevant Regulations.

Further to facilitate the banking for RE power, the Commission decided that the RE power plant shall provide ABT compliant Special Energy Meters (SEM) and the monthly settlement of energy sales shall be done based on power banked as per daily schedule given for banking of power during the month and monthly settlement shall be done for the balance energy supplied by the plant at the rate specified for supply of electricity to distribution licensees. The Commission has also taken a view that the power withdrawn by the RE plants as ascertained by SEM readings which is not against the banked power, shall be considered as power purchased by the plant.

**Option for Regulatory Framework**

Whether the changes are required in existing provisions of banking under the Regulations?