

**APSERC (Terms and Conditions for Determination of Renewable Energy Tariff)
Regulations, 2024 [Draft]**

Objectives: Procedure to determine the levelled generic tariff for small hydro projects (SHP) up to 1 mw capacity, biogas power projects with Rankine cycle technology and project specific tariff for small hydro projects, wind power projects, solar PV projects, renewable energy hybrid projects, municipal solid waste based power projects and refuse derived fuel based power projects, renewable energy with storage project and any other renewable energy technology as approved by MNRE.

The documents can be accessed [here](#).

Summary:

Key Facets of the proposal are given below:

- The Control Period or Review Period shall be of three (3) years starting from the date of the notification of these Regulations for financial year 2024-25 to 2026-27.
- The procedure for levelised generic tariff for small hydro projects (SHP) up to 1 mw capacity, biogas power projects with Rankine cycle technology and project specific tariff for small hydro projects above 1 mw capacity up to 25 mw capacity, wind power projects up to 25 mw capacity, solar PV projects up to 5 mw capacity, renewable energy hybrid projects, municipal solid waste based power projects and refuse derived fuel based power projects, renewable energy with storage project, any other renewable energy technology as approved by MNRE has been undertaken.
- The generic tariff shall be determined on levelised basis provided that Renewable Energy technologies having single-part tariff with two components, fixed cost and fuel cost component considering the discount factor equivalent to Post Tax weighted average cost of capital under review.
- Treatment for Over-Generation in case a renewable energy project generates energy in excess of the capacity utilization factor or plant load factor, the tariff for such excess energy shall be 75 percent of the tariff applicable for that year.
- Depreciation rate of 4.67% per annum shall be considered for the first 15 years and remaining depreciation shall be evenly spread during remaining Useful Life of the project.
- Return on Equity shall be 14%, and the Interest on Working Capital shall be at interest rate equivalent to the normative interest rate of three hundred and fifty (350) basis points above the average State Bank of India Marginal Cost of Funds based Lending Rate (MCLR) (one-year tenor) prevalent during the last available six months.
- Battery Energy Storage for solid state batteries shall be 80% and for pumped storage shall be 75%.

- The Project Specific Capital Cost and tariff based on prevailing market trends for MSW/ RDF projects shall be determined separately by the commission and the CUF for Solar PV project has been revised to 19%.

CER Opinion:

- 1. Determination of Capital Cost on the basis of prevailing market trends:** The draft regulation proposed to use market trends to arrive at a capital cost for determining the tariff for various RE technologies. It is important to mention that the data on capital cost is maybe of private nature and may be treated as commercial information by a number of RE Generators. Specifically, those, who have selling power through the process of competitive bidding. Capital cost should be ascertained on the basis of those projects which have been ascertained from competitive bid tariff. In case of RE Projects for which tariff is going to be determine under section 62 and 63, there is perverse incentive for potential over invoicing for providing a higher capital cost .

The commission should spell out the mechanism through which such capital cost should be recovered, data for such capital cost should be based on quote-unquote market trends. Furthermore, care should be taken to ensure that the market prices obtained from different points of time are appropriately adjusted from the value of money .i.e. they are converted to the current prices using appropriate price indexation.

The capital cost may vary across depending upon different projects, transportation charges, maintenance contracts of utilities etc. Thus, while compiling the additional information related to such aspects, should be included. Various SERCs/ JERCs have spelled out the similar approach to obtain market prices. It would be advisable that database for such capital cost is to be done through the coordinated effort of forum of regulators

- 2. Rated Capacity of Energy Storage System (ESS):** The draft regulation does not specify a minimum storage capacity requirement for the overall project, leaving it open-ended and potentially subject to varying interpretations or requirements (example – varying sizes). In the absence of any specific requirement, any minimal capacity would redefine the RE Project with energy storage services and would redefine such additional incentives.
- 3. CUF for Renewable Hybrid Energy Projects:** As per the Draft clause 53, *“.....Provided that the minimum capacity utilization factor for renewable hybrid energy project shall be 30% when measured at the inter-connection point, where the energy is injected into the grid.”*

The clause defines the eligibility criteria for RE Hybrid Energy Project is minimum 30% CUF. This criteria mentioned in the document seems to be applicable only for the definitional purpose of RE hybrid projects, since ‘minimum CUF’ and ‘normative CUF’ are two different concepts, whereas the first is applicable only in case of definitional

purpose and the second is applicable for the purpose of determination of tariff. It is important that the regulation should clearly specify separate number, for normative and minimum CUF unless these are numerically same.

- 4. Plants With Multiple PPAs Connected to a Single Injection Point:** In case of a single injection point for sale of power under multiple contracts, estimation of CUF for hybrid RE projects should also ensure that the single injection point have the metering capability which are able to separately measure the electricity supply which are supplied to DISCOMs under the tariff determined for the same. In certain instances, if single metering point is used for injecting electricity for more than one PPA that makes it difficult to identify the portion of energy injected and deviations thereof.
- 5. Determination of O&M for Renewable Energy with Hybrid Energy Project:** As per the Draft clause 54, *“The Commission shall determine only project specific O&M expenses considering the prevailing market trends.”*
The O&M services for RE projects / RE hybrid projects are often not there, it is difficult to evaluate the market trends/market rate of O&M cost for standalone or hybrid tariff. In the absence of lack of data, the commission should specify the appropriate manner in which such data would be determined. It is suggested that the Commission may use a benchmarking approach utilizing data on O&M expenses across the number of projects under private as well as public ownership across the country. Since such data could be utilized by multiple ERCs, it is suggested that Forum of Regulators may develop an approach to regularly compile such data for its utilization by ERCs.
- 6. Treatment of Levelised Tariff:** As per the Draft clause 55, *“The tariff for a renewable hybrid energy project shall be a composite levelised tariff for the project as a whole by factoring in the tariff components up to the minimum of the useful life of the RE technologies combined for such RE hybrid Project.”*
The draft clause should clarify that the levelised tariff represents a discounted present value of average tariff for each year of the contract in future. It should be clarified if the applicable levelised tariff will remain fixed or to be allowed to be escalated. In that case, escalation factor to be used should also be identified.
- 7. Storage of Energy:** It should be clarified if such projects can only store energy produced from the renewable energy project itself or can arbitrage on value of energy across different times of the day(s). Further, storage of energy should be technology agnostic. Framework for monitoring of energy stored and utilization thereof should be defined. Adoption of storage technology should be on the basis of value that brings to the stability to the operation of the grid.
- 8. Energy Banking:** The energy banking provisions should also be outlined in the draft regulations for both existing and new Renewable Energy-based plants
- 9. Eligibility Criteria for Wind Power Project:** As per the Draft clause 4.1, *“using new wind turbine generators, located at the sites approved by State Nodal Agency/State*

Government with capacity equal to 25 MW

The Clause may be rephrased as “using new wind turbine generators, located at the sites approved by State Nodal Agency/State Government with capacity **lower than or equal to 25 MW**” (emphasis added).

- 10. Calculation of Capacity Utilization Factor and Plant Load Factor:** As per the Draft clause 20, *“The number of hours in a year for calculation of capacity utilization factor and plant load factor, as the case may be, shall be considered as 8760”*.
The clause so assumed that each year has 365 days in a year but considering the leap year, number of hours in the additional day should be redistributed in the calculation of average. Thus, number of hours in the calculation shall be considered 8766.

- 11. Project specific tariff determination:** The regulation may identify the financial principles/framework for the generic tariff that would also apply for project-specific tariff and which one would be defined separately for specific cases. For example, capital cost may be project specific, but Debt-Equity ratio, working capital, auxiliary consumption etc would be the same for project specific tariff.