

**DRAFT NOTIFICATION**

Gurugram

**JOINT ELECTRICITY REGULATORY COMMISSION FOR THE STATE OF GOA AND UNION TERRITORIES**

**DRAFT NOTIFICATION**

**Dated: /08/2024**

**(Renewable Energy Tariff Regulations, 2024)**

**No. JERC....** —In exercise of the powers conferred under Sub-section (1) of Section 181 read with Clauses (zd), (ze) and (zf) of the Electricity Act, 2003 (Act No. 36 of 2003) (hereinafter referred to as 'the Act'), and all other powers enabling it in this regard including sub-ordinate legislation, rules, statutory orders, resolutions, clarifications issued by the Government in terms of the Act, the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (UTs), after previous publication, hereby makes the following Regulations, namely:

**1 Short Title, Scope, Extent and Commencement**

- 1.1 These Regulations may be called the Joint Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2024 [hereinafter referred to as "Renewable Energy Tariff Regulations, 2024"].
- 1.1 These Regulations shall extend to the State of Goa and the Union Territories of Andaman and Nicobar Islands, Chandigarh, Dadra & Nagar Haveli and Daman & Diu, Lakshadweep, and Puducherry.
- 1.2 These Regulations shall come into force from the date of publication in the official gazette and, unless reviewed earlier or extended by the Commission, shall remain in force upto 31.03.2027.

**2 Definitions and Interpretations**

- 2.1 Words, terms and expressions defined in the Electricity Act, 2003, as amended from time to time and used in the Renewable Energy Tariff Regulations, 2024 shall have and carry the same meaning as defined and assigned in the said Act.
- 2.2 All other expressions used herein but not specifically defined in the Act or Regulations but defined under any other law passed by a competent legislature and applicable to the electricity industry in the State of Goa and UTs shall have the meaning assigned to them in such law. Subject to the above, expressions used herein but not specifically defined in the Act or any other law passed by a competent legislature shall have the meaning as is generally assigned in the electricity industry.
- 2.3 In the interpretation of this Renewable Energy Tariff Regulations, 2024, unless the context otherwise requires:
  - (1) Words in the singular or plural term, as the case may be, shall also be deemed to include the plural or the singular term, respectively;
  - (2) References to any statutes, regulations or guidelines shall be construed as including all statutory provisions consolidating, amending or replacing such statutes, regulations or guidelines, as the case may be, referred to;
  - (3) Terms "include" or "including" shall be deemed to be followed by "without limitation" or "but not limited to" regardless of whether such terms are followed by such phrases or words of like import.

**2.4 In the Renewable Energy Tariff Regulations, 2024, unless it is repugnant to the context:**

- (1) **"Act"** means the Electricity Act, 2003 (36 of 2003) and subsequent amendments thereof;
- (2) **"Auxiliary energy consumption"** or **"AUX"** in relation to the period in case of the RE Project means the quantum of energy consumed by auxiliary equipment of the RE Project, and transformer losses within the RE Project, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the RE Project;

Provided that it shall not include energy consumed for supply of power by the generating Station to its housing colony and other facilities, and for construction works at the generating Station;

- (3) **"Biomass"** means wastes produced during agricultural and forestry operations (for example straws and stalks) or produced as a by-product of processing operations of agricultural produce (e.g., husks, shells, de-oiled cakes, etc) or wood produced in dedicated energy plantations or recovered from wild

bushes/weeds; and wood waste produced in some industrial operations; including such other wastes as may be recognised by the Central Government, as being part of biomass;

- (4) **“Biomass gasification”** means a process of incomplete combustion of biomass resulting in production of combustible gases consisting of a mixture of Carbon monoxide (CO), Hydrogen (H<sub>2</sub>) and traces of Methane (CH<sub>4</sub>), which is called producer gas;
- (5) **“Biogas”** means a gas created when organic matter like crop residues, sewage and manure breaks down (ferments) in an oxygen-free environment;
- (6) **“Capital Cost”** means the capital cost as defined in Regulations 14, 28, 32, 36, 41, 51, 58, 68, 74, 79 and 83 (of the applicable technology);
- (7) **“Capacity Utilisation Factor (CUF in abbreviation)”** means the ratio of actual gross energy generated by the RE Project to the equivalent energy output at its rated capacity over an year;
- (8) **“CERC” or “Central Commission”** means the Central Electricity Regulatory Commission;
- (9) **“COD” or “Commercial Operation Date” or “Date of commercial operation”** means the date on which the RE Project is synchronised with the grid system;

Provided that date of commissioning shall be certified based on joint inspection by RE Generator and concerned Distribution Licensee or SLDC as may be applicable;

- (10) **“Commission”** means the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (except Delhi);
- (11) **“Conduct of Business Regulations”** means Joint Electricity Regulatory Commission (Conduct of Business) Regulations, 2009, as amended from time to time;
- (12) **“Control Period”** means the period during which the norms for determination of tariff specified in these Regulations shall remain in force;
- (13) **“Distribution Company/ Distribution Licensee (Discom in brief)”** means a person granted a Licence under Section 14 (b) of the Act authorizing him to operate and maintain a distribution system and supply electricity to the consumers in its area of supply;
- (14) **“Energy Purchase Agreement”** means an agreement executed between the Distribution Licensee and the Project Developer for procurement of power from Renewable Energy Projects in accordance with the provisions of these Regulations;
- (15) **“Existing Renewable Energy Plants”**, means renewable generating stations, which have achieved COD prior to coming into force of these Regulations;
- (16) **“Floating solar project” or “FPV”** means a solar PV power project where the arrays of photovoltaic panels on the structure of the project float on the top of a body of water, such as an artificial basin or lake, with the help of a floater, anchoring, and mooring system;
- (17) **“Grid Code”** means the Joint Electricity Regulatory Commission (State Grid Code) Regulations, 2010, as amended from time to time or any subsequent re-enactment thereof;
- (18) **“Gross Calorific Value” or “GCV”** in relation to a fuel used in generating station means the heat produced in kilocalories by complete combustion of one kilogram of solid fuel or one litre of liquid fuel or one standard cubic meter of gaseous fuel, as the case may be;
- (19) **“Gross Station Heat Rate” or “SHR”** means the heat energy input in kilocalories required to generate one kilowatt-hour (kWh) of electrical energy at generator terminals of a thermal generating station;
- (20) **“Installed capacity” or “IC”** means the summation of the name plate capacities of all the units of the generating station or the capacity of the generating station (reckoned at the generator terminals), approved by the Commission from time to time. In the case of Solar PV power projects and Floating

solar projects, installed capacity shall be the sum of nameplate capacities (Nominal AC power) of the inverters of the project;

- (21) **“Inter-connection Point”** shall mean interface point of renewable energy generating facility with the transmission system or distribution system, where the energy is injected, as the case may be, and include:
- i. in relation to wind power project, solar PV power projects, renewable hybrid energy projects and renewable energy with storage projects, line isolator on outgoing feeder on HV side of the pooling sub-station;
  - ii. in relation to small hydro power projects, biomass gasifier based power projects, non-fossil fuel based co-generation projects and solar thermal power projects, line isolator on outgoing feeder on HV side of generator transformer;
- (22) **“Island area”** means Andaman and Nicobar Islands and Lakshadweep under the jurisdiction of the Commission;
- (23) **“Licence”** means a licence granted under Section 14 of the Act;
- (24) **“Mainland area”** means all areas other than Island areas falling under the jurisdiction of the Commission;
- (25) **“MNRE”** means the Ministry of New and Renewable Energy of the Government of India;
- (26) **“Municipal Solid Waste”** or **“MSW”** means and includes commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes;
- (27) **“Non-fossil fuel based co-generation project”** means a generating station that uses the process in which more than one form of energy (such as steam and electricity) is produced in a sequential manner by use of biomass;
- (28) **“Operation and Maintenance expenses”** or **“O&M expenses”** means the expenditure incurred on operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables, insurance and overheads;
- (29) **“Plant Load Factor or (PLF)”** in relation to a generating station for a given period means the total sent out energy corresponding to scheduled generation during the period, expressed as a percentage of sent out energy corresponding to installed capacity in that period and shall be computed in accordance with the following formula:

$$PLF = 10000 \times \frac{\sum_{i=1}^N SG_i}{\{N \times IC \times (100 - AUX_n)\}} \%$$

Where,

IC = Installed Capacity of the generating station or unit in MW,

SG<sub>i</sub> = Scheduled Generation in MWh for the i<sup>th</sup> time block of the period, N = Number of time blocks during the period, and

AUX<sub>n</sub> = Normative Auxiliary Energy Consumption as a percentage of gross energy generation;

- (30) **“Project”** means a generating station or the evacuation system up to inter-connection point, as the case may be, and in case of a small hydro generating station includes all components of generating facility such as dam, intake water conductor system, power generating station and generating units of the scheme, as apportioned to power generation;
- (31) **“Pumped storage hydro project”** means a hydropower project which generates power through water stored as potential energy, pumped from a lower elevation reservoir to a higher elevation reservoir;
- (32) **“Refuse derived fuel”** or **“RDF”** means segregated combustible fraction of solid waste other than chlorinated plastics in the form of pellets or fluff produced by drying, de-stoning, shredding, dehydrating, and compacting combustible components of municipal solid waste that can be used as fuel;
- (33) **“Renewable Energy”** or **“RE Project”** means the grid quality electricity generated from renewable energy

sources;

- (34) **“Renewable Energy Project”** means a generating station that produces electricity from renewable energy sources;
- (35) **“Renewable Energy Sources”** means renewable sources such as small hydro, wind, solar including its integration with combined cycle, biomass, bio fuel cogeneration, urban or municipal waste and other such sources as recognized or approved by the Central Government;
- (36) **“Renewable energy with storage project”** means a combination of renewable energy projects with storage or a combination of renewable hybrid energy projects with storage at the same inter-connection point;
- (37) **“Renewable hybrid energy project”** means a renewable energy project that produces electricity from a combination of renewable energy sources connected at the same inter-connection point;
- (38) **“Small Hydro Project”** means Hydro Power projects with an installed capacity up to and including 25 MW or, as defined by the Government of India, from time to time at a single location;
- (39) **“Solar PV power project”** means a project that uses sunlight for direct conversion into electricity through photovoltaic technology and is based on technologies such as crystalline silicon, thin film, or any other technology as approved by MNRE;
- (40) **“Solar Roof-top PV Power Project”** means a Solar Photo Voltaic Power Project installed on the roof-top of a building or any other mounting structure in the consumer premises that uses sunlight for direct conversion into electricity through Photo Voltaic technology and satisfies any other eligibility criteria as may be stipulated by MNRE, from time to time;
- (41) **“Solar Thermal power project”** means a project that uses sunlight for direct conversion into electricity through Concentrated Solar Power technology based on either line focus or point focus principle;
- (42) **“State Nodal Agency”** means the agency in a State as may be designated by the Ministry of New and Renewable Energy to promote efficient use of renewable energy in that State;
- (43) **“Storage”** means an energy storage system utilizing methods and technologies like solid state batteries, flow batteries, pumped storage, compressed air, fuel cells, hydrogen storage or any other technology to store various forms of energy and to deliver the stored energy in the form of electricity;
- (44) **“Tariff period”** for renewable energy projects will be the same as their Useful Life, and the tariff period shall be considered from the date of commercial operation of such power projects;
- (45) **“Tariff Order”** in respect of a Licensee means the last order in force issued by the Commission for that Licensee indicating the tariff to be charged by the Licensee from various categories of consumers for supply of electricity;

**Explanation:** Any Distribution Licensee, Transmission Licensee and generating Units connected to the distribution system and the person availing open access in transmission or distribution system are also included in this term;

- (46) **“Useful Life”** in relation to a unit of a generating station including evacuation system shall mean the following duration from the date of commercial operation (COD) of such generation facility, namely: -
- |    |                                                       |          |
|----|-------------------------------------------------------|----------|
| a) | Wind power project                                    | 25 years |
| b) | Biomass power project with Rankine cycle technology   | 25 years |
| c) | Non-fossil fuel based co-generation project           | 25 years |
| d) | Small Hydro Plant                                     | 40 years |
| e) | MSW/ RDF based MSW power projects                     | 20 years |
| f) | Solar PV/ Floating Solar/ Solar thermal power project | 25 years |
| g) | Biomass Gasifier based power project                  | 25 years |
| h) | Biogas based power project                            | 25 years |

i)	Renewable hybrid energy project	Minimum of the Useful Life of different RE technologies combined for Renewable Energy Project for Composite Tariff as specified under Regulation 83
j)	Renewable energy with storage project	Same as useful life of the project assuming no storage

(47) “Year” means a financial year.

2.5 Save as aforesaid and unless repugnant to the context or if the subject matter otherwise requires, words and expressions used in these Regulations and not defined hereunder, but defined in the Act, or the Grid Code or other Regulations specified by the Commission shall have the meanings assigned to them respectively in the Act, or any other regulation specified by the Commission.

### 3 Scope and Extent of Application

3.1 These Regulations shall apply in all cases where tariff for power generating station or a unit thereof commissioned during the Control Period and based on renewable sources of energy, is to be determined by the Commission under Section 62 read with Section 86 of the Act.

3.2 Provided that in cases of Wind power project, Small Hydro project, Biomass power based on Rankine cycle, Non-fossil fuel based co-generation projects, Solar PV projects, floating solar project, Solar Thermal power projects, renewable energy hybrid energy projects, renewable energy with storage projects, Biomass gasifier, Biogas power project, Refuse derived fuel-based municipal solid waste power projects, municipal solid waste based power projects, plasma gasification projects and tidal wave power projects, these Regulations shall apply subject to the fulfilment of eligibility criteria specified in Regulation 5 of these Regulations.

### 4 General Reporting Requirements

4.1 Distribution Licensees shall furnish the following quarterly information to State Nodal Agency, within a month of the close of the preceding quarter:

- 4.1.1 details of source-wise RE capacity addition in MW;
- 4.1.2 details of source-wise RE purchase in MU; and
- 4.1.3 a statement of Energy Purchase Agreements (EPAs) entered into under these Regulations,

in addition to any other information that the Commission may stipulate from time to time:

Provided that the Distribution Licensees shall also upload and update the above information on their websites on a quarterly basis, along with details of capacity addition in previous years.

4.2 The State Nodal Agency shall furnish the following quarterly information to the Commission, within two months of the close of the preceding quarter:

- 4.2.1 details of source-wise RE capacity addition in MW;
- 4.2.2 details of source-wise RE purchase by each Distribution Licensee in MU; and
- 4.2.3 a statement of Energy Purchase Agreements (EPAs) entered into under these Regulations by each Distribution Licensee;
- 4.2.4 Projects registered in the State for each Technology in that quarter as well as cumulatively;
- 4.2.5 Source-wise RE capacity addition vis-à-vis Technical Potential,

in addition to any other information that the Commission may stipulate from time to time:

Provided that the State Nodal Agency shall also upload and update the above information on its website on a quarterly basis, along with details of capacity addition in previous years.

- 4.3 The State Nodal Agency may from time to time stipulate any other financial, technical or other information required to be furnished by the RE Project Entities, including information regarding RE Project performance parameters such as actual energy generated, monthly actual CUF and actual Auxiliary consumption, if applicable; and financial information such as Capital Cost, yearly O&M Expenses, details of loans and financing, and interest rates, etc., as well as any other information that may be desired by the Commission.
- 4.4 All RE Generating Companies shall submit data on actual O&M expenses incurred on annual basis, duly certified by the Statutory Auditor, to the State Nodal Agency:

Provided that the State Nodal Agency shall compile such data on a yearly basis for different RE technologies and submit the same to the Commission by October 31<sup>st</sup> of every year, for the actual O&M expenses incurred by RE Generating Companies in the State of Goa and the UTs during the previous year.

## 5 Eligibility Criteria

- (1) **Wind Power project** – The project that uses new wind turbine generators and is located at sites, on-shore or off-shore, approved by the State Nodal Agency or Appropriate Government.
- (2) **Small Hydro Project** – The project that uses new plant and machinery and is located at sites approved by the State Nodal Agency or Appropriate Government.
- (3) **Solar PV, Floating Solar Project and Solar Thermal Power Project** – Based on technologies approved by MNRE.

Provided that floating solar projects installed with existing renewable energy projects other than ground mounted Solar PV projects shall be treated as renewable hybrid energy projects.

- (4) **Biomass Gasifier based Power Project** – The project shall qualify to be termed as a biomass gasifier- based power project, if it is using new plant and machinery and having a Grid connected system that uses 100% producer gas engine, coupled with gasifier technologies approved by MNRE;
- (5) **Biomass Power Project based on Rankine Cycle Technology**- The projects using new plant and machinery based on Rankine cycle technology and using biomass fuel sources, without use of fossil fuel;
- (6) **Renewable hybrid energy project** – The rated capacity of generation from one renewable energy source is at least 33% of the total installed capacity of the renewable hybrid energy project, which operates at the same point of interconnection: Provided that energy is injected into the grid at the same interconnection point and metering is done at such a common interconnection point accordingly.
- (7) **Non-fossil fuel based co-generation project** – The project that uses new plant and machinery and is based on the topping cycle mode of co-generation.

**Topping cycle mode of co-generation** – Any facility that uses non-fossil fuel input for power generation and also utilizes the thermal energy generated for useful heat applications in other industrial activities simultaneously:

Provided that for the co-generation facility to qualify under topping cycle mode, the sum of useful power output and one-half the useful thermal output be greater than 45% of the facility's energy consumption during crushing season. Explanation- For the purposes of this clause,

- (a) **'Useful power output'** is the gross electrical output from the generator. There will be an auxiliary consumption in the cogeneration plant itself (e.g. the boiler feed pump and the FD/ID fans). In order to compute the net power output, it would be necessary to subtract the auxiliary consumption from the gross output. For simplicity of calculation, the useful power output is defined as the gross electricity (kWh) output from the generator.
- (b) **'Useful Thermal Output'** is the useful heat (steam) that is provided to the process by the cogeneration facility.

- (c) **'Energy Consumption'** of the facility is the useful energy input that is supplied by the fuel (normally bagasse or other such biomass).
- (d) **'Topping Cycle'** means a co-generation process in which thermal energy produces electricity, followed by useful heat application.
- (8) **Biogas based Power Project** – The project shall qualify to be termed as a biogas-based power project, if it is using new plant and machinery and having grid connected system that uses 100% Biogas fired engine, coupled with Biogas technology for co-digesting agriculture residues, manure and any other biowaste as may be approved by MNRE;
- (9) **Municipal Solid Waste (MSW) based Power Projects** – The project shall qualify to be termed as a Municipal Solid Waste (MSW) based power project if it is using new plant and machinery based on Rankine cycle technology and using Municipal Solid Waste (MSW) as fuel sources;
- (10) **Refuse Derived Fuel (RDF) based Municipal Waste Power Projects** – The project shall qualify to be termed as a Refuse derived fuel (RDF) based power project, if it is using new plant and machinery based on Rankine cycle technology and using Refuse derived fuel (RDF) as fuel sources;
- (11) **Renewable energy with storage project** – The renewable energy project including a renewable hybrid energy project that uses, partly or fully, renewable energy generated from such project to store energy in a storage facility, which is connected at the same point of interconnection as the renewable energy project.
- (12) **Plasma Gasification based Power Projects-** The project shall qualify to be termed as “Plasma Gasification-based power project” if it is using new plant and machinery based on the plasma gasification technology and it is used commercially as a form of waste treatment and has been tested for the gasification of municipal solid waste, biomass, industrial waste, hazardous waste and solid hydrocarbons, such as coal, oil sands, pet coke and oil shale.
- (13) **Tidal Wave Power Projects** – The project shall qualify to be termed as Tidal wave power projects, which uses the energy obtained from tidal waves to generate electricity.

## **Chapter -1: General Principles**

### **6 Control Period**

- 6.1 The Control Period under these Regulations shall be of three (3) years starting from the date of the notification of these Regulations. The first year of the control period shall be the financial year 2024-25.  
Provided that the tariff determined as per these Regulations for the RE projects commissioned during the Control Period, shall continue to be applicable for the entire duration of the Tariff Period;  
Provided further that the tariff norms specified in these regulations shall continue to remain applicable until notification of the revised norms through subsequent re-enactment of these regulations.

### **7 Tariff Period**

- 7.1 The Tariff Period for Renewable Energy power projects will be as per their Useful Life as defined in Regulation 2.4 (46).
- 7.2 Tariff Period under these Regulations shall be considered from the date of commercial operation of the respective Renewable Energy generating plants.
- 7.3 Tariff determined as per these Regulations shall be applicable for Renewable Energy power projects for the entire duration of the Tariff Period as stipulated under Clause (7.1) and (7.2).

### **8 Generic Tariff**

- 8.1 **The Generic Tariff shall be determined by the Commission in accordance with these Regulations for the following types of projects:**
- a) Rooftop mounted installed by prosumers (for Gross-Metering/ Net-Billing) or ground mounted solar PV

installed by farmers under part A of the PM-KUSUM scheme;

- b) Small hydro-based projects;
- c) Biomass power project with Rankine cycle technology;
- d) Non-fossil fuel-based co-generation project;
- e) Biomass gasifier-based power project; and
- f) Biogas-based power project
- g) Refuse Derived Fuel based Municipal Solid Waste power projects;

Provided that the generic tariff determined for the year in which an RE project is commissioned shall be applicable for such RE Project of the same type and shall remain valid for the tariff period.

Provided further that, in case of special circumstances, the Project Developer may approach the Commission for determination of Project Specific Tariff for types of projects mentioned above:

Provided also that the Generic Tariff determined by the Commission through a Generic Tariff Order shall be excluding the impact of Capital Subsidy:

Provided also that in case any Project under the above types of Projects avails Government Subsidy, the Project Developer shall approach the Commission for determination of Project Specific Tariff:

Provided also that Financial and Operational norms except Capital Cost, O&M Expenses and Capacity Utilisation Factor or Plant Load Factor (as applicable) as specified in these Regulations would be the ceiling norms while determining the Project Specific Tariff.

- 8.2 Notwithstanding anything contained in regulation 8.1 above, the generic tariff for Rooftop mounted solar PV installed by prosumers for the purpose of gross-metering/net-billing and/or ground mounted solar PV installed by farmers under component A of PM-KUSUM scheme, shall be Average Power Purchase Cost (APPC) of solar power of the concerned discom for the relevant year of the tariff order in which such solar plant has been commissioned and such tariff shall be applicable for the tariff period.

## **9 Project-Specific Tariff**

- 9.1 **Project Specific Tariff, on case-to-case basis, shall be determined by the Commission for the following types of projects:**

- a) Ground Mounted Solar PV power projects, floating solar projects and solar thermal power projects installed by developers for sale of power;
- b) Wind power projects (on-shore & off-shore);
- c) Biomass Projects, Biomass Gasifier-based projects & Biogas-based projects – if a project developer opts for project-specific tariff;
- d) Municipal Solid Waste power projects except RDF based MSW,
- e) Plasma gasification as approved by MNRE;
- f) Tidal power projects;
- g) Renewable hybrid energy projects;
- h) Renewable energy with storage projects;
- i) Any other project based on new renewable energy sources or technologies approved by the Central Government;
- j) As per the fourth proviso of Regulation 8.1, Project seeking Government subsidy.

- 9.2 Determination of Project specific tariff for generation of electricity from such Renewable Energy sources shall be in accordance with such terms and conditions as stipulated under relevant Orders of the Commission:

- 9.3 No annual generic tariff shall be determined for the technologies mentioned in Clause 9.1 of this Regulation:

Provided that the Financial and Operational (except for capital cost) norms as may be specified in these Regulations would be the ceiling norms suitably adjusted for subsidy amount (if any), while determining the Project Specific Tariff.



## **10 Petition and Proceedings for Determination of Tariff**

- 10.1 In case of renewable energy projects for which a generic tariff has to be determined as per these regulations, the Commission shall determine such generic tariff prior to the commencement of the year for each year of the Control Period:

Provided that for the first year of the Control Period, i.e., from 01.04.2024 to 31.03.2025, the generic tariff shall be determined upon issuance of these regulations.

- 10.2 A Petition for determination of Project Specific Tariff shall be filed by the Project developer and shall be accompanied by:

- a) Information in forms 1.1, 1.2, 2.1, 2.2 and 2.3, as the case may be, as appended to these regulations;
- b) Fees for filing the Petition, as applicable;
- c) Detailed project report outlining the following:
  - A. technical and operational details;
  - B. site-specific aspects;
  - C. basis for capital cost, detailed break-up of capital cost and financing plan, etc.;
  - D. A statement of all applicable terms and conditions;
  - E. expected expenditure for the period for which tariff is to be determined;
  - F. A statement containing full details of calculation of any grant, subsidy and/or incentive received, due or assumed to be due from the Central Government and/or State Government / Administration;
  - G. the proposed tariff calculated without consideration of the subsidy and incentive (with working in iterative excel format).
- d) Consent from the beneficiary for procurement of power from renewable energy project at a tariff approved by the Commission, in the form of an initialled Power Purchase Agreement or Memorandum of Understanding; and
- e) Following documents in case of a petition for determination of project-specific tariff by renewable energy projects, where tariff from such renewable energy sources is generally determined through a competitive bidding process in accordance with the provisions of Section 63 of the Act:
  - I. Rationale for opting project specific tariff instead of competitive bidding; and
  - II. Competitiveness of the proposed tariff vis-à-vis tariff discovered through competitive bidding/ tariff prevalent in the market.
- f) Any other information that the Commission requires from the Petitioner to submit.
- g) The proceedings for determination of tariff shall be in accordance with the JERC (Conduct of Business) Regulations, 2009 as amended from time to time.

## **11 Procurement of Power from Renewable Energy Projects**

- 11.1 For Renewable Energy Technologies, for which Generic Tariff is determined by the Commission, the Distribution Licensee may procure power from such projects either at the Generic Tariff approved by the Commission or through the competitive bidding process:

Provided that in case the Distribution Licensee opts to procure power from any Renewable Energy Project(s) set up within their licensed area at the Generic Tariff for 1 MW and above approved by the Commission, the Distribution Licensee shall file the Petition for prior approval of Energy Purchase Agreement for procurement of power from such Renewable Energy Project(s);

Provided further that in case the Distribution Licensee opts to procure power from Renewable Energy Projects through competitive bidding process in accordance with the guidelines issued by the central government, the

Generic Tariff determined by the Commission shall act as a ceiling tariff and for such procurement of power, the Distribution Licensee shall file the Petition for adoption of tariff under Section 63 of the Act;

Provided also that the Distribution Licensee can procure power from Grid Connected Rooftop mounted, ground mounted, solar PV installed by farmers under component A of PM-KUSUM scheme and floating Solar Power Project of any capacity less than 1 MW and above 1 kW at the Generic Tariff approved by the Commission for Solar PV without specific approval of Energy Purchase Agreement:

Provided also that in case the Project Developer intends to set up two Grid Connected Rooftop mounted projects at single Rooftop, one for Net Metering and other for supply of power to Distribution Licensee under Gross Metering, the rooftop area for these two projects shall be separately earmarked and the two projects shall be installed separately without any interface between the two Projects.

For Renewable Energy Projects, for which the Project Specific Tariff is determined by the Commission, the Distribution Licensee shall file the Petition for prior approval of Energy Purchase Agreement for procurement of power from such Renewable Energy Project(s):

Provided that in case the Project Developer and Distribution Licensee opt to file the Petition for approval of EPA and determination of tariff, the Project Developer and Distribution Licensee shall file Joint Petition in this regard.

- 11.2 The Distribution Licensee shall comply with all the statutory and regulatory provisions for procurement of power from Renewable Energy Projects, as applicable from time to time.

All Renewable Energy power plants shall be treated as 'Must Run' power plants and procurement of power by Distribution Licensee from such power plants shall not be subjected to 'Merit Order Despatch' principles. Provided that the Renewable Energy Power Plant with installed capacity of 5 MW and above shall be required to furnish to Distribution Licensee a month-wise schedule. The Renewable Energy Power Plant shall also co-ordinate with State Load Dispatch Centre in respect to Optimum scheduling and dispatch of electricity as per provisions of the State Grid Code.

## **12 Tariff Structure**

- 12.1 The tariff for Renewable Energy technologies shall be single-part tariff consisting of the following fixed cost components:

- a) Operation and maintenance expenses;
- b) Interest on loan capital;
- c) Depreciation;
- d) Interest on working capital;
- e) Return on equity:

Provided that for Renewable Energy technologies like biomass power projects with rankine cycle technology, biomass gasifier-based power projects, biogas-based power projects and non-fossil fuel-based cogeneration projects, single-part tariff with two components, fixed cost component and fuel cost component, shall be determined.

### **13 Tariff Design**

- 13.1 The generic tariff shall be determined considering the year of commissioning of the project, on levelized basis for the Tariff Period of the project:

Provided that for Renewable Energy technologies having single-part tariff with two components, tariff shall be determined on levelized basis considering the year of commissioning of the project for fixed cost component while the fuel cost component shall be determined on the basis of year of operation in the Tariff Order to be issued by the Commission.

- 13.2 For the purpose of levelized tariff computation, the discount factor equivalent to Post Tax weighted average cost of capital shall be considered.
- 13.3 Levelization shall be carried out for the 'useful life' of the Renewable Energy project.
- 13.4 The above principles shall also apply for project specific tariff.

## **Chapter-2: Financial Principles**

### **14 Capital Cost**

- 14.1 The norms for Capital Cost as specified in the subsequent technology specific Chapters shall be inclusive of land cost, pre-developmental expenses, all capital works including plant and machinery, transportation cost, civil work, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point:

Provided that for project-specific tariff determination, the generating company shall submit the break-up of Capital Cost items along with its Petition in the manner specified under Regulation 10.

### **15 Debt Equity Ratio**

- 15.1 For the purpose of determination of tariff, the following provisions shall apply:
- a) Debt Equity ratio of 70:30 shall be considered:  
Provided that if the equity actually deployed is less than 30% (thirty percent), the actual equity shall be considered, and if the equity actually deployed is more than 30 % (thirty percent) of the capital cost, equity in excess of 30 % (thirty percent) shall be treated as normative loan:
  - b) The premium, if any, raised by the generating company while issuing share capital and investment of internal resources created out of its free reserve for the funding of the project shall be reckoned as paid-up capital for the purpose of computing return on equity only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the renewable energy project.
- 15.2 The project developer shall submit the resolution of the Board of the company or approval of the competent authority in other cases regarding the infusion of funds from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the renewable energy project.

### **16 Loan and Finance Charges**

- 16.1 Loan Tenure

For the purpose of determination of tariff, a loan tenure of 15 years shall be considered.

- 16.2 Interest Rate

- a) The loans arrived at in the manner indicated in Regulation 15 shall be considered as gross normative loan for calculation for interest on loan.
- b) The normative loan outstanding as on April 1<sup>st</sup> of every year shall be worked out by deducting the cumulative repayment up to March 31<sup>st</sup> of previous year from the gross normative loan.
- c) For the purpose of computation of tariff for Renewable Energy Projects in Mainland and Island Areas, normative interest rate as mentioned in the Table below shall be considered.

**Table: Normative Interest Rate**

<b>Particulars</b>	<b>Interest Rates</b>
Mainland	SBI MCLR (One-year tenor) prevalent during the last available six months + 200 basis points
Island	SBI MCLR (One-year tenor) prevalent during the last available six months + 300 basis points

- d) Notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.

**17 Depreciation**

17.1 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission.

17.2 The Salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the Capital Cost of the asset.

Provided that no depreciation shall be allowed to the extent of grant or capital subsidy received for the project.

17.3 Depreciation rate of 4.67% per annum shall be considered for first 15 years and remaining depreciation shall be spread during remaining useful life of the RE projects considering the salvage value of the project as 10% of project cost.

17.4 Depreciation shall be chargeable from the first year of commercial operation:

Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

**18 Return on Equity**

18.1 The value base for the equity shall be 30% of the capital cost or actual equity (in case of project specific tariff determination) as determined under Regulation 15.

18.2 The normative Return on Equity shall be:

- a) 14% for Renewable Energy Projects in Mainland areas (except small hydro projects);
- b) 15% for small hydro projects in Mainland area;
- c) 16% for Renewable Energy Projects in Island areas (except small hydro projects);
- d) 17% for small hydro projects in Island area;

18.3 The normative Return on Equity shall be grossed up by latest notified Minimum Alternate Tax (MAT) rate for the first 20 years of the Tariff Period and by the latest available notified Corporate Tax rate for the remaining Tariff Period.

**19 Interest on Working Capital**

19.1 The Working Capital requirement in respect of wind power projects, small hydro projects, solar PV power projects, floating solar projects, solar thermal power projects, and renewable energy with storage projects shall be computed in accordance with the following:

- a) Operation & Maintenance expenses for one month;
- b) Receivables equivalent to 2 months of energy charges for sale of electricity calculated on the normative Capacity Utilisation Factor (CUF / PLF) as applicable;
- c) Maintenance spares @ 15% of Operation and Maintenance expenses.

19.2 The Working Capital requirement in respect of biomass power projects with Rankine cycle technology,

biogas power projects, biomass gasifier based power projects, municipal solid waste based power projects, refuse derived fuel based power projects and non-fossil fuel based co-generation projects shall be computed in accordance with the following:

- a) Fuel costs of four months for normative Plant Load Factor (PLF);
- b) Operation & Maintenance expense for one month;
- c) Receivables equivalent to 2 months of tariff for sale of electricity calculated on the target PLF;
- d) Maintenance spares @ 15% of annual Operation and Maintenance expenses.

19.3 In the case of renewable hybrid energy projects, the Working Capital requirement shall be the sum of the Working Capital requirement determined as per norms applicable for renewable energy sources in proportion to their rated capacity in the project.

19.4 Normative Rate of Interest on Working Capital shall be considered as follows:

**Table: Normative Working Capital Interest Rate**

<b>Particulars</b>	<b>Interest Rates</b>
Mainland	State Bank of India MCLR (One-Year Tenor) prevalent during the last available six months + 325 basis points
Island	State Bank of India MCLR (One-Year Tenor) prevalent during the last available six months + 425 basis points

**20 Calculation of CUF/PLF:**

20.1 The number of hours for calculation of CUF/PLF (wherever applicable) for various RE technologies shall be 8766.

**21 Operation and Maintenance Expenses**

21.1 'Operation and Maintenance' or O&M expenses shall comprise of repair and maintenance (R&M), establishment including employee expenses, and administrative and general (A&G) expenses.

21.2 O&M expenses shall be determined for the Tariff Period based on normative O&M expenses as specified by the Commission subsequently in these Regulations for the first Year of Control Period.

21.3 Normative O&M expenses allowed during first year of the Control Period (i.e. FY 2024-25) under these Regulations shall be escalated at the rate of 5.25% per annum for the tariff period.

**22 Rebate**

22.1 For payment of bills to the generating company through revolving and valid letter of credit on presentation or through National Electronic Fund Transfer (NEFT) or Real Time Gross Settlement (RTGS) payment mode within a period of 5 days of presentation of bills, a rebate of 1.5% on bill amount shall be allowed.

22.2 Explanation: In case of computation of '5 days', the number of days shall be counted consecutively without considering any holiday. However, in case the last day or 5<sup>th</sup> day is an official holiday, the 5<sup>th</sup> day for the purpose of rebate shall be construed as the immediate succeeding working day.

22.3 Where payments are made on any day after 5 days within a period of one month from the date of presentation of bills by the generating company, a rebate of 1% shall be allowed.

**23 Late payment surcharge**

23.1 In case the payment of any bill for charges payable under these regulations is delayed beyond a period of 45 days from the date of presentation of bills, a late payment surcharge as specified in the Ministry of Power - Electricity (Late Payment Surcharge and Related Matters) Rules, 2022 as amended from time to time shall be levied by the generating company.

**24 Sharing of CDM Benefits**

- 24.1 The proceeds of the carbon credit (if any) from approved CDM project shall be shared between generating company and concerned distribution company buying renewable power in the following manner, namely, 100% of the gross proceeds on account of CDM benefit to be retained by the project developer in the first year after the date of commercial operation of the generating station;
- 24.2 In the second year, the share of the distribution company shall be 10%, which shall be progressively increased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion by the generating company and the distribution company.

## **25 Subsidy or incentive by the Central / State Government**

- 25.1 The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations:

Provided that the following principles shall be considered for ascertaining Income Tax benefit on account of accelerated depreciation, if availed, for the purpose of tariff determination:

- a. Assessment of benefit shall be based on normative Capital Cost, accelerated depreciation rate and corporate income tax rate as per relevant provisions of the Income Tax Act, 1961, as amended from time to time; and
  - b. Capitalization of RE project during second half of the fiscal year;
  - c. Per unit benefit shall be derived on levelized basis at discount factor equivalent to weighted average cost of capital.
- 25.2 Any grant, subsidy or incentive availed by renewable energy project, which is not considered at the time of determination of tariff, shall be deducted by the beneficiary in subsequent bills after receipt of such grant, subsidy or incentive in suitable installments or within such period as may be stipulated by the Commission.
- 25.3 In case the Central or State Government or their agencies provide any generation- based incentive, which is specifically over and above the tariff, such incentive shall neither be taken into account while determining the tariff nor be deducted by the beneficiary in subsequent bills raised by the particular Renewable energy project.

## **26 Taxes and Duties**

- 26.1 Tariff determined under these Regulations shall be exclusive of taxes and duties as may be levied by the appropriate Government / Administration:

Provided that the taxes and duties levied by the appropriate Government / Administration shall be allowed as pass through on actual incurred basis.

## **27 Statutory Charges**

- 27.1 The renewable energy project developer shall recover from the beneficiaries the statutory charges imposed by the State and Central Government, such as water cess, and electricity duty on auxiliary consumption, subject to the maximum of normative auxiliary consumption.

### **Chapter-3: Technology Specific Parameters for Wind Energy**

#### **28 Capital Cost**

- 28.1 The Commission shall determine only project specific capital costs considering the prevailing market trends.

#### **29 Capacity Utilisation Factor (CUF)**

- 29.1 The Capacity Utilisation Factor (CUF) norm for Wind Energy Projects for this Control Period shall be 22%.

#### **30 Operation and Maintenance (O & M) Expenses**

- 30.1 The Commission shall determine only project-specific O&M expenses, case to case basis, considering the prevailing market trends.

#### **31 Auxiliary Consumption**

- 31.1 Normative Auxiliary Consumption for the Wind Energy Projects shall be 0.25%.

#### **Chapter 4: Technology Specific Parameters for Small Hydro Project**

### **32 Capital Cost**

- 32.1 The normative Capital Cost for small hydro projects shall be as follows:

Projects in Mainland Areas:

- |                   |                 |
|-------------------|-----------------|
| a. Below 5 MW:    | Rs. 8.90 Cr/MW, |
| b. 5 MW to 25 MW: | Rs. 10.27 Cr/MW |

Projects in Island Areas:

- |                   |               |
|-------------------|---------------|
| a. Below 5 MW:    | Rs. 12 Cr/MW, |
| b. 5 MW to 25 MW: | Rs. 12 Cr/MW  |

- 32.2 The Capital Cost specified above will remain valid for the entire duration of the Control Period unless reviewed earlier by the Commission.

### **33 Capacity Utilisation Factor**

- 33.1 CUF for Small Hydel Projects shall be 30%.

### **34 Auxiliary Consumption**

- 34.1 Normative Auxiliary Consumption for small hydro projects shall be 1.0%.

### **35 Operation and Maintenance Expenses**

- 35.1 The normative O&M Expenses for the first year of the Control Period, i.e., FY 2024-29 shall be:

Projects in Mainland Areas:

- |                   |                    |
|-------------------|--------------------|
| a. Below 5 MW:    | Rs. 39.66 lakh/MW, |
| b. 5 MW to 25 MW: | Rs. 28.72 lakh/MW  |

Projects in Island Areas:

- |                   |                   |
|-------------------|-------------------|
| a. Below 5 MW:    | Rs. 49.24 lakh/MW |
| b. 5 MW to 25 MW: | Rs. 36.93 lakh/MW |

- 35.2 The normative O&M expenses for subsequent years shall be derived in accordance with the escalation mechanism specified at Regulation 21.3.

#### **Chapter 5: Technology Specific Parameters for Solar PV Power Projects, Solar Thermal Power Projects, Floating Solar Projects, Solar Rooftop Systems and Solar PV System under PM KUSUM scheme**

### **36 Tariff**

- 36.1 The tariff for Rooftop mounted installed by prosumers (for Gross-Metering/ Net-Billing) or ground mounted solar PV installed by farmers under part A of the PM-KUSUM scheme shall be determined on generic basis in accordance with sub-regulation 8.2 of these Regulations.

- 36.2 The tariff for Ground Mounted Solar PV power projects, floating solar projects and solar thermal power projects installed by developers for sale of power shall be determined on project specific basis.

### **37 Capital Cost**

- 37.1 The Commission shall determine only project specific capital costs considering the prevailing market trends.

### **38 Capacity Utilization Factor**

- 38.1 The Commission shall only approve capacity utilisation factors for project specific tariffs: Provided that the minimum capacity utilization factor for solar PV power projects shall be 21%:

Provided further that the minimum capacity utilization factor for solar thermal power projects shall be 23%:

Provided also that the minimum capacity utilisation factor for floating solar projects shall be 19%.

**39 Operation and Maintenance Expenses**

39.1 The Commission shall determine only project specific O&M expenses, case to case basis, considering the prevailing market trends.

**40 Auxiliary Consumption**

40.1 The Commission shall only approve auxiliary consumption for project specific tariffs:

Provided that the maximum auxiliary consumption for solar PV power projects shall be 0.75%;

Provided further that the maximum auxiliary consumption for solar thermal power projects shall be 10%;

Provided also that the maximum auxiliary consumption for floating solar projects shall be 0.75%.

**Chapter 6: Technology Specific Parameters for Biomass Power Projects based on Rankine Cycle Technology**

**41 Technology Aspect**

41.1 The norms for tariff determination specified hereunder are for Biomass Power projects based on Rankine cycle technology application using air-cooled or water-cooled condenser.

**42 Capital Cost**

42.1 The normative capital cost for the first year of the Control Period, i.e. financial year 2024-25 shall be as under:

<b>Biomass power projects based on Rankine cycle technology</b>	<b>Capital Cost (Rs. lakhs/ MW)</b>
Project [other than rice straw and juliflora (plantation) based project] with water-cooled condenser	638
Project [other than rice straw and Juliflora (plantation) based project] with air-cooled condenser	685
For rice straw and juliflora (plantation) based project with water-cooled condenser	697
For rice straw and juliflora (plantation) based project with air-cooled condenser	744

42.2 The capital cost for biomass power projects based on Rankine cycle technology as specified for the first year of the Control Period shall remain valid for the entire duration of the Control Period unless reviewed earlier by the Commission.

**43 Plant Load Factor**

43.1 For the purpose of determination of tariff, the Plant Load Factor shall be considered as 80%.

**44 Auxiliary Consumption**

44.1 The auxiliary power consumption factor shall be as follows:-

- a) For the project using water cooled condenser: 10%
- b) For the project using air cooled condenser: 12%

**45 Station Heat Rate**

45.1 The Station Heat Rate for Biomass Power projects shall be:

- a) For projects using travelling grate boilers: 4200 kcal/kWh;



- b) For projects using Atmospheric Fluidised Bed Combustion (AFBC) boilers: 4125 kcal/kWh.

**46 Operation and Maintenance Expenses**

- 46.1 Normative O&M Expenses for the first year of the Control Period, i.e. financial year 2024-25, shall be Rs.54.70 lakhs per MW.
- 46.2 The normative O&M expenses for subsequent years shall be derived in accordance with the escalation mechanism specified at Regulation 21.3.

**47 Use of Fossil Fuel**

- 47.1 The use of fossil fuels shall not be considered.
- 47.2 Provided that for biomass power projects based on Rankine cycle technology commissioned on or before 31.03.2017, the use of fossil fuels to the extent of 15% in terms of gross calorific value on an annual basis shall be allowed for the Useful Life of the project from the date of commercial operation.

**48 Monitoring Mechanism for the use of fossil fuel**

- 48.1 The Project Developer shall furnish a monthly fuel usage statement and monthly fuel procurement statement duly certified by Chartered Accountant/Cost Accountant to the beneficiary (with a copy to appropriate agency appointed by the Commission for the purpose of monitoring the fossil and non- fossil fuel consumption) for each month, along with the monthly energy bill.
- 48.2 Non-compliance with the condition of fossil fuel usage by the Project Developer during any financial year, shall result in withdrawal of applicability of tariff as per these Regulations for such Biomass Power project.

**49 Gross Calorific Value**

- 49.1 The gross calorific value of biomass fuel, for the purpose of determination of tariff, shall be at 3100 kCal/kg.

**50 Fuel Cost**

- 50.1 Biomass fuel price during the first year of the Control Period, i.e. financial year 2024-25 shall be Rs. 4260/MT and shall be escalated at the rate of 3.45% per annum to arrive at the base price for subsequent years of the Control Period unless reviewed earlier by Commission. For the purpose of determining levelized tariff, a normative escalation factor of 3.45% per annum shall be applicable on biomass fuel price.

**51 Revenue Generation from the By-product:**

- 51.1 Any revenue that is generated from the by products like fertilizers or charcoal shall also be considered while determining the Tariff.

**Chapter 7: Technology Specific Parameters for non-fossil based co-generation projects**

**52 Capital Cost**

- 52.1 Normative capital cost for the non-fossil fuel-based co-generation projects shall be Rs. 562 lakhs/MW for the first year of the Control Period, i.e. financial year 2024-25 and will remain valid for the entire duration of the Control Period unless reviewed earlier by the Commission.

**53 Plant Load Factor**

- 53.1 The plant load factor shall be equal to 53%.

**54 Auxiliary Consumption**

- 54.1 The auxiliary consumption shall be considered as 8.5% for the computation of the tariff.

**55 Station Heat Rate**

- 55.1 The Station Heat Rate of 3600 kCal/ kWh for the power generation component alone shall be considered for the computation of tariff for non-fossil fuel based co-generation projects.

**56 Gross Calorific Value**

- 56.1 The gross calorific value for bagasse shall be considered as 2250 kCal/kg. For the use of biomass fuels other than bagasse, gross calorific value as specified under Regulation 49.1 shall be applicable.

**57 Fuel Cost**

- 57.1 The price of bagasse for the first year of the Control Period, i.e. financial year 2024-25, shall be Rs. 2723/ MT and shall be escalated at the rate of 3.45% per annum to arrive at the base price for subsequent years of the Control Period unless specifically reviewed by Commission. For the purpose of determining levelized tariff, a normative escalation factor of 3.45% per annum shall be applicable on bagasse prices.
- 57.2 For use of biomass other than bagasse in non-fossil fuel based co-generation projects, the biomass prices as specified under Regulation 42.1 shall be applicable.

**58 Operation and Maintenance Expenses**

- 58.1 Normative O&M expenses during the first year of the Control Period, i.e. financial year 2024-25, shall be Rs. 28.90 lakhs per MW and shall be escalated at the rate specified in Regulation 21.3 of these Regulations for the Tariff Period.

**Chapter 8: Technology Specific Parameters for Biomass Gasifier Power Projects**

**59 Capital Cost**

- 59.1 Normative capital cost for biomass gasifier based power projects shall be Rs.677 lakhs/MW during the first year of the Control Period, i.e. the financial year 2024- 25, and will remain valid for the entire duration of the Control Period unless reviewed earlier by the Commission.

**60 Plant Load Factor**

- 60.1 The plant load factor for determination of tariff shall be considered as 85%.

**61 Auxiliary Consumption**

- 61.1 The auxiliary power consumption factor shall be 10% for the determination of tariff.

**62 Specific fuel consumption**

- 62.1 Normative specific fuel consumption shall be 1.25 kg per kWh.

**63 Operation and Maintenance expenses**

- 63.1 Normative O&M expenses for the first year of the Control period, i.e. financial year 2024-25, shall be Rs. 72.69 lakhs per MW and shall be escalated at the rate specified in Regulation 21.3 of these Regulations for the Tariff Period.

**64 Fuel Cost**

- 64.1 Biomass fuel price for biomass gasifier-based power projects shall be the same as for biomass power projects based on Rankine cycle technology as mentioned in Regulation 50.1.

**65 Use of Fossil Fuel**

- 65.1 The use of fossil fuels shall not be considered.

**66 Monitoring Mechanism for the use of fossil fuel**

- 66.1 The Project Developer shall furnish a monthly fuel usage statement and monthly fuel procurement statement duly certified by Chartered Accountant/Cost Accountant the beneficiary (with a copy to appropriate agency appointed by the Commission for the purpose of monitoring the fossil and non- fossil fuel consumption) for each month, along with the monthly energy bill.
- 66.2 Non-compliance with the condition of fossil fuel usage by the Project Developer during any financial year, shall result in withdrawal of applicability of tariff as per these Regulations for such Biomass Power project.
- 67 Revenue Generation from the By-product:**
- 67.1 Any revenue that is generated from the by-products like fertilizers or charcoal shall also be considered while determining the Tariff.

#### **Chapter 9: Technology specific parameters for Biogas based Power Projects**

**68 Technology Aspect**

- 68.1 The norms for tariff determination specified hereunder are for grid connected biogas-based power projects that use 100% Biogas fired engine, coupled with Biogas technology for co-digesting agriculture residues, manure and other bio- waste as may be approved by MNRE.

**69 Capital Cost**

- 69.1 Normative capital cost for biogas based power projects shall be Rs.1354 lakhs/MW for the first year of the Control Period, i.e. financial year 2024-25 and shall remain valid for the entire duration of the Control Period unless reviewed earlier by the Commission.

**70 Plant Load Factor**

- 70.1 Threshold PLF for determining fixed charge component of Tariff shall be 90%.

**71 Auxiliary Consumption**

- 71.1 The auxiliary power consumption factor shall be 12% for the determination of tariff.

**72 Operation and Maintenance Expenses**

- 72.1 Normative O&M expenses for the first year of the Control Period, i.e. financial year 2024-25 shall be Rs. 72.25 lakhs per MW and shall be escalated at the rate specified in Regulation 21.3 of these Regulations for the Tariff Period.

**73 Specific Fuel Consumption**

- 73.1 Normative specific fuel consumption shall be 3 kg of substrate mix per kWh.

**74 Fuel Cost (Feed stock Price)**

- 74.1 Feedstock price during the first year of the Control Period, i.e. financial year 2024-25, shall be Rs. 1702/MT and shall be escalated at the rate of 3.45% per annum to arrive at the base price for subsequent years of the Control Period unless specifically reviewed by the Commission. For the purpose of determining levelized tariff, a normative escalation factor of 3.45% per annum shall be applicable.

#### **Chapter 10: Technology specific parameters for Refused Derived Fuel based Municipal Solid Waste Power Projects**

**75 Capital Cost**

- 75.1 Normative Capital Costs for RDF based MSW power projects shall be Rs. 2200 Lakh/MW.

**76 Plant Load Factor**

RDF based MSW power projects shall be:

Sl. No.	Time Period	PLF
a	During stabilisation period	65%
b	During the remaining period of the first year (after the stabilization period)	65%
c	From 2 <sup>nd</sup> year onwards	80%

76.1 The stabilisation period shall not be more than 6 months from the date of commercial operation of the project.

**77 Auxiliary Consumption**

77.1 The auxiliary power consumption RDF based MSW projects shall be 15%.

**78 Operation and Maintenance Expenses**

78.1 Normative O&M expenses for the first year of the Control Period shall be 8.5% of the capital cost of RDF based MSW power project.

78.2 The normative O&M expenses for subsequent years shall be derived in accordance with the escalation mechanism specified at Regulation 21.3.

**79 Fuel Cost**

79.1 No Fuel Cost shall be considered for the determination of tariffs for MSW and RDF power projects.

Provided that the purpose of start-up and shut down activity and temperature stabilisation during monsoon, alternate fuel from any other renewable energy source up to a ceiling of 5% of RDF consumed annually, shall be allowed without any additional impact on tariff.

### **Chapter 11: Technology specific parameters for Renewable Hybrid Energy Projects**

**80 Capital Cost**

80.1 The capital cost shall be determined on a project specific basis considering the prevailing market trends.

**81 Capacity Utilisation Factor**

81.1 The Commission shall determine only project specific capacity utilisation factor in respect of renewable hybrid energy projects, taking into consideration the proportion of rated capacity of each renewable energy source, as the case may be, and applicable capacity utilisation factor for such renewable energy sources, as the case may be:

Provided that the minimum capacity utilization factor for renewable hybrid energy projects shall be 30% when measured at the inter-connection point, where the energy is injected into the grid.

**82 Operation and Maintenance expenses**

82.1 The Commission shall determine only project specific O&M expenses, case to case basis, considering the prevailing market trends.

**83 Tariff**

83.1 The tariff for a renewable hybrid energy project shall be a composite levelized 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:

Provided that, in case any of the RE technologies combined for the RE hybrid project is left with a further useful life, the levelised tariff for the remaining useful life of such RE technology shall be determined separately by factoring in the tariff components for the remaining useful life.

## **Chapter 12: Parameters for renewable energy with storage project**

### **84 Capital Cost**

- 84.1 The Commission shall determine only project specific capital costs for renewable energy with storage projects considering the prevailing market trends.

### **85 Storage Efficiency**

- 85.1 The Commission shall approve the storage efficiency only for project specific tariffs: Provided that the minimum efficiency for storage based on the technology of solid state batteries shall be 80%: Provided further that the minimum efficiency for storage based on the technology of pumped storage shall be 85%:
- 85.2 Efficiency of the storage component of renewable energy with a storage project shall be measured as the ratio of output energy received from storage and input energy supplied to the storage component of such project on an annual basis.

### **86 Operation and Maintenance expenses**

- 86.1 The Commission shall determine only project specific O&M expenses, case to case basis, considering the prevailing market trends.

### **87 Tariff determination for Energy Storage**

- 87.1 The tariff for renewable energy with storage project shall be a composite tariff or differential tariff based on the time of day, determined for energy supplied from the Project, including the energy supplied from the storage facility:

Provided that such tariff may be determined for the supply of power on round the clock basis or for time periods as agreed by the Project Developer and Beneficiary.

## **Chapter 13: Miscellaneous**

### **88 Deviation from norms**

- 88.1 Tariff for sale of electricity generated from a generating plant based on Renewable Energy sources, may also be agreed between a generating company and a licensee, in deviation from the norms specified in these Regulations subject to the conditions that the levelized tariff over the useful life of the project on the basis of the norms in deviation does not exceed the levelized tariff calculated on the basis of the norms specified in these Regulations.

### **89 Power to Relax**

- 89.1 The Commission may by general or special order, for reasons to be recorded in writing, and after giving an opportunity of hearing to the Parties likely to be affected, may relax any of the provisions of these Regulations on its own motion or on an application made before it by an interested person.

### **90 Power to Remove Difficulties**

- 90.1 In case of any difficulty arising while giving effect to the provisions of these Regulations, the Commission may either Suo-moto or on a Petition, by an order, make such provisions not inconsistent with the provisions of the Act as may appear to be necessary for removing the difficulty.

**ANNEXURES**

**Form-1.1: Template for (Wind/ Small hydro projects/ Solar PV power projects/ Solar Thermal power projects/ Floating Solar Projects/ Renewable energy hybrid power projects/ Renewable energy with storage projects)**

Sl. No.	Assumption Head	Sub-head	Sub-head(2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation	MW	
			Capacity	%	
			Capacity Utilization Factor(CUF)	%	
			Auxiliary Consumption	%	
			Commercial Operation Date(COD)	dd/mm/yyyy	
2	Project Cost	Capital Cost/MW	Useful Life	Years	
			Normative Capital Cost	Rs. Crore	
			Capital Cost	Rs. Crore /MW	
			Capital Subsidy, if any	Rs. Crore	
3	Financial Assumption	Debt Equity	Net Capital Cost	Rs. Crore	
			Tariff Period	years	
			Debt	%	
		Debt Component	Equity	%	
			Total debt amount	Rs. Crore	
			Total equity amount	Rs. Crore	
			Loan Amount	Rs. Crore	
			Moratorium Period	Years	
			Repayment Period (incl moratorium)	Years	
		Equity Component	Interest Rate	%	
			Equity Amount	Rs. Crore	
			RoE for 1 <sup>st</sup> 20 years	%p.a.	
			RoE after 20 years	%p.a.	
		Depreciation	Discount Rate	%	
Dep Rate for 1 <sup>st</sup> 15 years	%				
Incentives	Dep Rate 16 <sup>th</sup> year onwards	%			
	GBI, if any	Rs. Crore			
4	O&M Expenses		Period for GBI	Years	
			Normative O&M Expenses p.a.	Rs. Lakh/ MW	
			O&M Expenses p.a.	Rs. Crore	
5	Working Capital		Escalation Factor	%	
			O&M Expenses	Month	
			Maintenance Spares	% of O&M Expenses	
			Receivables	Month	
			Interest on WC	%	

**Form-1.2: Template for (Biomass/ MSW/ RDF/ )**

Sl. No.	Assumption Head	Sub-head	Sub-head(2)	Unit	Parameter
1	Power Generation	Capacity	Installed Power Generation Capacity	MW	
			Aux Consumption	%	
			PLF(1 <sup>st</sup> year)	%	
			PLF(2 <sup>nd</sup> year onwards)	%	
			COD	dd/mm/yyyy	
			Useful Life	Years	
2	Project Cost	Capital Cost/MW	Normative Capital Cost	Rs. Crore/ MW	
			Capital Cost	Rs. Crore	
			Capital Subsidy, if any	Rs. Crore	
			Net Capital Cost	Rs.Crore	
3	Financial Assumption	Debt Equity	Tariff Period	years	
			Debt	%	
			Equity	%	
		Debt Component	Total debt amount	Rs. Crore	
			Total equity amount	Rs. Crore	
			Loan Amount	Rs.Crore	
			Moratorium Period	Years	
			Repayment Period (including moratorium)	Years	
			Interest Rate	%	
		Equity Component	Equity Amount	Rs. Crore	
			RoE for 1 <sup>st</sup> 20 years	%p.a.	
			RoE after 20 year	%p.a.	
			Discount Rate	%	
		Depreciation	Dep Rate for 1 <sup>st</sup> 15 years	%	
Dep rate 16 <sup>th</sup> year onwards	%				
Incentives	GBI ,if any	Rs. Crore			
	Period for GBI	Years			
4	O&M Expenses	Normative O&M Expenses		Rs. Lakh/ MW	
		O&M Expenses p.a.		Rs. Crore	
		Escalation Factor		%	
5	Working Capital	O&M Expenses	% of O&M Expenses	Month	
		Maintenance Spares		%	
		Receivables		Month	
		Interest on WC		%	









