

# Uttarakhand Electricity Regulatory Commission

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## Notification

06.07.2010

No.F-9(21)/RG/UERC/2010/ 697: In exercise of powers conferred under section 61 read with section 181 of the Electricity Act, 2003, and all other powers enabling it in this behalf, and after previous publication, the Uttarakhand Electricity Regulatory Commission hereby makes the following regulations, namely:

## CHAPTER 1

### PRELIMINARY

#### 1. Short title and commencement

- (1) These regulations may be called the Uttarakhand Electricity Regulatory Commission (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010.
- (2) These regulations shall come into force with effect from the date of their publication in official gazette.

Provided that provisions of Chapter 4 & 5 shall be applicable with effect from 01.07.2010.

- (3) With the coming into force of these Regulations, UERC (Tariff and Other Terms for Supply of Electricity from Non-conventional and Renewable Energy Sources) Regulations, 2008, shall stand repealed.

#### 2. Scope and extent of application

- (1) These regulations shall apply in all cases where tariffs for supply of electricity from Renewable Energy Sources and Non-fossil Fuel Based Co-generating Stations to the distribution licensees or local rural grids within the State of Uttarakhand are to be determined by the Commission under Section 62 of the Act.

Provided further that Regulations in Chapter 4 & 5 shall not be applicable for generating stations commissioned before 1.1.2002 and their present tariffs shall continue to be applicable till they are decided by the Commission on case to case basis.

Provided further that in respect of generating stations where directions/orders have been issued by a higher court, they shall be governed by such directions/orders.

Provided further that in all the cases, where legally valid PPAs have been entered into with the distribution licensee or where financial closure of the project has taken place prior to coming into force of these Regulations on the basis of previous Regulations/Orders of the Commission, such generators shall have the option to be covered under these Regulations, in which case these Regulations shall be applicable to them and the generators would be required to convey such option within one month of the notification of these Regulations. The PPAs of such generators would need to be amended to make them in line with these Regulations (as amended from time to time), failing which the provisions of these Regulations shall be deemed to have been incorporated in their PPAs and will have overriding effect over any of the previous provisions.

Provided further that generators who have entered into long term PPAs with State Distribution Licensee and who have not opted to be covered under these Regulations, shall also be governed by these Regulations except the provisions of Chapter 4 and 5 of these Regulations.

- (2) These Regulations, except those in Chapter 4 & 5, shall also be applicable to other generating stations located in the State of Uttarakhand, which are based on Renewable Sources of Energy including non-fossil fuel based Co-generation and which transmit and/or supply electricity to any person other than the distribution licensee of the State utilizing State Transmission and/or Distribution System.
- (3) The generating stations covered under these Regulations shall be deemed to be the generating station of a generating company and all functions, obligations & duties assigned to such generating company under the Electricity Act, 2003 shall apply to these generating stations.

### **3. Definitions**

- (1) Unless the context otherwise requires, the words used in these Regulations shall have the following meaning:
  - (a) "Act" means the Electricity Act 2003 (36 of 2003);

- (b) "Auxiliary energy consumption" or 'AUX' in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station;
- (c) "Banking" means the process under which a generating station supplies power to the grid not with the intention of selling it to either a third party or to a licensee, but with the intention of exercising his eligibility to draw back this power from the grid.
- (d) "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); wood produced in dedicated energy plantations or recovered from wild bushes/weeds; and the wood waste produced in some industrial operations.
- (e) "Capacity Utilisation Factor" shall mean the total sent out energy corresponding to generation during the period expressed as a percentage of energy sent out corresponding to installed capacity in that period.

$$CUF = \frac{ESO \times 10^7}{IC \times (100 - AUX) \times H} \%$$

Where,

ESO- Energy Sent Out Ex-bus, i.e. at interconnection point, in MU during the period,

IC- Installed capacity in MW,

AUX - % Normative Auxiliary Consumption (viz. 8.5 for Co-generation).

H - Number of hours in the period

- (f) "Capital Cost" means capital cost as defined under Regulation 16(1) of these Regulations.
- (g) "Captive Generating Plant" means a power plant set up by any person to generate electricity primarily for his own use and includes a power plant set up by any cooperative society or association of persons for generating electricity primarily for use of members of such cooperative society or association where not less than

twenty six percent of the ownership is held by the captive user(s), and not less than fifty one percent of the aggregate electricity generated in such plant, determined on an annual basis, is consumed for the captive use.

- (h) "Commission" means the Uttarakhand Electricity Regulatory Commission;
- (i) "Date of commercial operation or Commissioning (CoD)" in relation to a unit means the date declared by the generator on achieving maximum continuous rating through a successful trial run and in relation to the generating station, the date of commercial operation means the date of commercial operation of the last unit or block of generating station and expression 'commissioning' shall be construed accordingly. In case of Small Hydro Plants the date of commissioning shall, however, not be linked to achieving maximum continuous rating, but the generator will have to demonstrate the same within three years of commissioning.
- (j) [(i)(a) "Force Majeure Event" means, with respect to any party, any event or circumstance which is not within the reasonable control of, or due to an act or omission of, that party and which, by the exercise of reasonable care and diligence, that party is not able to prevent, including, without limiting the generality of the foregoing:
  - i. Lightning, storm, earthquakes, flood, natural disaster and action of the natural elements;
  - ii. acts of public enemy, blockades, insurrections, riots, revolution and sabotage;
  - iii. unavoidable accident, including but not limited to fire, explosion, radioactive contamination and toxic dangerous chemical contamination]<sup>1</sup>
- (k) "Gross Calorific Value" or "GCV" in relation to a fuel used in generating station means the heat produced in kCal 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;

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<sup>1</sup> Ins. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (First Amendment) Regulations, 2012 notified vide No. F-9(21)/RG/UERC/2012/733, (w.e.f. 14.08.2012)

- (l) "Gross Station Heat Rate" or "GSHR" means the heat energy input in kCal required to generate one kWh of electrical energy at generator terminals of a thermal generating station;
- (m) "Hybrid Solar Thermal Power Plant" means the solar thermal power plant that uses other forms of energy input sources alongwith solar thermal energy for electricity generation, and wherein not less than 75% of electricity is generated from solar energy component.
- (n) "Indian Electricity Grid Code (IEGC)" means the Grid Code specified by the Central Electricity Regulatory Commission under clause (h) of sub-section (1) of section 79 of the Act;
- (o) "Infirm Power" means electricity generated during trial runs prior to commercial operation of a unit of a generating station;
- (p) "Installed Capacity" or "IC" means the summation of the name plate capacities of the units in the generating station or the capacity of the generating station (reckoned at the generator terminals);
- (q) "Inter-connection Point" shall mean interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be:
  - (i) in relation to wind energy projects and Solar Photovoltaic Projects, inter-connection point shall be line isolator on outgoing feeder on HV side of the pooling sub-station;
  - (ii) in relation to small hydro power, biomass power and non fossil fuel based cogeneration power projects and Solar Thermal Power Projects the, inter-connection point shall be line isolator on outgoing evacuation line from such generating station;
- (r) "MNRE" means the Ministry of New and Renewable Energy of the Government of India.
- (s) "Non-fossil Fuel Based Co-generation" means the process in which more than one form of energy (such as steam and electricity) are produced in a sequential manner by use of biomass provided the project may qualify to be a co-generation project if

it fulfills the eligibility criteria as specified in of Regulation 4(2)(e).

- (t) "Open Access" means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission;
- (u) "Open Access Regulations" means the Uttarakhand Electricity Regulatory Commission (Terms and Conditions for Open Access in Distribution) Regulations, 2004 as amended from time to time;
- (v) "Operation and Maintenance Expenses" or "O&M Expenses" means the expenditure incurred in operation and maintenance of the generating station or part thereof, including the expenditure on manpower, repairs, spares, consumables, insurance and overheads;
- (w) "Peak Hours/Off Peak Hours" means particular hours of the day as may be decided by the Commission from time to time;
- (x) "Power Purchase Agreement or PPA" means an agreement between a generating company and a distribution licensee for supply of power on the terms and conditions specified therein and with the provision that the tariff for sale of power shall be as determined by the Commission from time to time;
- (y) "Project" means a generating station and the evacuation system upto 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;
- (z) "Renewable Energy" means grid quality electricity generated from renewable sources.
- (aa) "Renewable Energy Based Generating Stations and Non-fossil Fuel Based Co-generating Stations" means the power plants other than the conventional generating stations generating grid quality electricity from Renewable Energy Sources.

- (bb) "Renewable Energy Sources" means renewable sources such as small hydro, wind, solar including integration with combined cycle biomass, bio fuel co-generation, urban or municipal waste and other such sources as approved by MNRE.
- (cc) "Small Hydro Plant" means Hydro Power projects with station capacity upto and including 25 MW.
- (dd) "Solar Photo Voltaic Power" means the Solar Photo Voltaic power project that uses sunlight for direct conversion into electricity through photovoltaic technology.
- (ee) "Solar Thermal Power" means the solar thermal power project that uses sunlight for conversion into electricity through concentrated Solar Power Technology based on either line focus or point focus principle.
- (ff) "Saleable Energy" means the quantum of energy available for sale (ex-bus) after allowing for free energy, if any, to the home State;
- (gg) "State Grid Code" means the Uttarakhand Electricity Regulatory Commission (State Grid Code) Regulations, 2007 specified under clause (h) of sub-section (1) of section 86 of the Act by Uttarakhand Electricity Regulatory Commission;
- (hh) 'Tariff period' means the period for which tariff is to be determined by the Commission on the basis of norms specified under these Regulations;
- (ii) "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:-
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|--|----------|
| (i) Wind energy power project                            | 25 years |
| (ii) Biomass power project, non-fossil fuel cogeneration | 20 years |
| (iii) Small Hydro Plant                                  | 35 years |
| (iv) Solar PV/Solar thermal power plants                 | 25 years |
- (jj) "Year" means a financial year.
- (2) 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, but defined in the Act, or the UERC (State Grid Code) Regulations or the Commission's Regulations on

determination of Tariff shall have the meanings assigned to them respectively in the Act or the State Grid Code or the Commission's Regulations on determination of Tariff.

## CHAPTER 2

### GENERAL CONDITIONS

#### 4. Eligibility Criteria for qualifying as Generating Station based on Non-Conventional/ Renewable Energy Source

- (1) For the purposes of these Regulations, generation from all types of Renewable Energy Sources and non-fossil fuel based Co-generating Plants, as approved by Ministry of New and Renewable Energy (MNRE), Government of India shall be considered and such generating stations shall be collectively referred to as RE Based Generating Stations and Co-generating Stations.
- (2) At present, generation from following sources and technologies shall qualify to be covered under these Regulations:
  - (a) Small hydro - Generating Stations with capacity lower than or equal to 25 MW, using new plant and machinery.
  - (b) Wind power project - located at the wind sites having minimum annual mean Wind Power Density (WPD) of 200 Watt/m<sup>2</sup> measured at hub height of 50 meters and using new wind turbine generators.
  - (c) Solar PV and Solar Thermal Power Projects- Based on Technologies approved by MNRE.
  - (d) Biomass/Biogas power project - Biomass power projects using new plant and machinery based on Rankine Cycle technology and using biomass fuel sources, provided use of fossil fuel is restricted only to 15% of total fuel consumption on annual basis;
  - (e) Non-fossil fuel based Co-generating Stations using new plant and machinery;  
Topping cycle mode of co-generation - Any facility that uses non-fossil fuel input for the 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 season.

Explanation- For the purposes of this clause,

- (i) '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.
  - (ii) 'Useful Thermal Output' is the useful heat (steam) that is provided to the process by the cogeneration facility.
  - (iii) 'Energy Consumption' of the facility is the useful energy input that is supplied by the fuel (normally bagasse or other such biomass fuel).
- (3) Any new source or technology would qualify as 'renewable energy', only after the Commission has approved the technology based on MNRE approval. Further, the Commission shall determine tariffs separately for each technology.

## **5. Environmental and other Clearances**

- (1) The RE Based Generating Stations and Co-generating Stations shall abide by the emission standards as may be set by the Union/State Government, and for that purpose it shall obtain all the required environmental and pollution clearances from the Central/State Pollution Control authorities.
- (2) The RE Based Generating Stations and Co-generating Stations shall obtain necessary clearances from Uttarakhand Renewable Energy Development Agency (UREDA), wherever necessary.

## **6. Obligations and Duties of the Generating Station**

- (1) RE Based Generating Stations and Co-generating Stations shall indicate the capacity of its generating plant in the 'Detailed Project Report' (DPR) keeping in view the potential of electricity generation available from such source and its optimal utilization. It shall

further be obliged to submit the DPR, progress of construction and details regarding commissioning of the generating plant or any other related information to the Commission in such form and manner as may be required by the Commission.

- (2) The RE Based Generating Stations and Co-generating Stations shall:
  - (a) Submit the technical details concerning the generation and/or transmission as may be specified by the Authority/Commission for carrying out studies relating to cost and efficiency.
  - (b) Submit the information in respect to generation, demand met, capacity availability, capacity utilization factor, auxiliary consumption, specific heat rate and specific oil consumption or on any other parameters etc. as may be directed by the Commission.
  - (c) Shall Establish a communication and data transfer system with State Load Dispatch Centre and Co-ordinate with State Load Dispatch Centre and the Regional Load Dispatch Center in respect to;
    - (i) Scheduling
    - (ii) Exchange of data of quantity of electricity transmitted through the grid.
    - (iii) Real time grid operation and dispatch of electricity in accordance with IEGC and State Grid Code.
- (3) The RE Based Generating Stations and Co-generating Stations shall abide by the grid discipline and install adequate protection equipment for safety of its system and human life. It shall not be entitled for any compensation in the event of grid failure or any interruptions or damage to the plant or its associated sub-station and transmission line on account of any occurrence in the grid.
- (4) The RE Based Generating Stations and Co-generating Stations shall establish, operate and maintain generating station, substation and dedicated transmission lines connected therewith (without the requirement of a licence) in accordance with:
  - (a) The technical standards for construction of electrical plants, electric lines and connectivity with the grid as specified by the Authority (section 73 (b) of the EA 2003).

- (b) Safety requirements for construction, operation and maintenance of electrical plants and electric lines as specified by the Authority (section 73 (c) of the EA 2003).
- (c) Grid standards for operation and maintenance of transmission lines as specified by Central Electricity Regulatory Commission/Central Electricity Authority or the State Transmission Utility (section 73 (d) of the EA 2003).
- (d) The conditions for installation of meters for supply of electricity as specified by the Authority or the State Transmission Utility (section 73 (e) of the EA 2003).
- (5) The RE Based Generating Stations and Co-generating Stations shall ensure the compliance of the 'IEGC' and State Grid Code as amended from time to time.
- (6) The RE Based Generating Stations and Co-generating Stations shall ensure compliance of any general or specific direction issued and regulations made by the Commission for the generating companies.
- (7) Except as provided in First & Second Proviso to sub-Regulation (1) of Regulation 2 above, all Power Purchase Agreements signed by the generating stations existing on the date of notification of these regulations shall be renewed in accordance with these regulations and such renewed PPAs shall be valid for entire life of the RE Based Generating Stations and Co-generating Stations.
- (8) The RE Based Generating Stations and Co-generating Stations shall ensure economical use of resources, good performance and optimum investment at all times and shall endeavor to achieve the operational parameters as applicable to a particular source of energy, such as auxiliary consumption, heat rate, fuel consumption, capacity availability, capacity utilization factor etc. in case of a non-fossil fuel based co-generating station, as may be specified/determined by the Commission from time to time for fixation of tariff for different renewable source of energy.
- (9) The RE Based Generating Stations and Co-generating Stations shall coordinate with State Transmission Utility/Distribution Licensee for the purpose of planning and coordination relating to intra-state transmission/distribution system as provided under the Act.
- (10) The RE Based Generating Stations and Co-generating Stations shall pay fee and charges to the State Load Dispatch Centre as may be specified or directed by the Commission

from time to time.

- (11) The RE Based Generating Stations and Co-generating Stations shall be under obligation to comply with the directions issued to it by the State Load Dispatch Centre failing which the plant shall be liable to a penalty not exceeding Rs. 5 lac for each such non-compliance.
- (12) In case of dispute with reference to quality of electricity or safe, secure and integrated operation of the grid or in relation to any direction issued by the State Load Dispatch Centre, the matter shall be referred to the Commission for adjudication.

## **7. Sale of Power**

- (1) All RE Based Generating Stations and Co-generating Stations shall be allowed to sell power, over and above the capacity required for their own use, to the distribution licensee or to local rural grids at the rates determined by the Commission or to any consumer (provided that such consumer has been allowed Open Access under Open Access Regulations) or to any person within the State or outside the State at mutually agreed rates provided that such sale outside the State is not in contravention to any Policy notified by the State Government or to any provision of any legally enforceable existing agreement signed by generating company with any person.
- (2) The distribution licensee on an offer made by the said RE based Generating Stations and Co-generating Stations shall enter into a power purchase agreement in conformity with these Regulations and relevant provisions of other Regulations and the Act. The distribution licensee shall sign the PPA within two months of offer made by the generating company, failing which the generating company may approach the Commission for suitable remedy.
- (3) The distribution licensee shall make an application for approval of power purchase agreement entered into with the generating station in such form and manner as specified in these regulations and Uttarakhand Electricity Regulatory Commission (Conduct of Business) Regulations, 2004 as amended from time to time.

## **8. Open Access**

- (1) Open access in State Transmission/Distribution System shall be allowed to all RE based Generating stations and Co-generating Stations for captive use and to those covered

under Regulation 7(1), which shall be subject to provisions of these Regulations.

(2) Open Access in State Transmission System:

A person, who has established the RE Based Generating Stations or Co-generating Stations, shall have right to non-discriminatory open access to the State Transmission System for carrying electricity from his plant by using transmission lines and associated facilities subject to payment of transmission charges and adjustment of average Transmission Losses in kind as determined in accordance with the provisions of Regulation 36.

Provided that the 'open access' shall be subject to the availability of surplus transmission capacity as determined by State Transmission Utility.

(3) Open Access in Distribution System:

(a) For sale of electricity within the State, non-discriminatory open access to the distribution system of State distribution licensee shall be available to such RE Based Generating Stations and Co-generating Stations, who have entered into an agreement to sell power to any consumer within the State or require power for their own captive use.

(b) Open access to State Distribution System may also be available to RE based Generating Station or Co-generating Station for sale of electricity outside the State.

Provided that State Distribution Licensee is in agreement with above Generating Station for wheeling such power outside the State through its system.

(c) Such open access to State distribution system shall be subject to payment of wheeling charges and adjustment of average distribution losses in kind as determined in accordance with the provisions of Regulation 36.

(d) The 'open access' to State Distribution System shall be subject to the availability of surplus distribution capacity in the State Distribution System.

(4) If any question arises as to the availability of surplus capacity in the State transmission system or the State distribution system, the matter shall be adjudicated and decided by the Commission.

**CHAPTER 3**

**RENEWABLE PURCHASE OBLIGATION (RPO)**

**9. Minimum Quantum of electricity to be purchased by distribution licensees from ‘non-fossil fuel based co-generation and generation of electricity from renewable energy sources’**

(1) In line with the provisions of the Act, National Electricity Policy and the Tariff Policy, to promote development of renewable and non-conventional sources of energy, all existing and future distribution licensees, captive users and open access customers, hereinafter referred to as “Obligated Entity”, in the State shall be obliged to procure minimum percentage of their total electricity requirement for own consumption, as indicated below, from eligible renewable energy sources as defined under Regulation 4. The same shall be called the Renewable Purchase Obligation (RPO) of the Obligated Entities.

Year	Renewable Purchase Obligation -Non-Solar	Renewable Purchase Obligation - Solar
2010-11	4.00%	0.000%
2011-12	4.50%	0.025%
2012-13	5.00%	0.050%

\* Percentage RPO as stipulated above denotes Minimum Quantum of purchase from non-fossil fuel based co-generation and generation of electricity from renewable energy sources’ as a percentage of total energy purchased from all sources/generated by the Obligated Entity during the year for own consumption

- (2) The Commission may, however, review the quantum of Renewable Purchase Obligation (RPO) by obligated entities from time to time based on actual development of these sources within the applicability period of these regulations.
- (3) The Commission may, on a subsequent date, fix a maximum ceiling of percentage purchase if in Commission’s view it is expedient to do so to limit impact of mandatory purchase of re-newables energy on consumer tariff.
- (4) While contracting new sources or in case of maximum ceiling being specified by Commission, priority shall be given to the date of commercial operation of the generating stations.
- (5) For the purpose of this RPO framework, for every obligated entity, own consumption

would mean gross energy generated/purchased by the obligated entity from all sources for the purpose of supply to its consumers within its area of supply, excluding any inter-se sale of electricity amongst the Licensees or outside consumers.

#### **10. Balanced growth of all types of RE sources**

- (1) There shall not be any specific percentage either minimum or maximum for any particular source or technology in total percentage specified for non-solar RE Sources. However, the Commission may at a later stage incorporate the same after considering the actual growth of each source or any other influencing factor.
- (2) UREDA shall ensure development of all types of renewable energy sources in a balanced manner and the Distribution Licensees shall ensure off take from all such projects subject to ceiling, if any, specified by the Commission, so as to exploit their full potential within the State.

### **CHAPTER 4**

#### **TARIFF- GENERAL PRINCIPLES**

#### **11. Tariffs**

- (1) The tariff determined under these Regulations shall be applicable for sale of electricity to the distribution licensees and to local rural grids only.
- (2) The RE Based Generating Stations and Co-generating Stations, except those mentioned under Proviso 1 & 2 to sub- Regulation (1) of Regulation 2, may opt for the generic tariff, as determined based on norms specified in these Regulations for different technologies, or may file a petition before the Commission for determination of "Project Specific Tariff". For this purpose RE Based Generating Stations and Co-generating Stations shall give its option to the distribution licensee at least 3 months in advance of date of commissioning or one month after the date of issuance of these Regulations, whichever is later. The option once exercised shall not be allowed to be changed during the validity period of the PPA.
- (3) Project Specific Tariff, on case to case basis, shall be determined by the Commission in the following cases:
  - (a) For projects opting to have their tariffs determined on the basis of actual capital cost

instead of normative capital cost as specified for different technologies under Chapter 5, the CUF (generation) for recovery of fixed charges shall be taken as that envisaged in the approved DPR or the normative CUF specified under Chapter 5 for the relevant technology, whichever is higher;

- (b) Municipal Solid Waste Projects;
- (c) Solar PV and Solar Thermal Power projects, if a project developer opts for project specific tariff;
- (d) Hybrid Solar Thermal Power plants;
- (e) Biomass project based on Biomethanation Technology or other than those based on Rankine Cycle technology application with water cooled condenser;
- (f) Projects having old plant and machinery or equipment;
- (g) Any other new renewable energy technologies approved by MNRE

Provided that the Commission while determining the Project Specific Tariff shall be guided by the provisions of Chapters 4 & 5 of these Regulations for technologies specified therein.

## **12. Control Period or Review Period**

- (1) The Control Period or Review Period under these Regulations shall be upto [31.3.2018]<sup>2</sup>, with FY 2009-10 as the base year and FY 2010-11 as the first year of the Control Period.

Provided that the benchmark capital cost for Solar PV and Solar thermal projects may be reviewed annually by the Commission.

Provided further 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 Tariff Period (Useful life of the plant) as specified under Regulation 3(1)(ii).

## **13. Tariff and PPA Period**

- (1) The Tariff Period for Renewable Energy power projects shall be equal to Useful life of the

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<sup>2</sup> Subs. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (Second Amendment) Regulations, 2014, notified vide No. F-9(21)/RG/UERC/2010/559, (w.e.f.20.06.2014)



Project.

- (2) Tariff period under these Regulations shall be considered from the date of commercial operation of the renewable energy plant.
- (3) The PPA shall be required to be executed with distribution licensee for the entire Tariff Period.

#### **14. Petition and proceedings for determination of Project Specific Tariff**

- (1) The RE Based Generating Stations and non-fossil fuel based Co-generating Stations may make an application for fixation of Project Specific Tariff based on actual Capital Cost in respect of the completed units of the RE Based Generating Stations and Co-generating Stations in such formats and along with such information as the Commission may require from time to time.

Provided that for Project Specific Tariff determination, the RE Based Generating Stations and Co-generating Stations shall submit the break-up of Capital Cost items along with its petition.

- (2) Till fixation of final tariffs a RE Based Generating Stations or Co-generating Stations may either accept the generic tariff as provisional tariff or make an application for determination of provisional tariff in advance of the anticipated date of completion of project based on the capital expenditure actually incurred up to the date of making the application or a date prior to making of the application, duly audited and certified by the statutory auditors. The provisional tariff as may be determined by the Commission may be charged from the Commercial Operation Date (CoD) of the respective unit of the generating station.

Provided that the RE Based Generating Stations and Co-generating Stations shall be required to make a fresh application for determination of final tariff based on actual capital expenditure incurred up to the date of commercial operation of the generating station, with duly audited and certified copies of accounts by the statutory auditors within 18 months from the CoD.

- (3) The generating company shall file with application for determination of tariff duly validated projected annual data for as many years for which it wants the tariff to be fixed.

- (4) A petition for determination of tariff shall be accompanied by such fee as specified in the UERC (Fee and Fines) Regulations, 2002, as amended from time to time, and shall be accompanied by:
  - (a) information in forms 1.1, 1.2, 2.1 and 2.2 as the case may be, and as appended in these regulations;
  - (b) Detailed project report outlining technical and operational details, site specific aspects, premise for capital cost and financing plan etc.
  - (c) A Statement of all applicable terms and conditions and expected expenditure for the period for which tariff is to be determined.
  - (d) A statement containing full details of calculation of any subsidy and incentive received, due or assumed to be due from the Central Government and/or State Government. This statement shall also include the proposed tariff calculated without consideration of the subsidy and incentive.
  - (e) Any other information that the Commission requires the Petitioner to submit.
- (5) The proceedings for determination of tariff shall be in accordance with the UERC (Conduct of Business Regulations), 2004.

## 15. Tariff Structure

- (1) The tariff for renewable energy technologies shall be single part tariff (in Rs./kWh) and ex-bus, i.e. after auxiliary consumption and transformation losses at the interconnection point as defined in Regulation 3(1)(q).

Provided that for renewable energy technologies having fuel cost component, like biomass power projects and non-fossil fuel based cogeneration, single part tariff with two components, fixed cost component and fuel cost component, shall be determined.

- (2) The Tariff shall consist of the following fixed cost components:
  - (a) Return on equity;
  - (b) Interest on loan capital;
  - (c) Depreciation;

- (d) Interest on working capital;
  - (e) Operation and maintenance expenses;
- (3) The generic tariff will be determined separately for each kind of renewable source and for each type of renewable technology for which norms have been specified in these Regulations.
- (4) The generic tariff would be based on normative parameters as per the norms specified in these Regulations for each type of source and the year of commissioning of the Plant. Tariff in respect of a RE Based Generating Stations and Co-generating Stations under these Regulations shall be applicable for the whole generating station.

Provided that the tariff for supply of electricity from the plant, having more than one unit commissioned in different years, shall be based on weighted average of the capacities of the units commissioned in different years.

- (5) The RE Based Generating Stations and Co-generating Stations may opt for tariffs determined on the levellised basis for first 10 years and levellised tariff for balance life of the project or levellised tariffs for the life of the project or the tariffs determined for each year for the Tariff Period.

Provided that for renewable energy technologies having single part tariff (in Rs./kWh) with two components, tariff may be determined on levellised basis considering the year of commissioning of the project for fixed cost component while the fuel cost component shall be specified on year of operation basis.

- (6) For the purpose of levellised tariff computation, the discount factor equivalent to weighted average cost of capital shall be considered.
- (7) For determination of weighted average cost of capital, the pre-tax return on equity would be adjusted for tax at the applicable rates.
- (8) Tariff for other non-fossil fuel based co-generation and renewable sources and/or technologies, not covered by these regulations, shall be determined on case to case basis, where the Commission shall as far as possible be guided by the principles and methodologies, if any, specified by the CERC, National Electricity Policy and the Tariff policy. The Commission may deviate from the above by giving reasons in writing in

order to accommodate the specific nature of renewable sources and technology used.

- (9) The tariff being normative, any shortfall or gain due to performance or other reasons is to be borne/retained by the RE Based Generating Stations and Co-generating Stations and no true up of any parameter, including additional capitalisation for whatsoever reasons, shall be taken up during the validity of the tariff.

[Provided that any additional expenditure of capital nature which becomes necessary on account of damages caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) after prudence check by the Commission, shall be allowed as additional capitalisation after adjusting the proceeds from any insurance scheme for all the generating stations covered under these Regulations. For additional capital expenditure admitted, as above, appropriate adjustment in tariff shall be allowed for balance life of that project based on the norms given in Chapters 4 & 5 of the Regulations.

Provided that additional capitalisation on this account would only be allowed if appropriate and adequate insurance cover was available for the generating station at the time of occurrence of natural calamities referred to in first proviso above.]<sup>3</sup>

- (10) The tariff for supply of electricity between the period of synchronization and the commissioning of the unit (Infirm Power) shall be equal to 50% of fixed cost component of generic tariff for the useful life of the project. However, renewable energy technologies having fuel cost component, like biomass power projects and non-fossil fuel based cogeneration, shall also be entitled to get the fuel cost component of generic tariff for that year in addition to 50% of fixed cost component. The revenue generated from infirm power shall be used to reduce the capital cost of the project which would not affect the generic tariffs determined by the Commission but would be relevant for the project specific tariffs.

## 16. Financial Principles

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<sup>3</sup> Ins. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (Second Amendment) Regulations, 2014, notified vide No. F-9(21)/RG/UERC/2010/559, (w.e.f.20.06.2014)

(1) Capital Cost

- (a) The norms for the Capital Cost as specified in the subsequent technology specific provisions in Chapter 5 shall be inclusive of all capital works including plant and machinery, civil work, and commissioning, financing, interest during construction and evacuation infrastructure upto point of interconnection (i.e. it does not include cost of dedicated line and associated equipment from point of interconnection up-to the nearest sub-station of transmission or distribution licensee to which generating station is connected).
- (b) In case, the generator opts to construct the evacuation infrastructure from point of inter-connection to the nearest sub-station of transmission or distribution licensee to which the generating station is connected, it shall be allowed a normative levelised tariff of 5 paise/unit over and above the generic tariff determined at the point of inter-connection. The said normative tariff for evacuation infrastructure has been arrived at considering the cost of normative line length of 10 kms. (including cost of terminal equipments) for different capacities of generating stations as per normative cost given below:
- |  |                |
|--|----------------|
| i. Upto 5 MW, 11 kV S/C                              | - Rs. 44 lakh  |
| ii. Above 5 MW and upto 13 MW, 33 kV S/C             | - Rs. 85 lakh  |
| iii. Above 13 MW and upto 25 MW, 33 kV 2 x S/C or DC | - Rs. 170 lakh |

(2) Debt-Equity Ratio

The debt-equity ratio for generic and project specific tariff shall be as follows:

- (a) For generic tariff debt-equity ratio shall be 70:30.
- (b) For project specific tariff, the following provisions shall apply:

If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.

Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff.

Provided further that the equity invested in foreign currency shall be designated in Indian

rupees on the date of each investment.

Provided further that subsidy available from MNRE, to the extent specified under Regulation 25, shall be considered to have been utilized towards pre-payment of debt leaving balance loan and 30% equity to be considered for determination of tariff.

Provided further that it shall be assumed that the original repayments shall not be affected by this prepayment.

- (3) The amount of subsidy shall be considered for each renewable source as per the applicable policy of MNRE. If the amount of subsidy is reduced by MNRE, then necessary corrections in tariffs would be carried out by the Commission provided the reduction in subsidy amount is not due to the inefficiency of the generator.

## **17. Interest on loan capital**

- (1) The loans arrived at in the manner indicated in Regulation 16(2) shall be considered as gross normative loan for calculation for interest on loan. The normative loan outstanding as on April 1st of every year shall be worked out by deducting the cumulative repayment up to March 31st of previous year from the gross normative loan.
- (2) For the purpose of computation of tariff, the normative interest rate shall be considered as average prime lending rate (PLR) (rounded off to 25 basis points) of State Bank of India (SBI) prevalent during the previous five years immediately preceding the control period plus 150 basis points, which works out to be 13.25%.
- (3) 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.
- (4) Normative period of loan repayment shall be taken as 10 years.

## **18. Depreciation**

- (1) For the purpose of tariff, depreciation shall be computed in the following manner, namely:
  - (a) The value base for the purpose of depreciation shall be the capital cost of the project as admitted by the Commission.

- (b) 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.
  - (c) Depreciation per annum shall be based on 'Differential Depreciation Approach' over loan tenure and period beyond loan tenure over useful life computed on 'Straight Line Method'. For generic tariff the depreciation rate for the first 10 years of the Tariff Period shall be 7% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 11th year onwards.
  - (d) Depreciation shall be chargeable from the first year of commercial operation.
  - (e) Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.
- (2) Capital subsidy received by the generator shall not be reduced from the capital cost for depreciation purposes. However, the generator will have to carry out any renovation or replacement or additional capitalisation work through depreciation available to it.

## **19. Return on Equity**

- (1) The value base for the equity shall be as determined under Regulation 16(2).
- (2) The Return on Equity shall be:
  - (a) Pre-tax 19% per annum for the first 10 years.
  - (b) Pre-tax 24% per annum 11th year onwards.

## **20. Interest on Working Capital**

- (1) The Working Capital requirement in respect of wind energy projects, small hydro power, Solar PV and Solar thermal power projects shall be computed in accordance with the following:
  - (a) Operation & Maintenance expenses for one month;
  - (b) Receivables equivalent to 2 (Two) months of energy charges for sale of electricity calculated on the normative CUF;
  - (c) Maintenance spare @ 15% of operation and maintenance expenses
- (2) The Working Capital requirement in respect of biomass power projects and non-fossil

fuel based co-generation projects shall be computed in accordance with the following:

- (a) Fuel costs for four months equivalent to normative CUF;
  - (b) Operation & Maintenance expense for one month;
  - (c) Receivables equivalent to 2 (Two) months of fixed and variable charges for sale of electricity calculated on the target CUF;
  - (d) Maintenance spare @ 15% of operation and maintenance expenses
- (3) Interest on Working Capital shall be at interest rate equivalent to average State Bank of India PLR (rounded off to 25 basis points) of State Bank of India (SBI) prevalent during the previous five years immediately preceding the control period plus 100 basis points, which works out to be 12.75%.

## **21. Operation and Maintenance expenses**

- (1) Operation and maintenance expenses for the year of commissioning shall be determined based on normative O&M expenses for the base Year FY 2009-10 as specified under Chapter 5 for different technologies. These expenses shall be escalated/de-escalated @ 5.72% p.a. to arrive at O&M expenses during the year of Commissioning.
- (2) Normative O&M expenses allowed for the year of commissioning shall be escalated at the rate of 5.72% p.a. to determine the O&M expenses for the different years of the Tariff Period.

## **22. CDM benefits**

- (1) The proceeds of carbon credit from approved CDM project shall be shared between generating company and concerned beneficiaries in the following manner, namely-
  - (a) 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;
  - (b) In the second year, the share of the beneficiaries 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 beneficiaries.



- (c) The CDM benefits shall not be considered for determination of levelled or yearly tariff and total amount of proceeds shall be remitted directly by the generating company to the distribution licensee for each financial year within one month of its receipt alongwith auditor's certification in accordance with above provisions.

### **23. Rebate**

For payment of bills through the letter of credit on presentation, a rebate of 2% shall be allowed. If the payments are made by a mode other than through the letter of credit but within a period of one month of presentation of bills by the generating company, a rebate of 1% shall be allowed.

### **24. Late Payment Surcharge**

In case the payment of bills is delayed beyond a period of 60 days from the date of billing, a late payment surcharge at the rate of 1.25% per month shall be levied by the generating company.

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

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 only 75% of the capital subsidy for the financial year of commissioning as per applicable scheme of MNRE shall be considered for tariff determination.

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 capital cost admitted, accelerated depreciation rate as per relevant provisions under Income Tax Act and corporate income tax rate.
- (b) Capitalisation of RE projects during second half of the fiscal year.
- (c) It shall be assumed that the generating company shall avail the benefit of accelerated depreciation and the onus of establishing, to the satisfaction of distribution licensee, that it is not entitled for this benefit shall be that of such

generating company. The auditor's certificate in this regard shall be considered sufficient for this purpose.

Provided further that where Central Government or the State Government has notified any Generation Based Incentive Scheme for a particular kind of renewable technology such technology based generating stations shall be assumed to have availed the benefit of such a scheme and their tariffs shall automatically be treated as reduced by the amount of GBI per unit.

## **26. Taxes and Duties**

Tariff determined under these regulations shall be including direct taxes on income but exclusive of other taxes and duties as may be levied by the appropriate Government. For generic tariff determination, the tax rate for first 10 years has been considered as 18% and 30% for balance period alongwith 10% surcharge and 3% education cess.

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

## **27. Applicability of Tariff**

The tariff shall be allowed to be recovered in the following manner:

- (i) Till the actual CUF is less than or equal to annual CUF of 40%, tariffs would be payable at the levelised generic rates specified in this Amended Regulations arrived at based on the normative CUF of 40%.
- (ii) For generation beyond annual CUF of 40%, following will apply:
  - (iii) For generation beyond annual CUF of 40% but upto annual CUF of 45%, tariff shall be Rs. 1.50/kWh.
    - (a) For generation beyond annual CUF of 45%, incentive shall be equal to the levelised generic rates specified in the Principal Regulations at CUF of 45% reduced by Rs. 0.75 per kWh. Such reduction of Rs. 0.75/kWh shall be made from the subsequent monthly bills only till the actual annual CUF reaches 55%. Provided further that for generation beyond actual annual CUF of 55%, incentive shall be equal to the levelised generic rates specified in the Principal Regulations at CUF of 45%.

- (b) The annual CUF shall be calculated in accordance with the principles specified in Regulation 3(1)(e) of the Principal Regulations.]<sup>4</sup>

## 28. Applicability of Merit Order to RE Sources

Since RE Sources are dependent on vagaries of nature and are of small capacities, the principle of merit order dispatch/purchase shall not be applicable to supply of power from such sources to the distribution licensee or local rural grids within the State, i.e. they shall be treated as must run stations.

## CHAPTER 5

### TECHNOLOGY SPECIFIC PARAMETERS

## 29. [Small Hydro Generating Plant

The technology specific parameters for determination of generic tariffs for Small Hydro Generating Stations shall be as below:

#### Projects Commissioned after 01.01.2002 to 31.03.2007

Project Size	Capital Cost	O&M Expenses for year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	550	15.90	40%	1%
5 MW to 10 MW	550	14.77		
10 MW to 15 MW		13.63		
15 MW to 20 MW		12.49		
20 MW to 25 MW		11.36		

#### Projects Commissioned during FY 2007-08 to 2008-09

Project Size	Capital Cost	O&M Expenses for year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	600	18.79	40%	1%
5 MW to 10 MW	600	17.45		
10 MW to 15 MW		16.10		
15 MW to 20 MW		14.76		
20 MW to 25 MW		13.42		

<sup>4</sup> Subs. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (Second Amendment) Regulations, 2014. notified vide No. F-9(21)/RG/UERC/2010/559, (w.e.f.20.06.2014)

**Projects Commissioned on or after 01.04.2009<sup>5</sup>**

Project Size	Capital Cost	O&M Expenses for year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	700	21	40%	1%
5 MW to 10 MW	685	20		
10 MW to 15 MW	670	18		
15 MW to 20 MW	650	17		
20 MW to 25 MW	630	15		

NOTE:

For the purpose of this Regulation, normative CUF is the based on Energy Sent Out at interconnection point and for tariff purposes energy net of free power to the home State, if any, committed by the developer shall be factored into the tariff. For generic tariff determination, home State share has been taken as 18% from 16<sup>th</sup> year onwards.

**30. Biomass based Power Projects**

- (1) The technology specific parameters for determination of generic tariffs for Small Hydro Generating Stations shall be as below:

**Projects Commissioned during FY 2007-08 to 2008-09**

Capital Cost	O&M Expenses for year of commissioning	Station Heat Rate	Calorific value of fuel	Auxiliary Consumption	Capacity Utilization Factor
(Rs. Lakh/MW)	(Rs. Lakh/MW)	(kCal/kWh)	(kCal/kg)		
425	18.12	4200	3371	10 %	i. During Stabilization Period- 60% ii. During the remaining period of the first year (after stabilization) : 70% iii. From 2nd Year onwards: 80 %

**Projects Commissioned on or after 01.04.2009**

Capital Cost	O&M Expenses for year of commissioning	Station Heat Rate	Calorific value of fuel	Auxiliary Consumption	Capacity Utilization Factor
(Rs. Lakh/MW)	(Rs. Lakh/MW)	(kCal/kWh)	(kCal/kg)		
450	20.25	4200	3371	10 %	i. During Stabilization Period- 60% ii. During the remaining period of the first year (after stabilization) : 70% iii. From 2nd Year onwards: 80 %

<sup>5</sup> Subs. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (Second Amendment) Regulations, 2014. notified vide No. F-9(21)/RG/UERC/2010/559, (w.e.f.20.06.2014)

NOTE:

- (a) The stabilisation period shall not be more than 6 months from the date of commissioning of the project.
- (b) Fuel Cost for the base year FY 2009-10 shall be taken as Rs. 1518/MT, which shall be indexed for different years of tariff period based on annual inflation rate for fuel handling (WPI), Indexed Energy Charge Component (IRC) and transportation cost (price for high speed diesel - Pd) with 20%, 60% and 20% respective weightages as per following formula:
- (c)  $P(n) = P(n-1) * \{0.2 * (WPI(n)/WPI(n-1) + 0.6 * (1+IRC)(n) + 0.2 * (Pd(n)/Pd(n-1)))\}$
- (d) However, as the indices for nth year would be known only after close of nth year, the generator shall be allowed to raise fuel cost bills for nth year based on normative escalation factor of 5% on previous year's fuel cost, which shall be adjusted based on actual index for the nth year
- (e) Alternatively, for each subsequent year of the Tariff Period, the normative escalation factor of 5% per annum shall be applicable at the option of the biomass project developer. The normative escalation factor shall be considered for determination of working capital fixed cost component of levelised generic tariff.

Provided that the generator has to give his option for normative or indexed fuel cost to the distribution licensee at least 3 months in advance of date of commissioning or one month after the date of issuance of these Regulations, whichever is later. The option once exercised shall not be allowed to be changed during the validity period of the PPA.

- (2) The fuel cost component of the tariff for nth Year shall be calculated as follows:

$$\text{Rate of Variable Charge (Rs./kWh)} VC_n = \frac{\text{Gross Station Heat Rate (GSHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{P_n}{(100 - \text{AUX})} \times 10$$

- (3) Fuel Mix

- (a) The biomass power plant shall be designed in such a way that it uses different types of non-fossil fuels available within the vicinity of biomass power project such as crop residues, agro-industrial residues, forest residues etc. and other biomass fuels

as may be approved by MNRE.

- (b) The Biomass Power Generating Companies shall ensure fuel management plan to ensure adequate availability of fuel to meet the respective project requirements.

(4) Use of Fossil Fuel

The use of fossil fuels shall be limited to the extent of 15% of total fuel consumption on annual basis.

(5) Monitoring Mechanism for the use of fossil fuel

- (a) The Project developer shall furnish a monthly fuel usage statement and monthly fuel procurement statement duly certified by Chartered 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. The statement shall cover details such as-

- (i) Quantity of fuel (in tonnes) for each fuel type (biomass fuels and fossil fuels) consumed and procured during the month for power generation purposes,
- (ii) Cumulative quantity (in tonnes) of each fuel type consumed and procured till the end of that month during the year,
- (iii) Actual (gross and net) energy generation (denominated in units) during the month,
- (iv) Cumulative actual (gross and net) energy generation (denominated in units) until the end of that month during the year,
- (v) Opening fuel stock quantity (in tonnes),
- (vi) Receipt of fuel quantity (in tonnes) at the power plant site and
- (vii) Closing fuel stock quantity (in tonnes) for each fuel type (biomass fuels and fossil fuels) available at the power plant site.

- (b) 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 based power project.

### 31. Non-fossil fuel based Cogeneration Projects

- (1) The technology specific parameters for determination of generic tariffs for Non-fossil fuel based Cogeneration Projects shall be as below:

#### Projects Commissioned during FY 2001-02 to 2006-07

Capital Cost	O&M Expenses for year of commissioning	Station Heat Rate	Calorific value of fuel	Auxiliary Consumption	Capacity Utilization Factor
(Rs. Lakh/MW)	(Rs. Lakh/MW)	(kCal/kWh)	(kCal/kg)		
350	10.11	3600	2250	8.5%	45%

#### Project Commissioned during FY 2007-08 to 2008-09

Capital Cost	O&M Expenses for year of commissioning	Station Heat Rate	Calorific value of fuel	Auxiliary Consumption	Capacity Utilization Factor
(Rs. Lakh/MW)	(Rs. Lakh/MW)	(kCal/kWh)	(kCal/kg)		
375	11.94	3600	2250	8.5%	45%

#### Projects Commissioned on or after 01.04.2009

Capital Cost	O&M Expenses for year of commissioning	Station Heat Rate	Calorific value of fuel	Auxiliary Consumption	Capacity Utilization Factor
(Rs. Lakh/MW)	(Rs. Lakh/MW)	(kCal/kWh)	(kCal/kg)		
445	13.35	3600	2250	8.5%	45%

- (2) Fuel Cost for the base year FY 2009-10 shall be taken as Rs. 1013/MT, which shall be indexed for different years of tariff period based on annual inflation rate for fuel handling (WPI), Indexed Energy Charge Component (IRC) and transportation cost (price for high speed diesel - Pd) with 20%, 60% and 20% respective weightages as per following formula:

$$P_{(n)} = P_{(n-1)} * \{0.2 * (WPI_{(n)}/WPI_{(n-1)}) + 0.6 * (1+IRC)_{(n)} + 0.2 * (Pd_{(n)}/Pd_{(n-1)})\}$$

However, as the indices for nth year would be known only after close of nth year, the generator shall be allowed to raise fuel cost bills for nth year based on normative escalation factor of 5% on previous year's fuel cost, which shall be adjusted based on actual index for the nth year

Alternatively, for each subsequent year of the Tariff Period, the normative escalation factor of 5% per annum shall be applicable at the option of the biomass project developer. The normative escalation factor shall be considered for determination of working capital fixed cost component of levelised generic tariff.

Provided that the generator has to give his option for normative or indexed fuel cost to the distribution licensee at least 3 months in advance of date of commissioning or one month after the date of issuance of these Regulations, whichever is later. The option once exercised shall not be allowed to be changed during the validity period of the PPA.

- (3) The fuel cost component of the tariff for nth Year shall be calculated as follows:

$$\text{Rate of Variable Charge (Rs./kWh)} C_n = \frac{\text{Gross Station Heat Rate (GSHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{P_n}{(100 - \text{AUX})} \times 10$$

### 32. Solar PV Power Project

The technology specific parameters for determination of generic tariffs for Solar PV Power Projects shall be as below:

**Projects Commissioned on or after 01.04.2009**

Capital Cost (Rs. Lakh/MW)	O&M Expenses for year of commissioning (Rs. Lakh/MW)	Capacity Utilization Factor
1700	9	19 %

### 33. Solar Thermal Power Project

The technology specific parameters for determination of generic tariffs for Solar Thermal Power Projects shall be as below:

**Projects Commissioned on or after 01.04.2009**

Capital Cost (Rs. Lakh/MW)	O&M Expenses for year of commissioning (Rs. Lakh/MW)	Auxiliary Consumption	Capacity Utilization Factor
1300	13.00	10%	23 %

### 34. Wind Energy

- (a) The technology specific parameters for determination of generic tariffs for Wind Projects shall be as below:



**Projects Commissioned on or after 01.04.2009**

Capital Cost	O & M Expenses	Annual Mean Wind Power Density	Capacity Utilization Factor
(Rs. Lakh/MW)	(Rs. Lakh/MW)	(W/m <sup>2</sup> )	
515	6.50	200-250	20%
		250-250	23%
		300-400	27%
		>400	30%

NOTE:

For applicability of tariff, the generator shall provided duly validated information on annual mean wind power density. The annual mean wind power density specified in sub-regulation (1) above shall be measured at 50 meter hub-height and should be as per norms specified by Centre for Wind Energy Technology (CWET) or certified by it.

**35. Generic Tariffs**

The generic tariffs based on year of commissioning for the above-mentioned technologies are given in Annexure 1.

**CHAPTER 6**

**MISCELLANEOUS**

**36. Transmission Charges, Wheeling Charges and Losses**

(1) Transmission Charges: For non-discriminatory ‘open access’ to the intra-State transmission system for carrying the electricity generated by the RE Based Generating Stations or Co-generating Stations to the destination of use, the RE generator or the consumer, as the case may be, shall have to pay the transmission charges and wheeling charges for use of intra-state transmission system and distribution system as given below till the methodology for determination of the same or the rates for the same are specified through a separate Regulations:

$$\text{Transmission Charges} = \text{ATC}/\text{UHT} \text{ (in Rs./kWh)}$$

$$\text{Wheeling Charges} = (\text{ARR} - \text{PPC} - \text{TC}) / \text{UHD} \text{ (in Rs./kWh)}$$

Where,

ATC=Annual Transmission Charges as determined by the Commission for the State Transmission System for that particular year.

UHT=Total Units handled by the State Transmission System for that particular year as approved by the Commission.

ARR=Annual Revenue Requirement of the distribution licensee as determined by the Commission for that particular year.

PPC=Total Power Purchase Cost of distribution licensee for that particular year

TC=Total transmission charges paid by distribution licensee for State and Inter-State transmission system for that particular year.

UHD=Total Units Sold by the concerned Distribution Licensee as approved by the Commission for that particular year.

Provided that no Transmission and Wheeling Charges are payable for sale of electricity to distribution licensee or to local rural grid within the State.

Provided further that where a generator proposes to supply electricity outside the State, such generator, in addition to transmission/wheeling charges specified above, shall have to bear the full transmission/wheeling charges for the dedicated lines and substation of the transmission/distribution licensee used only for evacuation of such power.

Provided further that where more than one generator proposes to supply electricity outside the State over common dedicated transmission/distribution system of transmission/distribution licensee for evacuation of their power, such generators, in addition to transmission/wheeling charges specified above, shall have to bear the full transmission/wheeling charges for the such dedicated lines and substation of the transmission/distribution licensee used only for evacuation of such power on pro-rata basis of installed capacity.

- (2) In addition to Transmission and Wheeling Charges, the losses in the intra-State Transmission and Distribution System shall be adjusted in kind at the average transmission and distribution losses as determined by the Commission in the relevant tariff orders of the State licensees for a particular year.

Provided that point of injection shall be the sub-station of the State transmission/distribution licensee.

Provided further that no losses shall be adjusted in kind for sale of electricity to distribution licensees within the State or to local rural grid.

### **37. Cross Subsidy Surcharge and Additional Surcharge**

Unless determined otherwise by the Commission in the respective year's tariff order, no cross

subsidy surcharge or additional surcharge shall be payable by the consumers seeking open access to transmission and/or distribution system.

### **38. Evacuation of Power**

- (1) Transmission Licensees and Distribution Licensees shall endeavor to provide connectivity to the RE Based Generating Stations and Co-generating Stations at nearest possible sub-station preferably within a range of 10 kilometers from the location of such generating station. They may further mutually agree to provide connectivity at appropriate voltage level subject to technical feasibility and technical standards for construction of electrical lines and connectivity with the grid as may be specified by CEA.
- (2) The cost of laying the transmission line up-to the nearest substation of Transmission/Distribution Licensee, the required bay, terminal equipments and associated synchronization equipment etc, shall be borne by the generating station.

Provided that the generating station may get the work of construction of the power evacuation system carried out by State transmission/distribution licensee for which supervision charges shall be payable to transmission or distribution licensee, which shall not be more than 15% of labour cost.

Provided further that the land for extending the bay shall be provided by the owner of the sub-station free of cost.

- (3) In case the generating company elects to get the dedicated transmission line constructed by an agency other than transmission/distribution licensee, no supervision charges shall be payable to transmission/distribution licensee as the case may be.

### **39. Maintenance of Transmission lines and Equipment**

- (1) The generating station shall be responsible for the maintenance of terminal equipment at the generating end and the dedicated transmission lines owned by such generating stations. However, transmission/distribution licensees, as the case may be, may carry out maintenance of the dedicated transmission line, if so desired by the generating company, on mutually agreed charges not less than 1.5% of cost of line and associated equipment as per norms specified in Regulation 16(1)(b) for 2009-10 with annual escalation @ 5.72% p.a.
- (2) The distribution licensee or the transmission licensee or the state transmission utility, as

the case may be, shall be responsible for maintenance of the terminal equipment(s) at the sub-station of the concerned licensee.

#### **40. SLDC Charges**

For sale to person other than the State Distribution Licensees or to Local Rural Grid principles of optimum scheduling and dispatch as per IEGC and State Grid Code scheme shall apply and for this purpose RE based Generating Stations and Co-generating stations shall be required to pay a fee of Rs. 2000/day to the SLDC till these charges are specified separately in relevant Regulations.

#### **41. Metering Arrangement**

- (1) For sale to State Distribution Licensees or Local rural Grid, RE based Generating Station and Co-generating Stations shall provide meters at the point of interconnection as defined under Regulation 3(1)(q) complying with conditions of installation of meters as specified by CEA.
- (2) For sale to person other than the State Distribution Licensees or Local Rural Grid RE based Generating Station and Co-generating Stations shall provide ABT compatible Special Energy Meters at the point of injection (i.e. nearest Transmission or Distribution sub-station with which the generating station is connected through dedicated evacuation line and/or transmission/distribution system) complying with conditions of installation of meters as specified by CEA.

#### **42. Energy Accounting and Billing**

The State Load Dispatch Centre shall do energy accounting and the same shall be communicated to the utilities interacting with the grid as per the scheme framed by SLDC in pursuance of the provisions of State Grid Code. SLDC shall also do billing for inter-State/open access consumers' transactions,

Provided that in case of sale to the distribution licensee of the area, the power purchase agreement may provide for joint metering and in such cases, energy accounting and billing shall be done by the generating station in association with the concerned distribution licensee.

#### **43. Purchase of Electricity by the Generating station/Start up Power**

Any person, who establishes, maintains and operates a generating station and normally does

not need power from the licensee round the year, i.e. who is not a consumer of the licensee, may purchase electricity from a generating company or a distribution licensee in case his plant is not in a position to generate electricity to meet the requirement of his own use or for start up and consequently power is required to be drawn from distribution licensee.

Provided that such purchase of electricity, from a distribution licensee, shall be charged as per the tariff determined by the Commission for temporary supply under appropriate 'Rate Schedule of tariff' for Industrial Consumers considering maximum demand during the month as the contract demand for that month. Fixed/Demand charges for that month shall payable for the number of days during which such supply is drawn. Such person shall, however, be exempted from payment of monthly minimum charges or monthly minimum consumption guarantee charges or any other charges.

Provided also that in case of purchase of power through a trader or a generating company, rate shall be as mutually agreed, however, transmission and wheeling charges shall be payable as per relevant tariff order of the Commission.

#### **44. Banking of Power (Applicable only in case of Captive Generating Plants)**

- (1) The Generating Stations shall be allowed to bank power within a period of one calendar month, for the purpose of withdrawal of the banked power in the event of emergency or shut down or maintenance of the plant, subject to following conditions:
  - (a) Banking of energy upto 100%, as agreed between the plant and the distribution licensee, shall be allowed during the period 17:00 hrs. to 22:00 Hrs. (specified as peak hours for this purpose).
  - (b) Withdrawal of power shall be allowed only during the period other than 17:00 hrs. to 22:00 Hrs.
  - (c) The plants shall provide ABT compliant Special Energy Meters and the monthly settlement of energy sales shall be done based on Power supplied during the peak hours as per SEM meter readings shall be considered as banked power and monthly settlement shall be done for the balance energy supplied by the plant at the rate specified for supply of electricity to distribution licensee.
  - (d) Upon introduction of intra-state ABT in the State, the banking as well as

withdrawal of banked energy shall be subject to day ahead scheduling.

- (e) The power withdrawn by the plant as ascertained by SEM readings, which could not be considered as withdrawal from banked power, shall be considered as power purchased by the plant.
- (f) The purchase of power by these plants under clause (e) or otherwise shall be charged as per the provisions of Regulation 43 above.
- (g) A Generating Station shall be allowed to withdraw power that was banked during a particular financial year in the same year or during the following financial year.
- (h) The banked power remaining unutilized on the expiry of the following financial year would be treated as sale and the financial settlement shall be made at the generic tariff for the year during which the power was banked. No banking charges shall be deducted from such unutilized banked energy.
- (i) Banking charges shall be 12.5% of the energy banked

#### [44A Deemed Generation

- (1) After the COD of the Project, loss of generation at the Station on account of reasons attributed to the following, or any one of the following, which results in Water Spillage, shall count towards Deemed Generation:
  - Non availability of evacuation system beyond the interconnection Point; and
  - Receipt of backing down instructions from the SLDC.Provided that the following shall not count towards Deemed Generation:
  - a. the loss of generation at the Station on account of aforesaid factor(s) but attributed to the Force Majeure event(s);
  - b. the loss of generation at the Station due to the interruptions/outages attributed to the aforesaid factor(s) during the period in which the total duration of such outages/ interruptions, other than that excluded under (i) above, is within the limit of 48 hours in a month; and
- (2) UPCL shall be required to maintain the voltages at the point of interconnection with the project within the limits stipulated hereunder, with reference to declared voltage:

- (a) In the case of High Voltage, +6% and -9%; and,
- (b) In the case of Extra High Voltage, +10% and -12.5%.

With effect from 01.04.2013, any loss in generation due to variations in the voltage beyond the limits specified above shall be reckoned as deemed generation:

Provided that any loss in generation due to variation in voltage beyond the limits specified above, should be at least 25%.

- (3) The period of outage/interruption on account of such factor(s) specified in sub-Regulation 1 and 2 above, shall be reconciled on monthly basis and the loss of generation at the Station towards Deemed Generation after accounting for the events specified under sub-Regulation (1) (i) & (ii) above, shall be computed on following considerations:--
  - (i). The recovery on the above account shall be admissible if the actual energy generated during the year is less than the normative CUF of 45%, specified for recovery of fixed charges for small hydro projects. In case the sum of actual energy generated and the deemed generation during the year exceeds the normative CUF specified of 45%, then the deemed generation alongwith the actual energy generated will be allowed only upto the CUF of 45%.
  - (ii). The generation loss towards the Deemed Generation in accordance with sub-Regulation (1) above, if any, during the month shall be considered on the pro-rata basis on the number of hours lost based on the actual average generation achieved during that month divided by the total number of hours available during the month reduced by the number of hours outage/interruption occurred in the system.
  - (iii). The generation loss towards the Deemed Generation (in MWh) in accordance with sub-Regulation (2) above, if any, during the month shall be considered as the summation of the product of number of hours the variations in voltage beyond the specified limit existed and the Generation lost (in MW) due to the variation in the voltage beyond the specified limit. The Generation lost (in MW) would be the difference between the following:--

- a. Minimum of the actual generation (in MW) before the variation in voltage occurred and the generation (in MW) achieved after 90 minutes immediately after variation in voltage was restored within the specified limit would be treated as the actual generation during the period when voltage variations occurred and
  - b. The generation achieved during the period when variation in voltages took place.
- (4) UPCL shall pay for the saleable deemed generation, on annual basis, for small hydro projects worked out on the basis of the deemed generation on the above lines, at the generic/project specific tariffs under the provisions of RE Regulations, as amended from time to time by the Commission. The settlement of payment towards deemed generation charges shall be carried out within 3 months of the completion of the financial year.
  - (5) Any charges paid by UPCL towards deemed generation shall not be allowed as an expense to be pass through in tariffs. UPCL will have to bear such charges.
  - (6) The deemed generation conditions stipulated above shall be applicable only on those small hydro projects who have signed a long term PPA with UPCL on the preferential tariffs specified in the Principal Regulations.
  - (7) Further, the deemed generation conditions shall be applicable only on the small hydro projects where the evacuation line is connected to 11 kV or higher voltage Grid Sub-station.
  - (8) The deemed generation conditions as stipulated above shall come into effect from the date of publication of the amendment regulation in the Government Gazette.]<sup>6</sup>

#### **45. Savings**

Nothing in these regulations shall, expressly or impliedly, bar the Commission dealing with any matter or exercising any power under the Act for which no regulations have been framed, and the Commission may deal with such matters, powers and functions in a manner, as it considers just and appropriate.

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<sup>6</sup> Ins. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (First Amendment) Regulations, 2012. notified vide No. F-9(21)/RG/UERC/2012/733, (w.e.f.14.08.2012)



**46. Power to Remove Difficulties**

If any difficulty arises in giving effect to these regulations, the Commission may, of its own motion or otherwise, by an order and after giving a reasonable opportunity to those likely to be affected by such order, make such provisions, not inconsistent with these regulations, as may appear to be necessary for removing the difficulty.

**47. Power to Relax**

The Commission, for reasons to be recorded in writing, may vary any of the provisions of these regulations on its own motion or on an application made before it by an interested person.

By Order of the Commission

(Pankaj Prakash)  
Secretary  
Uttarakhand Electricity Regulatory Commission

**Annexure-1: Generic Tariffs**

**1. [Levelling rate of Fixed Charges (RFC) in Rs./kWh for SHPs (upto 25 MW) applicable up to annual CUF of 40% from 01.04.2014.**

**a. SHPs Commissioned after 01.01.2002 and upto 31.03.2007**

Particulars	Upto 5 MW			Above 5 and upto 10 MW			Above 10 and upto 15 MW			Above 15 and upto 20 MW			Above 20 and upto 25 MW			
	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	
1. Levellised (Entire Life)	3.20	0.25	2.95	3.20	0.25	2.95	3.15	0.25	2.90	3.10	0.25	2.85	3.05	0.25	2.80	
2. Levellised	1st 10 yrs	3.35	0.30	3.05	3.35	0.30	3.05	3.35	0.30	3.05	3.30	0.30	3.00	3.25	0.30	2.95
	Balance life	2.80	-	2.80	2.70	-	2.70	2.60	-	2.60	2.50	-	2.50	2.40	-	2.40
3. Annual Tariffs	Year															
	1	3.75	1.05	2.70	3.75	1.05	2.70	3.75	1.05	2.70	3.75	1.05	2.70	3.70	1.05	2.65
	2	3.60	1.15	2.45	3.65	1.15	2.50	3.65	1.15	2.50	3.60	1.15	2.45	3.55	1.15	2.40
	3	3.50	0.05	3.45	3.50	0.05	3.45	3.50	0.05	3.45	3.45	0.05	3.40	3.45	0.05	3.40
	4	3.40	-0.10	3.50	3.40	-0.10	3.50	3.40	-0.10	3.50	3.35	-0.10	3.45	3.30	-0.10	3.40
	5	3.25	-0.15	3.40	3.30	-0.15	3.45	3.25	-0.15	3.40	3.20	-0.15	3.35	3.20	-0.15	3.35
	6	3.15	-0.10	3.25	3.15	-0.10	3.25	3.15	-0.10	3.25	3.10	-0.10	3.20	3.05	-0.10	3.15
	7	3.05	-0.10	3.15	3.05	-0.10	3.15	3.00	-0.10	3.10	3.00	-0.10	3.10	2.95	-0.10	3.05
	8	2.95	-0.10	3.05	2.95	-0.10	3.05	2.90	-0.10	3.00	2.85	-0.10	2.95	2.80	-0.10	2.90
	9	2.85	-0.10	2.95	2.80	-0.10	2.90	2.80	-0.10	2.90	2.75	-0.10	2.85	2.70	-0.10	2.80
	10	2.85	-0.05	2.90	2.80	-0.05	2.85	2.75	-0.05	2.80	2.70	-0.05	2.75	2.65	-0.05	2.70
	11	2.15	0.00	2.15	2.10	0.00	2.10	2.00	0.00	2.00	1.95	0.00	1.95	1.90	0.00	1.90
	12	2.20	0.00	2.20	2.10	0.00	2.10	2.05	0.00	2.05	2.00	0.00	2.00	1.95	0.00	1.95
	13	2.25	0.00	2.25	2.15	0.00	2.15	2.10	0.00	2.10	2.05	0.00	2.05	1.95	0.00	1.95
	14	2.30	0.00	2.30	2.20	0.00	2.20	2.15	0.00	2.15	2.10	0.00	2.10	2.00	0.00	2.00
	15	2.35	0.00	2.35	2.25	0.00	2.25	2.20	0.00	2.20	2.10	0.00	2.10	2.05	0.00	2.05
	16	2.95	0.00	2.95	2.85	0.00	2.85	2.75	0.00	2.75	2.65	0.00	2.65	2.55	0.00	2.55
	17	3.00	0.00	3.00	2.90	0.00	2.90	2.80	0.00	2.80	2.70	0.00	2.70	2.60	0.00	2.60
	18	3.10	0.00	3.10	3.00	0.00	3.00	2.90	0.00	2.90	2.75	0.00	2.75	2.65	0.00	2.65
	19	3.20	0.00	3.20	3.05	0.00	3.05	2.95	0.00	2.95	2.85	0.00	2.85	2.70	0.00	2.70
	20	3.25	0.00	3.25	3.15	0.00	3.15	3.05	0.00	3.05	2.90	0.00	2.90	2.80	0.00	2.80
	21	3.35	0.00	3.35	3.25	0.00	3.25	3.10	0.00	3.10	3.00	0.00	3.00	2.85	0.00	2.85
	22	3.45	0.00	3.45	3.35	0.00	3.35	3.20	0.00	3.20	3.05	0.00	3.05	2.95	0.00	2.95
	23	3.60	0.00	3.60	3.45	0.00	3.45	3.30	0.00	3.30	3.15	0.00	3.15	3.00	0.00	3.00
	24	3.70	0.00	3.70	3.55	0.00	3.55	3.40	0.00	3.40	3.25	0.00	3.25	3.10	0.00	3.10
	25	3.80	0.00	3.80	3.65	0.00	3.65	3.50	0.00	3.50	3.35	0.00	3.35	3.20	0.00	3.20
	26	3.95	0.00	3.95	3.75	0.00	3.75	3.60	0.00	3.60	3.45	0.00	3.45	3.25	0.00	3.25
	27	4.10	0.00	4.10	3.90	0.00	3.90	3.70	0.00	3.70	3.55	0.00	3.55	3.35	0.00	3.35
	28	4.20	0.00	4.20	4.05	0.00	4.05	3.85	0.00	3.85	3.65	0.00	3.65	3.45	0.00	3.45
	29	4.35	0.00	4.35	4.15	0.00	4.15	3.95	0.00	3.95	3.75	0.00	3.75	3.55	0.00	3.55
	30	4.55	0.00	4.55	4.30	0.00	4.30	4.10	0.00	4.10	3.90	0.00	3.90	3.70	0.00	3.70
	31	4.70	0.00	4.70	4.50	0.00	4.50	4.25	0.00	4.25	4.05	0.00	4.05	3.80	0.00	3.80
	32	4.90	0.00	4.90	4.65	0.00	4.65	4.40	0.00	4.40	4.15	0.00	4.15	3.95	0.00	3.95
	33	5.05	0.00	5.05	4.80	0.00	4.80	4.55	0.00	4.55	4.30	0.00	4.30	4.05	0.00	4.05
	34	5.25	0.00	5.25	5.00	0.00	5.00	4.75	0.00	4.75	4.50	0.00	4.50	4.20	0.00	4.20
35	5.50	0.00	5.50	5.20	0.00	5.20	4.90	0.00	4.90	4.65	0.00	4.65	4.35	0.00	4.35	

\*Year 1 shall be the year of commissioning for generic tariffs]<sup>7</sup>

<sup>7</sup> Subs. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (First Amendment) Regulations, 2012, notified vide No. F-9(21)/RG/UERC/2012/733, (w.e.f.14.08.2012)

**Annexure-1: Generic Tariffs**

**b. [SHPs Commissioned during FY 2007-08 to 2008-09**

Particulars		Upto 5 MW			Above 5 and upto 10 MW			Above 10 and upto 15 MW			Above 15 and upto 20 MW			Above 20 and upto 25 MW		
		Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff
1. Levellised (Entire Life)		3.60	0.25	3.35	3.55	0.25	3.30	3.50	0.25	3.25	3.45	0.25	3.20	3.40	0.25	3.15
2. Levellised	1st 10 yrs	3.75	0.35	3.40	3.75	0.35	3.40	3.70	0.35	3.35	3.65	0.35	3.30	3.60	0.35	3.25
	Balance life	3.20	-	3.20	3.05	-	3.05	2.95	-	2.95	2.85	-	2.85	2.70	-	2.70
3. Annual Tariffs																
	Year															
	1	4.15	1.15	3.00	4.15	1.15	3.00	4.15	1.15	3.00	4.10	1.15	2.95	4.10	1.15	2.95
	2	4.00	1.25	2.75	4.05	1.25	2.80	4.00	1.25	2.75	3.95	1.25	2.70	3.95	1.25	2.70
	3	3.90	0.05	3.85	3.90	0.05	3.85	3.85	0.05	3.80	3.85	0.05	3.80	3.80	0.05	3.75
	4	3.75	-0.10	3.85	3.75	-0.10	3.85	3.75	-0.10	3.85	3.70	-0.10	3.80	3.65	-0.10	3.75
	5	3.65	-0.15	3.80	3.65	-0.15	3.80	3.60	-0.15	3.75	3.55	-0.15	3.70	3.50	-0.15	3.65
	6	3.50	-0.15	3.65	3.50	-0.15	3.65	3.50	-0.15	3.65	3.45	-0.15	3.60	3.40	-0.15	3.55
	7	3.40	-0.10	3.50	3.40	-0.10	3.50	3.35	-0.10	3.45	3.30	-0.10	3.40	3.25	-0.10	3.35
	8	3.30	-0.10	3.40	3.25	-0.10	3.35	3.25	-0.10	3.35	3.20	-0.10	3.30	3.10	-0.10	3.20
	9	3.20	-0.10	3.30	3.15	-0.10	3.25	3.10	-0.10	3.20	3.05	-0.10	3.15	3.00	-0.10	3.10
	10	3.20	-0.05	3.25	3.10	-0.05	3.15	3.05	-0.05	3.10	3.00	-0.05	3.05	2.95	-0.05	3.00
	11	2.40	0.00	2.40	2.35	0.00	2.35	2.25	0.00	2.25	2.20	0.00	2.20	2.10	0.00	2.10
	12	2.45	0.00	2.45	2.40	0.00	2.40	2.30	0.00	2.30	2.25	0.00	2.25	2.15	0.00	2.15
	13	2.50	0.00	2.50	2.45	0.00	2.45	2.35	0.00	2.35	2.30	0.00	2.30	2.20	0.00	2.20
	14	2.60	0.00	2.60	2.50	0.00	2.50	2.40	0.00	2.40	2.35	0.00	2.35	2.25	0.00	2.25
	15	2.65	0.00	2.65	2.55	0.00	2.55	2.50	0.00	2.50	2.40	0.00	2.40	2.30	0.00	2.30
	16	3.30	0.00	3.30	3.20	0.00	3.20	3.10	0.00	3.10	3.00	0.00	3.00	2.85	0.00	2.85
	17	3.40	0.00	3.40	3.30	0.00	3.30	3.15	0.00	3.15	3.05	0.00	3.05	2.95	0.00	2.95
	18	3.50	0.00	3.50	3.40	0.00	3.40	3.25	0.00	3.25	3.15	0.00	3.15	3.00	0.00	3.00
	19	3.60	0.00	3.60	3.50	0.00	3.50	3.35	0.00	3.35	3.20	0.00	3.20	3.10	0.00	3.10
	20	3.70	0.00	3.70	3.60	0.00	3.60	3.45	0.00	3.45	3.30	0.00	3.30	3.15	0.00	3.15
	21	3.85	0.00	3.85	3.70	0.00	3.70	3.55	0.00	3.55	3.40	0.00	3.40	3.25	0.00	3.25
	22	3.95	0.00	3.95	3.80	0.00	3.80	3.65	0.00	3.65	3.50	0.00	3.50	3.30	0.00	3.30
	23	4.10	0.00	4.10	3.90	0.00	3.90	3.75	0.00	3.75	3.60	0.00	3.60	3.40	0.00	3.40
	24	4.20	0.00	4.20	4.05	0.00	4.05	3.85	0.00	3.85	3.70	0.00	3.70	3.50	0.00	3.50
	25	4.35	0.00	4.35	4.20	0.00	4.20	4.00	0.00	4.00	3.80	0.00	3.80	3.60	0.00	3.60
	26	4.50	0.00	4.50	4.30	0.00	4.30	4.10	0.00	4.10	3.90	0.00	3.90	3.70	0.00	3.70
	27	4.70	0.00	4.70	4.45	0.00	4.45	4.25	0.00	4.25	4.05	0.00	4.05	3.85	0.00	3.85
	28	4.85	0.00	4.85	4.60	0.00	4.60	4.40	0.00	4.40	4.20	0.00	4.20	3.95	0.00	3.95
	29	5.00	0.00	5.00	4.80	0.00	4.80	4.55	0.00	4.55	4.30	0.00	4.30	4.10	0.00	4.10
	30	5.20	0.00	5.20	4.95	0.00	4.95	4.70	0.00	4.70	4.45	0.00	4.45	4.20	0.00	4.20
	31	5.40	0.00	5.40	5.15	0.00	5.15	4.90	0.00	4.90	4.60	0.00	4.60	4.35	0.00	4.35
	32	5.60	0.00	5.60	5.35	0.00	5.35	5.05	0.00	5.05	4.80	0.00	4.80	4.50	0.00	4.50
	33	5.85	0.00	5.85	5.55	0.00	5.55	5.25	0.00	5.25	4.95	0.00	4.95	4.65	0.00	4.65
	34	6.10	0.00	6.10	5.75	0.00	5.75	5.45	0.00	5.45	5.15	0.00	5.15	4.85	0.00	4.85
	35	6.35	0.00	6.35	6.00	0.00	6.00	5.65	0.00	5.65	5.35	0.00	5.35	5.00	0.00	5.00

\*Year 1 shall be the year of commissioning for generic tariffs]<sup>8</sup>

<sup>8</sup> Subs. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (First Amendment) Regulations, 2012, notified vide No. F-9(21)/RG/UERC/2012/733, (w.e.f.14.08.2012)

**Annexure-1: Generic Tariffs**

**c. [SHPs Commissioned on or after 01.04.2009]**

Particulars	Upto 5 MW			Above 5 and upto 10 MW			Above 10 and upto 15 MW			Above 15 and upto 20 MW			Above 20 and upto 25 MW			
	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	
1. Levellised (Entire Life)	4.20	0.30	3.90	4.10	0.30	3.80	3.95	0.30	3.65	3.80	0.25	3.55	3.65	0.25	3.40	
2. Levellised	1st 10 yrs	4.40	0.40	4.00	4.30	0.40	3.90	4.15	0.35	3.80	4.00	0.35	3.65	3.85	0.35	3.50
	Balance life	3.65	-	3.65	3.45	-	3.45	3.30	-	3.30	3.10	-	3.10	2.95	-	2.95
3. Annual Tariffs	Year															
	1	4.90	1.35	3.55	4.80	1.35	3.45	4.65	1.30	3.35	4.50	1.25	3.25	4.35	1.20	3.15
	2	4.75	1.50	3.25	4.65	1.45	3.20	4.50	1.40	3.10	4.35	1.40	2.95	4.20	1.35	2.85
	3	4.60	0.10	4.50	4.50	0.10	4.40	4.35	0.10	4.25	4.20	0.10	4.10	4.05	0.05	4.00
	4	4.45	-0.15	4.60	4.35	-0.15	4.50	4.20	-0.15	4.35	4.05	-0.15	4.20	3.90	-0.15	4.05
	5	4.30	-0.15	4.45	4.20	-0.15	4.35	4.05	-0.15	4.20	3.90	-0.15	4.05	3.75	-0.15	3.90
	6	4.15	-0.15	4.30	4.05	-0.15	4.20	3.95	-0.15	4.10	3.80	-0.15	3.95	3.60	-0.15	3.75
	7	4.00	-0.15	4.15	3.90	-0.15	4.05	3.80	-0.10	3.90	3.65	-0.10	3.75	3.50	-0.10	3.60
	8	3.85	-0.10	3.95	3.75	-0.10	3.85	3.65	-0.10	3.75	3.50	-0.10	3.60	3.35	-0.10	3.45
	9	3.70	-0.10	3.80	3.65	-0.10	3.75	3.50	-0.10	3.60	3.35	-0.10	3.45	3.20	-0.10	3.30
	10	3.65	-0.10	3.75	3.55	-0.10	3.65	3.45	-0.10	3.55	3.30	-0.10	3.40	3.15	-0.10	3.25
	11	2.75	0.00	2.75	2.65	0.00	2.65	2.55	0.00	2.55	2.40	0.00	2.40	2.30	0.00	2.30
	12	2.80	0.00	2.80	2.70	0.00	2.70	2.60	0.00	2.60	2.45	0.00	2.45	2.30	0.00	2.30
	13	2.90	0.00	2.90	2.75	0.00	2.75	2.65	0.00	2.65	2.50	0.00	2.50	2.35	0.00	2.35
	14	2.95	0.00	2.95	2.85	0.00	2.85	2.70	0.00	2.70	2.55	0.00	2.55	2.40	0.00	2.40
	15	3.05	0.00	3.05	2.90	0.00	2.90	2.75	0.00	2.75	2.60	0.00	2.60	2.50	0.00	2.50
	16	3.80	0.00	3.80	3.65	0.00	3.65	3.45	0.00	3.45	3.25	0.00	3.25	3.10	0.00	3.10
	17	3.90	0.00	3.90	3.70	0.00	3.70	3.55	0.00	3.55	3.35	0.00	3.35	3.15	0.00	3.15
	18	4.00	0.00	4.00	3.85	0.00	3.85	3.65	0.00	3.65	3.45	0.00	3.45	3.25	0.00	3.25
	19	4.15	0.00	4.15	3.95	0.00	3.95	3.75	0.00	3.75	3.55	0.00	3.55	3.30	0.00	3.30
	20	4.25	0.00	4.25	4.05	0.00	4.05	3.85	0.00	3.85	3.60	0.00	3.60	3.40	0.00	3.40
	21	4.35	0.00	4.35	4.15	0.00	4.15	3.95	0.00	3.95	3.70	0.00	3.70	3.50	0.00	3.50
	22	4.50	0.00	4.50	4.30	0.00	4.30	4.05	0.00	4.05	3.85	0.00	3.85	3.60	0.00	3.60
	23	4.65	0.00	4.65	4.40	0.00	4.40	4.20	0.00	4.20	3.95	0.00	3.95	3.70	0.00	3.70
	24	4.80	0.00	4.80	4.55	0.00	4.55	4.30	0.00	4.30	4.05	0.00	4.05	3.80	0.00	3.80
	25	4.95	0.00	4.95	4.70	0.00	4.70	4.45	0.00	4.45	4.20	0.00	4.20	3.90	0.00	3.90
	26	5.15	0.00	5.15	4.85	0.00	4.85	4.60	0.00	4.60	4.30	0.00	4.30	4.05	0.00	4.05
	27	5.30	0.00	5.30	5.05	0.00	5.05	4.75	0.00	4.75	4.45	0.00	4.45	4.15	0.00	4.15
	28	5.50	0.00	5.50	5.20	0.00	5.20	4.90	0.00	4.90	4.60	0.00	4.60	4.30	0.00	4.30
	29	5.70	0.00	5.70	5.40	0.00	5.40	5.10	0.00	5.10	4.75	0.00	4.75	4.45	0.00	4.45
	30	5.90	0.00	5.90	5.60	0.00	5.60	5.25	0.00	5.25	4.95	0.00	4.95	4.60	0.00	4.60
	31	6.15	0.00	6.15	5.80	0.00	5.80	5.45	0.00	5.45	5.10	0.00	5.10	4.75	0.00	4.75
	32	6.35	0.00	6.35	6.00	0.00	6.00	5.65	0.00	5.65	5.30	0.00	5.30	4.90	0.00	4.90
	33	6.60	0.00	6.60	6.25	0.00	6.25	5.85	0.00	5.85	5.50	0.00	5.50	5.10	0.00	5.10
	34	6.90	0.00	6.90	6.50	0.00	6.50	6.10	0.00	6.10	5.70	0.00	5.70	5.30	0.00	5.30
35	7.15	0.00	7.15	6.75	0.00	6.75	6.35	0.00	6.35	5.90	0.00	5.90	5.50	0.00	5.50	

*\*Year 1 shall be the year of commissioning for generic tariffs<sup>9</sup>*

<sup>9</sup> Subs. by UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (First Amendment) Regulations, 2012, notified vide No. F-9(21)/RG/UERC/2012/733, (w.e.f.14.08.2012)

**Annexure-1: Generic Tariffs**

**2. Levellised Rate of Fixed Charges (RFC) & Variable Charges in Rs./kWh for Biomass based Power Projects**

Rate of Fixed Charges								Rate of Variable Charges for Year 1 as FY 2009-10 with 5% normative escalation subsequently
Particulars	Projects commissioned before 01.04.2009			Projects Commissioned on or after 01.04. 2009				
	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff		
<b>1. Levellised ((Entire Life)</b>		1.75	0.10	1.65	1.90	0.10	1.80	
<b>2. Levellised</b>	1st 10 yrs	1.85	0.15	1.70	1.95	0.15	1.80	
	Balance life	1.50	-	1.50	1.65	-	1.65	
<b>3. Annual Tariffs</b>	Year							
	1	2.30	0.55	1.75	2.45	0.60	1.85	1.90
	2	1.85	0.50	1.35	2.00	0.50	1.50	2.00
	3	1.80	0.05	1.75	1.95	0.05	1.90	2.10
	4	1.80	-0.05	1.85	1.90	-0.05	1.95	2.20
	5	1.75	-0.05	1.80	1.85	-0.05	1.90	2.31
	6	1.70	-0.05	1.75	1.85	-0.05	1.90	2.43
	7	1.65	-0.05	1.70	1.80	-0.05	1.85	2.55
	8	1.65	-0.05	1.70	1.75	-0.05	1.80	2.68
	9	1.60	-0.05	1.65	1.75	-0.05	1.80	2.81
	10	1.60	-0.05	1.65	1.70	-0.05	1.75	2.95
	11	1.35	0.00	1.35	1.45	0.00	1.45	3.10
	12	1.40	0.00	1.40	1.50	0.00	1.50	3.25
	13	1.40	0.00	1.40	1.55	0.00	1.55	3.41
	14	1.45	0.00	1.45	1.60	0.00	1.60	3.59
	15	1.50	0.00	1.50	1.65	0.00	1.65	3.76
	16	1.55	0.00	1.55	1.70	0.00	1.70	3.95
	17	1.60	0.00	1.60	1.75	0.00	1.75	4.15
	18	1.65	0.00	1.65	1.80	0.00	1.80	4.36
	19	1.75	0.00	1.75	1.90	0.00	1.90	4.58
	20	1.80	0.00	1.80	1.95	0.00	1.95	4.80

*\*Year 1 shall be the year of commissioning for RFC*

### 3. Levellised Rate of Fixed Charges (RFC) & Variable Charges in Rs./kWh for Non-fossil fuel based Co-generation Projects

Particulars		Rate of Fixed Charges									Rate of Variable Charges for Year 1 as FY 2009-10 with 5% normative escalation subsequently
		Projects commissioned before 01.04.2007			Projects commissioned during FY 2007-08 & FY 2008-09			Projects Commissioned on or after 01.04. 2009			
		Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	
<b>1. Levellised ((Entire Life)</b>		2.15	0.15	2.00	2.35	0.15	2.20	2.75	0.15	2.60	
<b>2. Levellised</b>	1st 10 yrs	2.25	0.20	2.05	2.45	0.20	2.25	2.90	0.25	2.65	
	Balance life	1.70	-	1.70	1.90	-	1.90	2.20	-	2.20	
<b>3. Annual Tariffs</b>	Year										
	1	2.50	0.65	1.85	2.70	0.70	2.00	3.20	0.85	2.35	1.77
	2	2.40	0.70	1.70	2.65	0.75	1.90	3.10	0.90	2.20	1.86
	3	2.35	0.05	2.30	2.55	0.05	2.50	3.00	0.05	2.95	1.95
	4	2.30	-0.05	2.35	2.50	-0.05	2.55	2.90	-0.10	3.00	2.05
	5	2.20	-0.10	2.30	2.40	-0.10	2.50	2.85	-0.10	2.95	2.15
	6	2.15	-0.05	2.20	2.35	-0.10	2.45	2.75	-0.10	2.85	2.26
	7	2.10	-0.05	2.15	2.30	-0.05	2.35	2.65	-0.10	2.75	2.37
	8	2.05	-0.05	2.10	2.20	-0.05	2.25	2.60	-0.05	2.65	2.49
	9	1.95	-0.05	2.00	2.15	-0.05	2.20	2.50	-0.05	2.55	2.62
	10	1.95	-0.05	2.00	2.10	-0.05	2.15	2.45	-0.05	2.50	2.75
	11	1.60	0.00	1.60	1.75	0.00	1.75	2.00	0.00	2.00	2.89
	12	1.60	0.00	1.60	1.80	0.00	1.80	2.05	0.00	2.05	3.03
	13	1.65	0.00	1.65	1.85	0.00	1.85	2.10	0.00	2.10	3.18
	14	1.70	0.00	1.70	1.90	0.00	1.90	2.15	0.00	2.15	3.34
	15	1.75	0.00	1.75	1.95	0.00	1.95	2.20	0.00	2.20	3.51
	16	1.80	0.00	1.80	2.00	0.00	2.00	2.30	0.00	2.30	3.68
	17	1.85	0.00	1.85	2.05	0.00	2.05	2.35	0.00	2.35	3.87
	18	1.90	0.00	1.90	2.10	0.00	2.10	2.40	0.00	2.40	4.06
	19	1.95	0.00	1.95	2.15	0.00	2.15	2.45	0.00	2.45	4.26
20	2.00	0.00	2.00	2.25	0.00	2.25	2.55	0.00	2.55	4.48	

*\*Year 1 shall be the year of commissioning for RFC*

4. Levellised rate of Fixed Charges (RFC) for Solar PV and Solar Thermal Power Projects  
Commissioned on or after 01.04.2009

Particulars	Solar PV Projects			Solar Thermal Projects			
	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	
1. Levellised ((Entire Life)	17.70	1.65	16.05	12.95	1.15	11.80	
2. Levellised	1st 10 yrs	19.80	2.30	14.35	1.60	12.75	17.50
	Balance life	10.20	(0.20)	8.00	(0.15)	8.15	10.40
3. Annual Tariffs	Year						
	1	23.00	7.80	16.50	5.45	11.05	15.20
	2	22.10	7.80	15.85	5.50	10.35	14.30
	3	21.15	0.70	15.25	0.50	14.75	20.45
	4	20.20	-0.45	14.60	-0.35	14.95	20.65
	5	19.30	-0.60	14.00	-0.40	14.40	19.90
	6	18.35	-0.55	13.35	-0.40	13.75	18.90
	7	17.45	-0.50	12.75	-0.35	13.10	17.95
	8	16.50	-0.45	12.10	-0.30	12.40	16.95
	9	15.60	-0.40	11.50	-0.25	11.75	16.00
	10	14.70	-0.35	10.90	-0.25	11.15	15.05
	11	9.90	-0.50	7.55	-0.35	7.90	10.40
	12	9.95	-0.40	7.65	-0.30	7.95	10.35
	13	10.00	-0.35	7.70	-0.25	7.95	10.35
	14	10.10	-0.30	7.80	-0.20	8.00	10.40
	15	10.15	-0.25	7.90	-0.20	8.10	10.40
	16	10.20	-0.25	8.00	-0.15	8.15	10.45
	17	10.30	-0.20	8.10	-0.15	8.25	10.50
	18	10.35	-0.15	8.20	-0.10	8.30	10.50
	19	10.45	-0.05	8.30	-0.05	8.35	10.50
	20	10.55	0.00	8.40	0.00	8.40	10.55
	21	10.65	0.00	8.55	0.00	8.55	10.65
	22	10.75	0.00	8.70	0.00	8.70	10.75
	23	10.85	0.00	8.80	0.00	8.80	10.85
	24	10.95	0.00	8.95	0.00	8.95	10.95
25	11.05	0.00	9.10	0.00	9.10	11.05	

*\*Year 1 shall be the year of commissioning for generic tariffs*

**Annexure-1: Generic Tariffs**

**5. Levellised rate of Fixed Charges (RFC) for Wind Energy based Power Projects  
Commissioned on or after 01.04.2009**

Particulars	Zone1			Zone2			Zone3			Zone4			
	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	Gross Tariff	Less: Accelerated Depreciation	Net Tariff	
<b>1. Levellised ((Entire Life)</b>	5.15	0.40	4.75	4.35	0.35	4.00	3.65	0.30	3.35	3.20	0.30	2.90	
<b>2. Levellised</b>	1st 10 yrs	5.65	0.55	5.10	4.75	0.50	4.25	3.95	0.40	3.55	3.45	0.40	3.05
	Balance life	3.45	-	3.45	3.00	-	3.00	2.55	-	2.55	2.30	-	2.30
<b>3. Annual Tariffs</b>	Year												
	1	6.50	2.00	4.50	5.50	1.70	3.80	4.55	1.45	3.10	3.95	1.30	2.65
	2	6.20	2.15	4.05	5.25	1.85	3.40	4.35	1.60	2.75	3.80	1.45	2.35
	3	5.95	0.10	5.85	5.05	0.10	4.95	4.15	0.10	4.05	3.65	0.10	3.55
	4	5.70	-0.20	5.90	4.80	-0.20	5.00	4.00	-0.15	4.15	3.45	-0.15	3.60
	5	5.45	-0.25	5.70	4.60	-0.20	4.80	3.80	-0.15	3.95	3.30	-0.15	3.45
	6	5.20	-0.20	5.40	4.40	-0.20	4.60	3.60	-0.15	3.75	3.15	-0.15	3.30
	7	4.95	-0.20	5.15	4.15	-0.15	4.30	3.40	-0.15	3.55	3.00	-0.10	3.10
	8	4.70	-0.15	4.85	3.95	-0.15	4.10	3.30	-0.10	3.40	2.95	-0.10	3.05
	9	4.50	-0.15	4.65	3.85	-0.10	3.95	3.30	-0.10	3.40	2.95	-0.10	3.05
	10	4.45	-0.10	4.55	3.90	-0.10	4.00	3.30	-0.10	3.40	2.95	-0.10	3.05
	11	3.25	-0.05	3.30	2.80	-0.05	2.85	2.40	0.00	2.40	2.15	0.00	2.15
	12	3.30	-0.05	3.35	2.85	-0.05	2.90	2.45	0.00	2.45	2.20	0.00	2.20
	13	3.30	-0.05	3.35	2.90	0.00	2.90	2.45	0.00	2.45	2.20	0.00	2.20
	14	3.35	0.00	3.35	2.95	0.00	2.95	2.50	0.00	2.50	2.25	0.00	2.25
	15	3.40	0.00	3.40	2.95	0.00	2.95	2.55	0.00	2.55	2.30	0.00	2.30
	16	3.45	0.00	3.45	3.00	0.00	3.00	2.55	0.00	2.55	2.30	0.00	2.30
	17	3.50	0.00	3.50	3.05	0.00	3.05	2.60	0.00	2.60	2.35	0.00	2.35
	18	3.55	0.00	3.55	3.10	0.00	3.10	2.65	0.00	2.65	2.40	0.00	2.40
	19	3.65	0.00	3.65	3.15	0.00	3.15	2.70	0.00	2.70	2.40	0.00	2.40
	20	3.70	0.00	3.70	3.20	0.00	3.20	2.75	0.00	2.75	2.45	0.00	2.45
	21	3.75	0.00	3.75	3.25	0.00	3.25	2.80	0.00	2.80	2.50	0.00	2.50
	22	3.80	0.00	3.80	3.30	0.00	3.30	2.85	0.00	2.85	2.55	0.00	2.55
	23	3.90	0.00	3.90	3.40	0.00	3.40	2.90	0.00	2.90	2.60	0.00	2.60
	24	3.95	0.00	3.95	3.45	0.00	3.45	2.95	0.00	2.95	2.65	0.00	2.65
25	4.05	0.00	4.05	3.50	0.00	3.50	3.00	0.00	3.00	2.70	0.00	2.70	

*\*Year 1 shall be the year of commissioning for generic tariffs*



**Form-1.1: Form Template for (Wind Power or Small Hydro Project or Solar PV/Thermal)**

Sl. No.	Assumption Head	Sub-Head	Sub-Head(2)	Unit	Values
1	Power Generation	Capacity	Installed Power Generation Capacity Capacity utilization Factor Commercial Operation date Useful Life	MW % MM/YYYY Years	
2	Project Cost	Capital Cost/MW	Normative Capital Cost Capital Cost Capital subsidy, if any Net Capital Cost	Rs. Lakh/MW Rs. Lakh Rs. Lakh Rs. Lakh	
3	Financial Assumptions	<u>Debt: Equity</u>  <u>Debt Component</u>  <u>Equity Component</u>  <u>Deprecation</u>  Incentives	Tariff Period  Debt Equity Total Debt Amount Total Equity Amount  Loan Amount Moratorium Period Repayment Period (incl'd Moratorium) Interest Rate  Equity Amount Return on Equity for first 10 years Return on equity 11 <sup>th</sup> Year onwards Discount rate  Depreciation Rate for first 12 years Depreciation Rate 13 years onwards Generation based incentives, if any Period for GBI	Years  % % Rs. Lakh Rs. Lakh  Rs. Lakh Years Years %  Rs. Lakh % p.a. % p.a. %  % % RS L.p.a. years	
4	Operation & Maintenance	Normative O&M Expenses O&M Expenses per annum Escalation factor for O&M expenses		Rs. Lakh/MW Rs. Lakh %	
5	Working Capital	O&M expenses Maintenance Spare Receivables Interest on working capital	% of O&M expenses)	Months % Months % p.a.	

**Form - 2.1: Form Template for (Biomass Power or Non-fossil fuel based Cogen): Parameter Assumptions**

Sl.No.	Assumption Head	Sub-Head	Sub-Head (2)	Unit	Values
1	Power Generation	Capacity	Installed Power Generation Capacity Auxiliary Consumption factor PLF (during stabilization upto 6 months) PLF (during 1 <sup>st</sup> year after stabilization) PLF (2 <sup>nd</sup> yr onwards) Commercial Operation Date Useful Life	MW % % % % mm/yyyy Years	
2	Project Cost	Capital Cost/MW	Normative Capital Cost Capital Cost Capital subsidy, if any Net Capital Cost	Rs. Lakh/MW Rs. Lakh Rs. Lakh Rs. Lakh	
3	Financial Assumptions	<u>Debt: Equity</u>  <u>Debt Component</u>  <u>Equity Component</u>  <u>Depreciation</u>  incentives	Tariff Period  Debt Equity Total Debt Amount Total Equity Amount  Loan Amount Moratorium Period Repayment Period (incld Moratorium) Interest Rate  Equity Amount Return on Equity for first 10 years Return on Equity 11 <sup>th</sup> year onwards Discount Rate  Depreciation Rate for first 12 years Depreciation Rate 13 years onwards Generation Based incentives, if any Period for GBI	Years  % % Rs. Lakh Rs. Lakh  Rs. Lakh Year Year %  Rs. Lakh % p.a. % p.a. %  % % Rs. L p.a. years	
4	Operation & Maintenance	Normative O&M expense O&M expense per annum Escalation factor for O&M expense		Rs. Lakh/MW Rs. Lakh %	
5	Working Capital	O&M expense Maintenance Spare Receivables Biomass stock Interest on working capital	(% of O&M expenses)	Months % Months Months % p.a.	
6	Fuel related assumptions	Station Heat Rate  Fuel types & mix	During stabilization Post stabilization  Biomass fuel type-1 Biomass fuel type-2 Fossil fuel (coal) GCV of Biomass fuel type-1 GCV of Biomass fuel type-2 GCV of fossil fuel (coal) Biomass Price (fuel type-1):yr-1 Biomass Price (fuel type-2):yr-1 Fossil fuel price (coal) : yr-1 Fuel price escalation factor	Kcal/kWh Kcal/kWh  % % % kCal/kg kCal/kg kCal/kg Rs./MT Rs./MT Rs./MT % p.a.	

**Form 1.2 Form Template for (Wind Power or Small Hydro Project or Solar PV/Solar thermal): Determination of Tariff Components**

		Year																																				
Unit Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Installed Capacity	MW																																					
Net Generation	MU																																					

		Year																																				
Unit Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
O&M Expenses	Rs. Lakh																																					
Deprecation	Rs. Lakh																																					
Interest on term loan	Rs. Lakh																																					
Interest on working Capital	Rs. Lakh																																					
Return on Equity	Rs. Lakh																																					
<b>Total Fixed Cost</b>	<b>Rs. Lakh</b>																																					

		Year																																				
Per Unit Tariff Components	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
PU O&M Expenses	Rs./kWh																																					
PU Deprecation	Rs./kWh																																					
PU Interest on term loan	Rs./kWh																																					
PU Interest on working Capital	Rs./kWh																																					
PU Return on Equity	Rs./kWh																																					
<b>Total Fixed PU Components</b>	<b>Rs./kWh</b>																																					

		Year																																				
Levellised Tariff	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
Discount Factor																																						
Discount Tariff Components	Rs./kWh																																					
<b>Levellised Tariff</b>	<b>Rs./kWh</b>																																					

**Form 2.2 Form Template for (Biomass Power or Non-fossil based Cogen): Determination of Tariff Components**

		Year																																					
Unit Generation	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
Installed Capacity	MW																																						
Net Generation	MU																																						

		Year																																					
Tariff Components (Fixed charge)	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
O&M Expenses	Rs. Lakh																																						
Deprecation	Rs. Lakh																																						
Interest on term loan	Rs. Lakh																																						
Interest on working Capital	Rs. Lakh																																						
Return on Equity	Rs. Lakh																																						
<b>Total Fixed Cost</b>	<b>Rs. Lakh</b>																																						

		Year																																					
Tariff Components (Variable charge)	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
Biomass fuel type-1	Rs. Lakh																																						
Biomass fuel type-2	Rs. Lakh																																						
Fossil fuel (coal)	Rs. Lakh																																						
<b>Sub-total (Fuel Costs)</b>	<b>Rs. Lakh</b>																																						
Fuel cost allocable to power	%																																						
<b>Total Fuel Cost</b>	<b>Rs. Lakh</b>																																						

		Year																																					
Per Unit Tariff (Components)	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
PU & O&M Expenses	Rs./kWh																																						
PU Depreciation	Rs./kWh																																						
PU Interest on term loan	Rs./kWh																																						
PU Interest on working Capital	Rs./kWh																																						
PU Return on Equity	Rs./kWh																																						
<b>PU Total Fixed Components (Fixed)</b>	<b>Rs./kWh</b>																																						
<b>PU Total Fixed Components (Variable)</b>	<b>Rs./kWh</b>																																						
<b>PU Total Fixed Components (Total)</b>	<b>Rs./kWh</b>																																						

		Year																																					
Levellers Tariff	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			
Discount Factors	Rs./kWh																																						
Discount Tariff Components (fixed)	Rs./kWh																																						
Discount Tariff Components (variable)	Rs./kWh																																						
Discount Tariff Components (total)	Rs./kWh																																						
<b>Levellers Tariff (fixed)</b>	<b>Rs./kWh</b>																																						
<b>Levellers Tariff (variable)</b>	<b>Rs./kWh</b>																																						
<b>Levellers Tariff (total)</b>	<b>Rs./kWh</b>																																						