

# UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

‘Vidyut Niyamak Bhawan’, Near I.S.B.T., P.O.-Majra, Dehradun-248171

## Coram

Shri Subhash Kumar Chairman

## UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2018

### Statement of Reasons

In exercise of the powers conferred under Section 181(2) (zd) & (zp) of Electricity Act, 2003 (the Act) the Commission had issued draft 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, 2018 for the Control Period from FY 2018-19 to FY 2022-23.

The Uttarakhand Electricity Regulatory Commission had previously notified the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2013 (hereinafter referred to as “previous Regulations” or “RE Regulations, 2013”). The RE Regulations, 2013 governed all the matters relating to determination of generic tariff and project specific tariff for the renewable energy based generating stations. These regulations had a control period of five financial years from the date of notification of same. The Commission issued the draft RE Regulations for the ensuing control period inviting comments/objections/suggestions on the same from the stakeholders. Last date of submission of comments/objections/suggestions was 21.05.2018. Comments/suggestions/objections received by the Commission have been duly analysed before considering them or rejecting the same.

The Commission also held a public hearing on 26.06.2018 to facilitate oral submission of the stakeholders and other interested persons. The comments/objections/suggestions of the stakeholders have also been considered. List of stakeholders who submitted comments on draft notification is placed at **Annexure-I**. List of participants who attended the hearing is also enclosed at **Annexure-II**.

The Statement of objects and Reasons is being issued with the intent of explaining the

rationale which went into finalisation of UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2018 (hereinafter referred to as “RE Regulations, 2018”). However, in case of any deviation/discrepancy in the SOR with respect to RE Regulations, 2018 the provisions of RE Regulations, 2018 shall be applicable. The comments/suggestions/objections received from the stakeholders and public and the views of the Commission on the same are discussed in subsequent paragraphs.

Suggestions and objections of stakeholders and the Commission’s views thereon are discussed hereunder:

### **1.1 Sub-regulation (3) of Regulation 1, i.e. Short title and commencement.**

The Commission had proposed the following in the draft Regulations:

*“Those RE plants commissioned prior to April 01, 2018, shall be governed by earlier regulations applicable as on date of commissioning of the respective RE plant.”*

#### **Stakeholders Comments/Suggestions**

- 1.1.1 M/s Tata Power Trading Company Ltd. submitted that Small Hydro Plants (SHP) outside Uttarakhand should also be considered in the scope of these Regulations.

#### **Commission’s View**

- 1.1.2 The Commission is of the view that Projects located outside the State of Uttarakhand do not come under the purview of this Commission until such renewable energy based generating plants/developers execute PPA with the State distribution licensee. Accordingly, applicability of the Regulations shall depend on the execution of PPA. Therefore, in this regard no change is required.

As already specified in Regulation 2(1), these regulations shall be applicable where supply of electricity is made from RE sources to the distribution licensees for the life of the project. Further, as already specified in the second proviso of Regulation 2(1), Regulations in Chapter 4 and 5 except clause (B) & (C) of sub-Regulation (1) of Regulation 26 of these Regulations as dealt in para 1.2 shall not be applicable for the generating stations commissioned prior to coming into effect of these Regulations. Accordingly, all other Chapters would equally apply to all the RE based generating stations. However, as mentioned in sub-Regulation (2) of Regulation 1 of these Regulations, these Regulations shall come into force with effect from the date of

notification. Hence, RE plants commissioned prior to the date of notification of these Regulations shall be governed by the tariffs specified/determined under the earlier regulations applicable as on date of commissioning of the respective RE plant. The Commission observed that the aforesaid sub-regulation deals with the applicability of these regulations, accordingly, the Commission has made necessary modification in Regulation 2, i.e. "Scope and extent of application" of these Regulations based on the above discussions.

## **1.2 Second Proviso to sub-regulation (1) of Regulation 2, i.e. Scope and extent of application.**

The Commission had proposed the following in the draft Regulations:

*"Provided further that Regulations in Chapter 4 & 5 shall not be applicable for generating stations commissioned prior to coming into effect of these Regulations and their present tariffs shall continue to be applicable. However, provision of normative levelised tariff of 12 paise/unit, over and above the generic tariff, for solar thermal/PV generating stations as specified in Regulation 15(1)(c) shall also be applicable to such stations commissioned prior to coming into effect of these Regulations. Provisions other than those in Chapter 4 and 5 shall apply 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."*

### **Stakeholders Comments/Suggestions**

- 1.2.1 UJVN Ltd. submitted that Water discharge availability is the main factor in Small hydro power projects and any change in water discharge availability and change in law may substantially affect the power generation (CUF) of the project. Moreover, in the absence of adequate and/or reliable power evacuation system of distribution licensee/transmission licensee, the operational plant may not be able to export/generate at rated capacity, and, thus, the CUF shall be affected. To mitigate such losses in SHP's, UJVN Ltd. has proposed that a provision may be incorporated in the regulations regarding revision of CUF (generation) of the project. CUF has been dealt in Chapter 4 & 5 of these Regulations, therefore, the said provision 2(1) may be amended as below in the draft RE Regulations 2018:

*"Provided further that Regulation in Chapter 4 & 5 shall not be applicable for generating stations commissioned prior to coming into effect of these Regulations and their present tariffs*

*shall continue to be applicable except the Regulation 10(3)(a) for CUF(generation) of these regulation. However...*

### **Commission's Views**

- 1.2.2 The Commission does not find it prudent to amend the CUF for the plants which have been already commissioned and the tariff has been determined and fixed as per applicable norms. The Commission has considered CUF of 40% for generic tariff and in case of project specific levelized tariff, the Commission considers the CUF envisaged in DPR or 45% whichever is higher. The developers should try to meet the necessary discharge within the provided CUF which is already lower than the other states. Moreover, changing CUF frequently, based on the force majeure will defeat the purpose of determination of levelised tariff to be recovered during the life of the project. Developers should endeavor to recover entire cost based on the CUF specified by the Commission and DPR, as the case may be. Further, the Commission is trying to address the evacuation issues by constantly monitoring the system strengthening work being carried out by the licensees. Moreover, provision of deemed generation has been incorporated in the Regulations which takes care of the bottleneck in evacuation hampering the generation of the projects. Accordingly, the Commission finds no reason to accept the comment of UJVN Ltd. with regard to CUF.
- 1.2.3 Further, the Commission has amended the 2<sup>nd</sup> and 3<sup>rd</sup> proviso of Regulation 14(7) specifically allowing additional capitalization which becomes necessary for restoration only on account of damages caused by natural calamities and clause (B) of Regulation 26 has been amended and a new clause (C) has been inserted in Regulation 26 dealing with the incentive to be allowed for generation beyond applicable CUF for project specific tariff approved by the Commission and incentive on additional capitalisation allowed for restoration works respectively so as to remove any ambiguity in the matter. The Commission has also inserted the clause of Renovation, Modernization and up-gradation under sub-Regulation (3) of Regulation 10 of these Regulations. These provisions shall be applicable to all the RE based Generating Stations and Co-generating stations irrespective of date of commissioning of such plants. Accordingly, based on the aforesaid discussion, final Second Proviso to Sub-regulation (1) of Regulation 2 shall be as follows:

*“Provided further that Regulations in Chapter 4 & 5 (except clause (B) & (C) of sub-Regulation*

(1) of Regulation 26) of these Regulations shall not be applicable for generating stations commissioned prior to coming into effect of these Regulations and their existing tariffs shall continue to be applicable;

Provided also that clause (d) of sub-Regulation (3) of Regulation 10, 2nd & 3rd proviso of sub-Regulation 7 of Regulation 14 shall be applicable to such stations commissioned prior to coming into effect of these Regulations;

Provided that the tariff computation norms shall be in accordance with the Regulations prevalent during the year of commissioning of those stations;

Provided also that normative levelised tariff of 12 paise/unit, over and above the generic tariff, for solar thermal/PV generating stations as specified in Regulation 15(1)(c) shall also be applicable to such stations commissioned prior to coming into effect of these Regulations;

Provided also that the Regulations other than those in Chapter 4 and 5 shall apply 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."

### **1.3 Sub-regulation (2) of Regulation 2, i.e. Scope and extent of application.**

The Commission had proposed as follows in the draft Regulations:

*"The existing projects, which are at present supplying power to third party shall have the option to switch over to supply to the distribution licensee or the local rural grid at generic tariffs as was applicable at the time of commissioning of their project or seek determination of project specific tariff from the Commission. The option shall be for the balance life of the project and shall not be allowed to be changed once it is exercised."*

#### **Stakeholders Comments/Suggestions**

- 1.3.1 UPCL submitted that switch over option given to the existing project, supplying power to third party, should not be unilateral rather the same should only be allowed after mutual consent of the supplier and the Distribution licensee. Further, the choice regarding project specific tariff should not be allowed as the expenses/receivables on various accounts will not be transparently available, atleast not before the mutual consensus between the supplier and the receiver.

#### **Commission's View**

- 1.3.2 It is to be noted that it would be beneficial for the State if any of the renewable energy

based generating company is willing to sale power within the State instead of supplying power outside the state using the natural resources available with the State. Further, tariff for such generation station shall be generic tariff as applicable on the date of commercial operation of the plant or the project specific tariff which will be determined by the Commission after prudence analysis of the capital cost and other technical parameters. Moreover, the Act, National Electricity Policy and the Tariff Policy emphasizes on promoting development of renewable and non-conventional sources of energy. Further, with regard to project specific tariff, Hon'ble APTEL vide its Judgment in Appeal no. 50 & 65 of 2008 and IA. 98 & 143 of 2008 has specifically mentioned that the generator will have an option to approach the Commission for project specific tariff or to adopt generic tariff determined by the Commission from time to time. Furthermore, with regard to UPCL's apprehension that the option to switch over given to the existing project, supplying power to third party, should not be unilateral and the same should only be allowed after mutual consent of the supplier and the Distribution licensee, the Commission would like to point out tariff determination under Section 62 of the Electricity Act, 2003 is only carried out for the generator if it has a PPA with the distribution licensee or the beneficiaries are identified. Regulation 2(1) of the draft RE Regulations, 2018 also specifies that the Regulations shall apply where supply of energy is being made from RE based generating stations to the distribution licensees or the beneficiaries are identified. Hence, the supply to the discom in the State will have to be established by the generator. However, as discussed under Para 1.10.2 of this SOR, necessary modifications are required in the aforesaid sub-regulations. According, final sub-regulations shall be read as follows:

*"The existing projects, which are at present supply power to third party shall have the option to switch over to the distribution licensee subject to provisions of Regulations 7 of these Regulations or the local rural grid, at generic tariffs as was applicable at the time of commissioning of their project or seek determination of project specific tariff from the Commission. The option shall be for the balance life of the project and shall not be allowed to be changed once it is exercised."*

#### **1.4 Clause (e) of sub-regulation (1) of Regulation 3, i.e. definition of "Biomass".**

The Commission had proposed as follows in the draft Regulations:

*"Biomass" means waste 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."*

### **Stakeholders Comments/Suggestions**

- 1.4.1 UREDA submitted that pine litter and lantana are the major source of the forestry waste which should also be included in the example for forestry operations apart from straws and stalks.

### **Commission's View**

- 1.4.2 During FY 2017-18, four numbers of pine needle based projects have been commissioned. Further, during the hearing in the matter of approval of PPA for supply of power from pine needle based power plant of M/s Avani Bio energy (P) Ltd., the developer informed the Commission that more than 60 such plants are proposed to be installed in near future and accordingly, the Commission had approved a Model PPA for such plants. Further, the State Government has also issued a Policy for power generation from Pirul (Pine leaves) and Other Biomass-2018. Hence, taking cognizance of the above facts, the Commission is of the view to insert pine needle and lantana in the illustration for forestry operation. Accordingly, revised definition will be as follows:

*““Biomass” means wastes produced during agricultural and forestry operations (for example straws, stalks, pine needle and lantana) 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.”*

### **1.5 Clause (n) and (ii) of sub-regulation (1) of Regulation 3 i.e. Definition of “Date of commercial operation” and “Performance Ratio”**

The Commission had proposed the following in the draft Regulations:

*“Date of commercial operation or Commissioning (CoD)” 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.

Provided further that in case of Solar PV plant, date of commercial operation or Commissioning (CoD) shall be considered as the date of first injection of power into the licensee's grid after completion of project in all respect subsequent to compliance of all the following pre-requisites:

- (a) Installation of energy meter as certified by the concerned Executive Engineer of the distribution licensee.
- (b) Project completion report as verified by UREDA, the State nodal agency.
- (c) Issuance of Clearance Certificate by the Electrical Inspector.
- (d) Further, such generator has to demonstrate minimum 75% Performance Ratio based on the rated installed capacity in kW or MW at the time of inspection for initial commissioning.

**"Performance Ratio"** (PR) means the ratio of plant output versus installed plant capacity at any instance with respect to the radiation measured.

$$PR = \frac{\text{Measure output in kW}}{\text{Installed Plant capacity in kW}} \times \frac{1000 \text{ W/m}^2}{\text{Measured radiation intensity in W/m}^2}$$

### **Stakeholders Comments/Suggestions**

- 1.5.1 UPCL submitted that the criteria of first injection of power into the grid is given subject to the prerequisite that the generator shall have to demonstrate the minimum 75% performance ratio based on the rated installed capacity. In this regard, the definition of performance ratio requires measurement of radiation intensity of that particular date/time however the procedure of measurement of radiation, authenticity of measurement and on whom such responsibility lies is not defined and clear which may result into disputes with regard to CoD of the plant. In this regard, UPCL suggested that certain generation/output in terms of percentage against the total installed capacity may be fixed irrespective of radiation intensity for confirming the CoD of the plant.

### **Commission's View**

- 1.5.2 The Commission had issued Sixth Amendment to RE Regulations, 2013 wherein

keeping in view the disputes arising between the licensee and the generators in commissioning of solar projects, the Commission amended the definition of date of commercial operation or Commissioning (CoD) of Solar plants wherein commissioning was linked to performance ratio which was also considered by Solar Energy Corporation of India (SECI), GoI. Now UPCL is raising issues concerning absence of the procedure of measurement of radiation, authenticity of measurement and on whom such responsibility lies and suggested that certain generation/output in terms of percentage against the total installed capacity may be fixed irrespective of radiation intensity for confirming the CoD of the plant. In this regard, it is to be noted that generation of a solar plant is linked not only to the capacity of the project but also to the amount of radiation available. Further, the Regulation in this regard clearly specifies that the generator will have to demonstrate minimum 75% Performance Ratio based on the rated installed capacity in kW or MW at the time of inspection for initial commissioning. Hence, there is no ambiguity in this regard and accordingly, no change in the definition is being made.

#### **1.6 Clause (o) of sub-regulation (1) of Regulation 3, i.e. Definition of “Design Energy”**

The Commission had proposed the following in the draft Regulations:

*““Design Energy” means the quantum of energy which can be generated in a 90% dependable year with 95% installed capacity of the hydro generating station”*

#### **Stakeholders Comments/Suggestions**

- 1.6.1 UPCL submitted the criteria of 90% dependable year are not explained here which may cause confusion that whether the same is selected properly and transparently or not. It was observed in the past that certain generators had submitted their DPRs based upon certain assumptions and on such basis the projects were awarded to them but at the time of determination of tariff different considerations were requested in light of the prevailing regulations hence it is important that the Commission should ensure that the allotment of project and commitment thereupon by the successful allottee should be the basis for determination of receivables against the same. UPCL requested that the design energy should be determined by CEA and for the purpose of tariff the design energy determined by CEA or as given in the proposal on which the project is allotted, wherever is higher should be considered.

## Commission's View

1.6.2 It is to be noted that the DPR for the generation companies are approved by the Energy Department of GoUK. Moreover, approval of design Energy for SHPs does not come under the ambit of CEA. Planning of any HE Project is carried out based on 90 per cent dependability criteria. For determination of 90% dependable year, the total energy generation in all the years for which hydrological data is available (say N year) is arranged in descending order and the  $(N+1) \times 0.9$  th year would represent the 90 per cent dependable year. The 90 per cent dependable year is thus, termed as the year in which the annual generation has the probability of being equal to or exceeds 90 per cent of the time on annual basis during the expected period of operation of the scheme. However, the hydrological data for the same needs to be for a sufficient number of years, say atleast 20 years. Most of the biggest disadvantage with the SHPs is the insignificant amount of data. Normally an initial DPR is prepared with a data of about 3 to 4 years which is not reliable and during the span of construction as more and more data is available, the calculation of design energy is more accurate. The correct calculation of design energy is also essential as the recovery of AFC of the generator is linked to the same. Hence, the Commission considers the approved DPR for the purpose of design energy for tariff fixation.

### **1.7 Clause (s) of sub-regulation (1) of Regulation 3, i.e. definition of "Force Majeure Events"**

*"Force Majeure Event" 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 due diligence, that party is not able to prevent, including, without limiting the generality of the foregoing:*

- i. Acts of God like lightning, landslide, storm, action of the elements, earthquakes, flood, drought and natural disaster or exceptionally adverse weather conditions;*
- ii. Any act of public enemy, wars (declared or undeclared), blockades, embargo, insurrections, riots, revolution, sabotage, terrorist or military action, vandalism and civil disturbance;*
- iii. Unavoidable accident, fire, explosion, radioactive contamination and toxic dangerous chemical contamination;*
- iv. Any shutdown or interruption of the grid, which is required or directed by the State or Central Government or by the Commission or the State Load Despatch Centre; and any shut*

*down or interruption, which is required to avoid serious and immediate risks of a significant plant or equipment failure.”*

### **Stakeholders Comments/Suggestions**

- 1.7.1 UPCL requested that tree falling is the most common reason causing breakdown in evacuation system and the same is beyond the control of Licensee by any reason. The maintenance which is within the practical reach of the licensee is lopping chopping of tree branches adjacent to the line and accordingly, it would seem fair that falling of tree branches over the line may be considered as controllable factor but falling of tree over the line should be considered under Force Majeure Event.

### **Commission’s View**

- 1.7.2 In the hilly State like Uttarakhand, main reason of falling of trees is heavy rain which may be a normal phenomenon and there may be numerous instances where lines break due to falling of trees. Hence, such event cannot be construed as force majeure events. The evacuation system should be robust to withstand such normal weather and evacuation lines should be periodically/timely monitored, overhauled and approval for cutting down the precarious trees in the vicinity should be sought from the forest department well in time. Further, storm which is the main reason for falling of trees has already been included in the definition. Moreover, the definition of force majeure means 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 due diligence, that party is unable to prevent. Hence, no change is required in the Regulations.

### **1.8 Sub-regulation (2) of Regulation 4, i.e. “Eligibility Criteria for qualifying as Generating Station based on Non-Conventional/ Renewable Energy Source”**

The Commission had proposed the following in the draft Regulations:

*“(2) At present, generation from following sources and technologies shall qualify to be covered under these Regulations:*

*(a) Small hydro project– Generating Stations being developed in accordance with the prevalent policies of the State Government in this regard and using new plant and machinery with capacity lower than or equal to 25 MW, at single location.*

*(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, Canal bank & Canal top Solar PV, Solar Thermal and Grid interactive Roof Top and Small Solar PV 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, without use of fossil fuel;*
  - (e) Non-fossil fuel based Co-generating Stations - The project shall qualify to be termed as a non-fossil fuel based co-generation project, if it is using new plant and machinery and is in accordance with the definition and also meets the qualifying requirement outlined below:  
...  
...*
  - (f) Biomass Gasifier based Power Project – The project shall qualify to be termed as a biomass gasifier based power project, if it is using new plant and machinery and having a Grid connected system that uses 100% producer gas engine, coupled with gasifier technologies approved by MNRE.*
  - (g) Biogas based Power Project – The project shall qualify to be termed as a biogas based power project, if it is using new plant and machinery and having grid connected system that uses 100% Biogas fired engine, coupled with Biogas technology for co-digesting agriculture residues, manure and other bio waste as may be approved by MNRE.*
  - (h) Municipal solid waste based power projects – The project shall qualify to be termed as a Municipal solid waste based power project, if it is using new plant and machinery based on Rankine cycle technology and using Municipal solid waste as fuel sources.*
  - (i) Refuse derived fuel based power projects – The project shall qualify to be termed as a Refuse derived fuel based power project, if it is using new plant and machinery based on Rankine cycle technology and using Refuse derived fuel as fuel sources.*
- (3) Any new source or technology would qualify as ‘renewable energy’, only after the technology for the same has been approved by MNRE approval. Further, the Commission shall determine tariffs separately for each technology after the approval of the technology by MNRE.”*

### **Stakeholders Comments/Suggestions**

- 1.8.1 UREDA submitted that MNRE vide its Policy no. 238/78/2017-Wind dated 14/05/2018 has declared National Wind-Solar Hybrid Policy according to which wind

turbine generators and solar PV systems will be configured to operate at the same point of grid connection. The policy also envisages to sale power to the distribution company either at the tariff determined by the respective SERC or at tariff discovered through transparent bidding process. UREDA also submitted that it will make the proposal for the installation of small scale wind solar power plant once the tariff for the same would be determined by the Commission. UREDA also requested to consider the energy generated from renewable sources (accepted by MNRE) as renewable energy. The technology should be considered as renewable energy or conventional energy as MNRE has accepted all the scientifically proven technology as renewable energy.

### Commission's View

- 1.8.2 It is to be noted that MNRE has finalized the "National Wind-Solar Hybrid Policy". In case of commissioning of such hybrid plants, the tariffs as determined by the Commission for Solar power plants and wind power plants, shall be applied in proportion to the installed capacity of the hybrid wind solar power plant. Accordingly, the Commission has decided to incorporate the Wind Solar Hybrid system under Regulation 3, i.e. Definitions and under Regulation 4, i.e. Eligibility Criteria for qualifying as Generating Station based on Non-Conventional/Renewable energy Source. The Final Regulations shall be read as follows:

Clause (x) of sub-Regulation (1) of Regulation 3 shall be read as follows:

*“Hybrid Wind Solar Power Plant” means the hybrid plant where Solar photovoltaic (PV) array coupled with a wind turbine and configured to operate at the same point of grid connection”*

There shall be insertion of following clause after clause (i) of sub-Regulation (2) of Regulation 4:

*“(j) Hybrid Wind-Solar power Plant- The project shall qualify to be termed as a hybrid Wind-Solar power plant, if Solar photovoltaic (PV) array coupled with a wind turbine and configured to operate at the same point of grid connection.”*

- 1.8.3 Further, with regard to replacement of “technology approved by MNRE” with “energy generated from renewable sources accepted by MNRE”, it is to be noted that MNRE in its letter dated 18.09.2017 stated that energy recovered from biomass sources using any scientifically proven technology can be considered as renewable energy. Therefore, technology must be scientifically proven in this respect. Accordingly, taking

cognizance of MNRE letter, the Commission decides to amend the proposed sub-Regulation (3) of Regulation (4). The Final sub-Regulation shall be read as follows:

*“(3) Any new source or technology would qualify as ‘renewable energy’, only after such source/technology is based on scientifically proven technology approved by MNRE or any competent authorities under the central ministry. Further, the Commission shall determine tariffs separately for each technology after the approval of such scientifically proven technology by competent authority under the central ministry.”*

### **1.9 Sub-regulation (4) of Regulation 6, i.e. Obligations and Duties of Generating Station.**

The Commission had proposed as follows in the draft Regulations:

*“(4) The RE Based Generating Stations and Co-generating Stations shall establish, operate and maintain generating station and the associated substation. The dedicated transmission lines, if constructed by the generator, shall also be operated and maintained by it (without the requirement of a license). These shall be 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).”*

#### **Stakeholders Comments/Suggestions**

- 1.9.1 PTCUL submitted that the aforesaid Regulation provides that “...*The dedicated transmission lines, if constructed by the generator, ...*”. It is submitted that the construction of dedicated line up to the nearest substation of Distribution/Transmission Licensee should be in the scope of the Generator only. As per the Electricity Act, 2003, duty of construction of dedicated line is of the Generating Company. It is also to mention, because CTU was also facing this problem of Capital invested in their Projects may become NPA, Central Commission also made amendment in the CERC (Grant of Connectivity, Long-term Access and Medium-term

Open Access in inter-State Transmission and related matters Open Access in inter-State Transmission) Regulations, 2009 (the Sixth amendment).

### **Commission's View**

1.9.2 The Commission has gone through the submission of PTCUL in the matter. It is to be noted that PTCUL being Transmission licensee and State Transmission utility is bound to ensure development of an efficient, co-ordinated and economical system of intra-State transmission lines for smooth flow of electricity from a generating station to the load centres. It would be easier to construct a dedicated transmission line for a generating company having a sound financial position whereas it will be tough for a small RE based generating company to construct a dedicated transmission line. Therefore, the option should be available with the RE based generators whether to construct dedicated line on its own or not. Accordingly, the Commission does not find it prudent to put the entire responsibility of construction of the dedicated transmission line on the RE based generator. Moreover, sub-Regulation (4) of Regulation 6 of these Regulations emphasizes on the technical parameters to be followed for the construction of line. To remove the ambiguity, the Commission has decided to amend the final Regulation which shall be read as follows:

*“(4) The RE Based Generating Stations and Co-generating Stations shall establish, operate and maintain generating station, the associated substation and dedicated transmission lines, if it exercises the option to establish the line. These shall be 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).”*

### **1.10 Sub-regulation (1) & (2) of Regulation 7, i.e. Sale of Power**

The Commission had proposed as follows in the draft Regulations:

*“(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/person within the State or outside the State at mutually agreed rates (provided that such consumer has been allowed Open Access under Open Access Regulations)*

*(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.”*

### **Stakeholders Comments/Suggestions**

1.10.1 UPCL requested that transmission/wheeling charges along with losses shall be made mandatory even in case the transmission/distribution grid is not used for carrying the power but the same is required for the stability of the generating station. UPCL submitted that the aforesaid regulation does incorporate the above interpretation but the same is deliberated here so that no ambiguity would arise any time in future. The grid connectivity affects the stability of the grid and the faults level also increases, even if there is no power flow between them, which in turn affect the capacity of the associated sub-station of transmission/distribution utility. With regard to sub-regulation (2) of aforementioned regulation, UPCL submitted that entering in PPA cannot be mandatorily enforced upon the distribution licensee as the same is a commercial transactions depending upon various other considerations, UPCL should also have an opportunity to either consider or not to consider entering into PPA with the upcoming generating plant, on the basis of its requirement and other technical parameters.

### **Commission’s View**

1.10.2 With regard to the transmission/wheeling charges, if the generator uses the transmission/distribution system it will have to pay the transmission or wheeling charges in accordance with the provisions of the prevalent open access regulations and the same is dealt in Regulation 8 and hence, there appears no need to reiterate the same.

UPCL has submitted that it should have a liberty to enter into a PPA based on its requirements. The choice of entering into a PPA with a generator vests with the licensee keeping in view its requirement of power as also the commercial terms including the price. Accordingly, sub-Regulation (1) & (2) is modified to the extent as given below:

*“(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 provided that distribution licensee is willing to enter into a PPA or to local rural grids at the rates determined by the Commission or to any consumer/person within the State or outside the State at mutually agreed rates (provided that such consumer has been allowed Open Access under Open Access Regulations).*

*(2) The distribution licensee on an offer made by the said RE based Generating Stations and Co-generating Stations may enter into a power purchase agreement in conformity with these Regulations and relevant provisions of other Regulations and the Act. However, if the distribution licensee intends to purchase power from such generator it shall sign the PPA within two months of offer made by the generating company. Otherwise, if the distribution licensee is not willing to purchase power from such generator it shall intimate the same to the generating company within one month of offer made by it...”*

**1.11 Regulation 9, i.e. 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.**

In the draft Regulation, the Commission had proposed as follows:

*“(1) In line with the provisions of the Act, National Electricity Policy, 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.*

<b>Year</b>	<b>Renewable Purchase Obligation -Non-Solar</b>	<b>Renewable Purchase Obligation-Solar</b>
2018-19	10.25%	6.75%
2019-20	11.00%	7.00%
2020-21	11.75%	7.50%
2021-22	12.50%	8.00%
2022-23	13.00%	8.00%

*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.*

*Where, total energy purchased for different obligated entities shall be as under:*

- a. For Discoms, total energy purchased shall be energy input at State periphery during the year for own consumption; and*
- b. For Open Access consumers and Captive users, total energy purchased shall be metered consumption recorded at drawal/consumption point during the year for own consumption.*

*Provided further that Non-Solar & Solar RPO shall be applicable on total consumption of electricity by an obligated entity excluding consumption met from hydro sources of power.*

*Provided that if the RPO from solar is not met in a particular year, then in such cases, additional non-solar RE energy, over and above their RPO, shall be utilized for fulfillment of the solar RPO.*

*Provided that if energy from renewable and non-conventional sources of energy becomes available in the State, over and above the specified RPO, the generator or the distribution company of the State can approach the Commission for permitting procurement of such energy in excess of specified RPO.*

*(2) For the purpose of this RPO framework, for every obligated entity, own consumption would mean gross energy consumed or purchased by the obligated entity from all sources for its own use or 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."*

### **Stakeholders Comments/Suggestions**

1.11.1 UREDA submitted that the solar energy has been categorized separately from the non-solar RE energy in order to promote the solar energy and the same has been accepted under the National Tariff Policy. However, if solar RPO will be fulfilled by non-solar RE energy, the categorization of solar RPO from the non-solar RPO will not be of any importance. In the case of shortage of solar energy in the state, the obligated entities have options to procure solar REC from the energy exchanges to fulfill their solar RPO compliance.

1.11.2 UPCL submitted that aforesaid regulation provides the methodology to ascertain the RPO targets from the State consumption during the year whereas the actual electricity

consumption in the year, i.e. at the end of March of financial year can be calculated only after the receipt of bills of electricity supplied from generators and after finalization of Regional Energy Account. The bills are raised by the generators in the month following the consumption month and sometimes even after one month of consumption month. The receipt of bills of generation of electricity from generators and their onwards processing, recording and payment etc. take 45 to 60 days time period and because of this time lag the actual consumption of electricity and energy from RE sources in the month of March cannot be ascertained with 100% accuracy in the month of March itself. Therefore, it is difficult to precisely calculate quantum of RE power/REC required to be purchased for fulfilling RPO. UPCL suggested to allow a provision of 10% deviation in RPO met by DISCOM by the end of March against actual RPO targets wherein unfulfilled or over fulfilled RPO be considered as carried forward for next year automatically.

### **Commission's View**

- 1.11.3 The Commission in the draft Regulations had adopted the methodology adopted by various Commissions according to which the obligated entity was allowed to set-off unmet Solar RPO with the additional non-solar RE energy, over and above their RPO in a particular financial year with an intent of promoting renewable energy in the State. The Commission agrees with the comments of UREDA which states that the cross adjustment for fulfillment of unmet RPO may affect the development of solar power plants within the State as the obligated entities will try to set-off the unmet RPO of Solar with the excess non-solar RE energy and vice versa. In this regard the MoP, Govt. of India vide its letter dated 14.06.2018 has issued an order specifying the long term growth trajectory of RPO for Solar and Non-solar for a period of three years, i.e. from FY 2019-20 to FY 2021-22. Further, vide the said Order, MoP has also specified the condition wherein obligated entities shall be allowed to set-off the shortfall of Solar RPO, if any with the excess Non-solar RE energy purchased subject to achievement of minimum 85% Solar RPO and *vice versa*.
- 1.11.4 With regard to the comments of UPCL for allowing a provision of 10% deviation in RPO met by UPCL by the end of March against actual RPO targets wherein unfulfilled RPO be considered carried forward for next year is concerned, it is to be noted that there have been numerous Judgement of Hon'ble ATE and Hon'ble Supreme Court in

the matter clearly stipulating that compliance of RPO should be strictly ensured and no carry forward should be allowed. Moreover, MNRE vide its letter dated 10.10.2017 and 05.12.2017 sought the State Commission's to align the RPOs with national trajectory and further to ensure compliance of the same and has also requested the Commissions to use the penal provisions under the law in case of non-compliance of RPO provisions. Further, during the meeting dated 23.05.2018 of Hon'ble Minister of State (I/C) for Power and New & Renewable Energy with SERCs in the matter of Renewable energy, SERCs were requested to take measure to disallow any carry forward of yearly RPO targets. Further, allowing a provision of 10% to meet the deviation in RPO in subsequent month of a financial year will be akin to allowing carry forward of unmet RPO which will be against the Act/Regulations.

Further, it can also not be denied that the bills for supply of electricity are raised by the generator after the end of month and it would not be possible for the licensee to predict energy consumption for the last month of the financial year accurately. With regard to shortfall in RPO, Regulation 7 of UERC (Compliance of Renewable Purchase Obligation) Regulations, 2010 specifies as follows:

*"7. Effect of Default*

*7.1 If the Obligated Entity does not fulfill its commitment towards Renewable Purchase Obligation during any year as provided under UERC (Tariff and Other Terms of Supply of Electricity from Co-generation and Renewable Energy Sources) Regulations 2010, and also does not purchase adequate certificate for meeting the shortfalls, the Commission may direct the Obligated Entity to deposit into a separate RPO Fund such amount as the Commission may determine on the basis of the shortfall in units of RPO, Preferential Tariffs applicable in the State and forbearance price as decided by Central Commission:*

*Provided that the responsibility of intimating such shortfall within one month of close of that year shall be that of State Agency. Provided further that the fund so created shall be utilised only after approval of the Commission for purchase of certificates or as may be directed by the Commission:*

*..."*

It is observed from the aforesaid Regulation that in case of any shortfall in RPO, the Obligated Entity may be directed to deposit into a separate RPO Fund such amount as the Commission may determine on the basis of shortfall in the units of RPO and

such fund shall be utilised for purchase of the RECs or as directed by the Commission. Accordingly, the Commission is of the view that the distribution licensee shall estimate the RPO shortfall for both solar and non-solar for the month of March of the financial year based on the estimated consumption for the month of March and also the compliance made by it for both solar as well as non-solar RPO till February for a particular financial year. Based on such estimates for March, distribution licensee shall deposit the amount to be utilised for the purchase of RECs in the month of March in a separate RPO Fund in accordance with the aforesaid Regulation and intimate the Commission within seven days from the deposit of such amount into a separate RPO Fund which shall be utilised for meeting the shortfall in solar as well as non-solar RPO through purchase of RECs only. This is necessitated so that the distribution licensee is able to meet its RPO compliances for the financial year and does not land in a situation wherein due to incorrect estimates it purchases RECs more than what is warranted for which no benefit is available to it. However, it has to be ensured by the distribution licensee that all the RPO compliances till the end of February are met by it by way of purchase of RE power as well as RECs before the end of March of that financial year. Further, the Commission is of the view that the distribution licensee should finalise the energy accounts for a financial year by the end of subsequent month. Accordingly, the distribution licensee shall utilise the money lying in RPO Fund for the purchase of RECs only to meet its renewable purchase obligation by the end of May of the ensuing financial year. Further, in case any amount remains unutilised in the RPO Fund after purchasing the said RECs, such amount shall be utilised for the purchase of RECs for the subsequent year to meet its RPO.

**Illustration:**

Gross energy consumption excluding Hydro Energy		RPO Obligation	RPO cumulative upto the Month (1)	RE Purchase for the month (MUs)		Total RE Purchase for the Month	RE Cumulative Compliance upto the Month (2)	Short fall if any (1-2)
Month	MUs	MUs	MUs	Through Pref Tariff	Through REC	MUs	MUs	MUs
April	410.23	19.49	19.49	10.00	-	10.00	10.00	9.49
May	475.33	22.58	42.07	15.00		15.00	25.00	17.07
June	310.75	14.76	56.83	15.00	-	15.00	40.00	16.83
July	197.06	9.36	66.19	15.00	-	15.00	55.00	11.19
August	166.49	7.91	74.10	15.00	-	15.00	70.00	4.1
September	342.94	16.29	90.39	20.41	-	20.41	90.41	-0.02
October	422.15	20.05	110.44	23.00	-	23.00	113.41	-2.97
November	567.90	26.98	137.42	24.00	-	24.00	137.41	0.01
December	635.86	30.20	167.62	21.00	-	21.00	158.41	9.21
January	729.26	34.64	202.26	18.00	-	18.00	176.41	25.85
February	655.41	31.13	233.39	18.00	10.00	28.00	204.41	28.98
March	312.33	14.84	248.23	28.83	-	28.83	233.24	14.99
<b>Total</b>								<b>14.99</b>

The Distribution Licensee shall deposit an amount into the RPO fund equivalent to 15 MUs based on the forbearance price as decided by Central Commission in the month of March of the financial year. Subsequently, on the finalisation of the energy accounts, distribution licensee shall purchase the required RECs, latest by end of May of the ensuing financial year, to meet its renewable purchase obligation as specified by the Commission from time to time beyond which no carry forward shall be allowed and action may be taken against the distribution licensee in accordance with the Regulations for non-compliance.

Further, the Commission has observed that approximately 20 MW rooftop solar PV plants have been installed by Nodal Agency within the State of Uttarakhand under net metering arrangement. Further, where distribution licensee has provided grid connectivity under any Central/State Government Scheme to the rooftop solar power plant owner with or without executing the PPA based on the provisions of the schemes, the energy injected into the grid by such plants is being utilized by the distribution licensee to meet its renewable purchase obligation. Here, it is to be noted that with the installation of the solar power plants within the State by individual consumers, the overall power procurement by UPCL through conventional/non-conventional sources will reduce proportionately to such extent whereas in the absence of such rooftop power plants, distribution licensee would be required to procure renewable power from other generators to comply with the RPO Regulations, 2010.

Here, it is worth mentioning that the primary motive of the Renewable Purchase Obligation is to switch over the usage from conventional energy to the renewable/ green energy in State and with the installation of such plants the purpose of the renewable purchase obligation is met. Therefore, solar power generated from such rooftop based solar power plants can also be considered by the distribution licensee to comply with RPO Regulations, 2010. Accordingly, distribution licensee shall be eligible for utilization of the gross solar energy generated, as per gross meter reading, from the rooftop power plants installed by the non-obligated entities.

Accordingly, taking cognizance of the comments of UREDA and Ministry of Power's Order dated 14.06.2018, the Commission decides to amend the proposed draft Regulation. The final Regulation shall be read as follows:

*“(1) In line with the provisions of the Act, National Electricity Policy, 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.*

<b>Year</b>	<b>Renewable Purchase Obligation -Non-Solar</b>	<b>Renewable Purchase Obligation-Solar</b>
2018-19	10.25%	6.75%
2019-20	10.25%	7.25%
2020-21	10.25%	8.75%
2021-22	10.50%	10.50%
2022-23	11.00%	11.00%

*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.*

*Where, total energy purchased for different obligated entities shall be as under:*

- a. For Discoms, total energy purchased from all sources during the year for own consumption; and*
- b. For Open Access consumers and Captive users, total energy purchased shall be metered consumption recorded at drawl/consumption point during the year for own consumption.*

*Provided further that Non-Solar & Solar RPO shall be applicable on total energy*

*purchased/generated of electricity by an obligated entity excluding consumption met from hydro sources of power;*

*Provided that on achievement of Solar RPO compliance to the extent of 85% and above, remaining shortfall, if any, can be met by excess Non-Solar energy purchased beyond specified Non-Solar RPO for that particular year;*

*Provided further that on achievement of Non-Solar RPO compliance to the extent of 85% and above, remaining shortfall, if any, can be met by excess Solar energy purchased beyond specified Solar RPO for that particular year.*

*(2) For the purpose of this RPO framework, for every obligated entity, own consumption would mean gross energy consumed or purchased by the obligated entity from all sources for its own use or 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.*

*(3) Distribution licensee shall be eligible to utilize the gross Solar energy generated from the rooftop or small solar power plants of non-obligated entities for meeting its Solar RPO compliance based on the gross energy generated meter reading of such rooftop or small solar power plant."*

### **1.12 Sub-regulation (2) of Regulation 10, i.e. Tariff**

The Commission had proposed the following in the draft Regulations:

*"(2) The RE Based Generating Stations and Co-generating Stations, except those mentioned under second Proviso 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 of the project or commissioning of the first unit, in case of multiple units or one month after the date of issuance of these Regulations, whichever is later. This option once exercised shall not be allowed to be changed during the validity period of the PPA."*

#### **Stakeholders Comments/Suggestions**

1.12.1 UPCL submitted that this is one sided regulation which causes great injustice to the licensee and eventually to the consumers of the State. The generator initially enters into implementation agreement with the State Government and also into a PPA with the Licensee wherein the date for the scheduled commissioning (SCOD) of the generating

station is clearly mentioned and the delay in achieving the same may also entail imposition of penalty. There are no guiding factors as to the cost implications incurred after such SCOD infact the same is subject to the prudence check of the Commission and very small information is provided at the time of filing petition which is very scanty for the Commission because of which the generating stations mostly get the benefits of facts which are totally within their control and can be manipulated. UPCL also submitted that date of exercising option by the generating company should be SCOD as generator can conveniently delay the project as suited to their interest. The Distribution Licensee submitted that there are diverse circumstances which have impact upon the generating station and the time period for commissioning the same, however, there is no control of the utility over any of those factors and the same has been left totally at the discretion of the generator. Therefore, certain guidelines and effective measures be laid down so that the Commission and buyer of power are fully apprised of all the factors and circumstances effecting cost overrun, increment in actual cost, variation from the approved DPR and timely intimation together with necessary information in form of a bar chart for any delay beyond SCOD. The Distribution licensee has no control over the enhanced cost of purchase of power and conserving the cancellation of PPA may also have various legal complications.

UPCL also submitted that there are many generating stations which have made material deviations from the terms and conditions of the implementation agreement meaning thereby that the very basis on which the project is allotted are rendered nugatory which is definitely a malpractice and a fraud and should not be permitted. Therefore, the Commission should specify the criteria for exercising the prudence check and it should be emphasized.

### **Commission's View**

- 1.12.2 No generating company intentionally delays its project as it requires funds for repaying debt to the financial institutions in a time bound manner and default in making the payment may have legal implications on the generator. Further, prudence analysis is a very vast area and the Commission goes through each and every technical as well as financial aspect of the project while determining the project specific tariff. The Distribution licensee may insert a provision in the PPA so that it can be fully apprised from time to time of all the factors and circumstances effecting time & cost

overrun, increment in actual cost, variation from the approved DPR and timely intimation within the time limits included in the PPA of all such events/occurrence together with necessary information in the form of a bar chart for any delay beyond SCOD. Further, in case distribution licensee at any point of time feels that the generating company has violated the implementation agreement entered into with the State Government, it may approach the Government in this matter so that the State Government may take necessary action in this regard. With regard to the prudence check, the Commission considers the increase in costs arising mainly due to controllable and uncontrollable factors in light of the various judicial pronouncements. Therefore, no change is being made in the existing provision in this regard. Further, the Commission has observed that the aforesaid regulation is silent regarding applicability of tariff i.e. Generic Tariff or project specific tariff, in case the generating station fails to give its option with stipulated timeframe. Accordingly, to remove the ambiguity in the aforesaid sub-regulations, the same shall be read as follows:

*“(2) The RE Based Generating Stations and Co-generating Stations, except those mentioned under second Proviso 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 of the project or commissioning of the first unit, in case of multiple units. This option once exercised shall not be allowed to be changed during the validity period of the PPA.*

*Provided that the option of seeking projects specific tariff shall not be available to Grid interactive roof top and small solar PV plants, Solar PV Power Plants, Canal Top & Canal Bank based Solar PV Power Plants, Solar Thermal Plants, Wind Energy Power Plants and other RE based power projects having installed capacity upto 1 MW.*

*Provided that if generating company does not give its option to the distribution licensee within above stipulated time, generic tariff shall be applicable based on the date of commissioning of the project or commissioning of the first unit, in case of multiple units”*

### **1.13 Sub-regulation (3) of Regulation 10, i.e. Tariffs.**

The Commission had proposed as follows in the draft Regulations:

*“(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) *Other hybrid projects include renewable-renewable or renewable-conventional sources, for which renewable technology is approved by MNRE;*
- (c) *Projects having old plant and machinery or equipment;*
- (d) *Any other new renewable energy technologies approved by MNRE.*

*Provided that the Commission while determining the Project Specific Tariff shall be bound by the provisions of Chapter 4 & 5 of these Regulations for technologies specifies therein."*

### **Stakeholders Comments/Suggestions**

1.13.1 UJVN Ltd. submitted that water discharge availability is the main factor in Small hydro power projects and any change in water discharge availability may substantially affect the power generation (CUF) of the project. If there is any permanent change in availability of water to any operational project due to reason not in control of project developer, e.g. control of water discharge in hands of other departments of home state/other state(s) etc. Further, in case of any change in law in future which forces the SHP already in operation to release a certain percentage of discharge in the river may result in lower CUF (generation) due to less availability of water. To mitigate such losses of a SHP, it is proposed that a provision may kindly be incorporated in the regulations regarding revision of CUF (generation) of the project. This provision for revision of CUF (generation) should be made applicable for generating stations commissioned prior to coming in effect of proposed RE Regulations, 2018. Therefore it requested that the above regulation 10(3) (a) may be amended as below:

*"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;*

*However, the Commission may revisit CUF(generation) in light of sufficient documentary evidences/facts, if there is substantial change in actual generation vis-à-vis generation specified*

*in approved DPR, due to reasons beyond control of the Generating Company or due to change in law(s) for the projects whose tariff has already been determined.”*

1.13.2 M/s Melkhet Power (P) Ltd submitted that the ‘bound’ word should be replaced by ‘guided’ word. The word guided allows little flexibility to the Commission to deviate from the norms if it is satisfied about the existence of extenuating circumstances. However, the word bound does not allow any such flexibility which is against the spirit of project specific tariff. The word “bound” may be replaced with “guided” as it was existing in RE Regulations, 2013. The stakeholder also submitted that creating bar on additional capitalization does not provide flexibility. So such flexibility can be availed by the IPP unilaterally unless the Commission is satisfied about existence of circumstances needing additional capitalization.

### **Commission’s View**

1.13.3 The Commission has already given its views with regard to the comments of UJVN Ltd. in Para 1.2.2 above. Further, with regard to the comment of M/s Melkhet Power (P) Ltd. it is to be noted that provision of Power to Relax allows the Commission to vary any of the provisions of regulations on its own or on an application, however, the Commission agrees with the comment of the stakeholder that little flexibility should be available on which the Commission may take a view on case to case basis. The issue of additional capitalisation has been dealt in Para 1.17 of this SOR.

1.13.4 Further, the Commission has observed that there was no provision of Renovation, Modernisation and Up-gradation (RMU) in the previous RE Regulations and in the Draft Regulation. Further, some of the Small Hydro power plants in the State have or are about to outlive their economic lives and to enhance its economic life in public interest, RMU is required. RMU of old hydro power stations is not only beneficial in enhancing the capacity of the plant but also helps in the life extension of the plant by another 25 -35 years depending on the degree of RMU. Renovation (or Rehabilitation or Refurbishment) aims at extending the life while Modernization aims at enhancing the performance and Up-gradation aims at increasing the station capacity. Accordingly, the Commission has decided to insert a clause under sub-Regulation (3) of Regulation 10 in this regard. The final Regulation shall be read as follows:

*“(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 subject to 1<sup>st</sup> Proviso of Regulation 10(2) above, 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) *Other hybrid projects include renewable–renewable or renewable–conventional sources, for which renewable technology is approved by MNRE;*
- (c) *Projects having old plant and machinery or equipment;*
- (d) *The RE generating company for meeting the expenditure on Renovation, Modernisation and Up-gradation (RMU) for the purpose of extension of life beyond the useful life of its RE based power plant shall make an application before the Commission for in-principle approval of the proposal alongwith a DPR giving complete scope, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion and other details as required by the Commission and the Commission while fixing their tariffs, shall be guided by the tariff norms specified in the Regulations based on actual capital cost subsequent to the completion of the RMU activities and such other factors considered relevant by the Commission;*
- (e) *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 Chapter 4 & 5 of these Regulations for technologies specifies therein."*

#### **1.14 Sub-regulation (1) of Regulation 11, i.e. Control Period or Review Period.**

The Commission had proposed as follows in the draft Regulations:

*"(1)The Control Period or Review Period under these Regulations shall be of five years, of which the first year shall be the financial year 2018-19.*

*Provided that the benchmark capital cost of Solar PV, Canal Bank & Canal Top Solar PV, Solar Thermal, Municipal Solid Waste based power projects, Refuse Derived Fuel based power projects and Grid interactive Roof Top and Small Solar PV 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)(zz)"*

### **Stakeholders Comments/Suggestions**

- 1.14.1 UREDA submitted that the annual revision of benchmark cost of the solar projects shall affect the electricity tariff fixed and allotted to the developers. Generally the RE developers get their project allotted after the revision of benchmark cost and subsequently determination of tariff for that particular year. The revision of benchmark cost by the Commission is being taken in the month of August or September. So only 5-6 months are left in the financial year in which the project at accepted tariff has been allotted to the selected RE developers. Any reduction in tariff due to revision of benchmark cost in next financial year will make the RE project not-viable as developers quote the best tariff after incorporating all the expenses and particulars. Therefore, the Commission is requested to either annually review the benchmark capital cost of RE project and, accordingly, determine the tariff of RE project by the month of April or allow the selected RE project not to get affected by the revision of benchmark cost till the gestation period of the RE project.
- 1.14.2 M/s Harshil Hydro Ltd. and Mr. Madhav K. Kejriwal submitted that during the Control period of 5 years, an annual escalation for inflation on the assumed benchmark Capital Costs for Levelised Generic Tariff for SHPs may be allowed.

### **Commission's View**

- 1.14.3 It is to be noted that in the past, the Commission had issued Draft Order on the review of the Benchmark Capital cost and levelised Generic Tariff for Solar based Power plants in the first quarter of the financial year for comments from the stakeholders and had expeditiously issued final Order on the same on receipt of comments and suggestions from all the stakeholders. The Commission could not issue Draft Order in the matter in the current financial year as there were no regulations which could be applied for the determination of benchmark capital cost and generic tariff. The Commission understands the concern of the Nodal Agency and the Commission will endeavor to issue the benchmark cost and levelised tariff to be applicable for the solar power plants in the first month of the financial year itself. Further, gestation period for development of the solar power plant is 6 to 8 months only from the date of procurement of equipment. The Commission has observed that the delay in commissioning of solar projects happens due to procedural delay at the end of UREDA primarily on account of delay in tendering & allotment and also these projects get

delayed at the end of UPCL due to delay in providing the connectivity by UPCL. The concerned organisations should expedite all the procedures related to installation and connectivity of solar power projects and planning should be done in such a manner so that the solar plant gets commissioned within a financial year.

1.14.4 Further, with regard to the comments of M/s Harshil Hydro Ltd. and Mr. Madhav K. Kejriwal regarding escalation for inflation on the assumed benchmark Capital Costs, the Commission is of the view that because of indexation, the generators would be inclined to delay the commissioning of their projects so as to take benefit of higher tariffs and therefore, provision of escalation of capital cost has not been incorporated. Moreover, the SHP generator has an option to opt for determination of project specific levelised tariff. Accordingly, proposal of escalation of capital cost is not acceptable. Hence, no change is being made in the regulation.

### **1.15 Sub-regulation (3) of Regulation 12, i.e. Tariff and PPA Period.**

The Commission had proposed as follows in the draft Regulations:

*“(3) PPA shall be required to be executed with distribution licensee for the entire Tariff Period.”*

#### **Stakeholders Comments/Suggestions**

1.15.1 M/s Harshil Hydro Ltd. and Mr. Madhav K. Kejriwal submitted that in the said regulation PPA for SHPs is allowed for a period of entire useful life of 35 Years, but SHP Generator should have an option to choose a PPA period of 13 years. The stakeholders also submitted that 5% annual inflation in rupee will cause serious erosion in real tariff rates and should be adequately compensated in the 35 year tariff rate.

#### **Commission’s View**

1.15.2 The Commission is of the view that the majority of the costs are recovered in initial 12 years by way of Depreciation and interest on loan. Therefore, it will be injustice with the consumers of the State to have a PPA only for the period where majority of the cost are recovered from the consumers and be deprived of the cheaper power in the latter years. The levelised tariffs are determined based on the fixed cost to be recovered from the consumers of the State for the entire useful life of the plant and accordingly, the benefit of the economic useful life of the plant should also be provided to the consumers of the State. Further, with regard to inflation in rupee rates, it is to be noted

that the future tariffs are derived considering suitable escalation in the O&M cost on year on year basis and then levelised tariff is determined by the Commission based on the time value of money. Hence, inflation will not have any impact on the real tariff. In view of the above discussion, no change is required in the said Regulation.

### **1.16 Sub-regulation (3) of Regulation 13, i.e. Petition and proceedings for determination of Project Specific Tariff**

The Commission had proposed as follows in the Draft Regulations:

*“(3)A petition for determination of project specific 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:”*

#### **Stakeholders Comments/Suggestions**

1.16.1 UPCL submitted that the Commission may consider mentioning the present Fee and Fine Regulation as the Regulation of 2002 is not in existence.

#### **Commission’s View**

1.16.2 UERC (Fee and Fines) Regulations, 2002 are Principal Regulations which have not been repealed so far by any new Regulations. The same are amended from time to time and the last amendment has been notified on 17.03.2018. Accordingly, no change is required in the said Regulation.

### **1.17 Sub-regulation (4) & (7) of Regulation 14, i.e. Tariff Structure.**

The Commission had proposed as follows in the draft Regulations:

*“(4)The generic tariff is 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 generic tariff for supply of electricity from the plant, having more than one unit commissioned during currency of different control period, shall be based on weighted average of the tariffs specified under different Regulations for the total capacity of the plant.*

*(7) xxx*

*xxx*

*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 above. However, additional capitalisation on this account will only be limited to the extent of damages which shall be duly substantiated by the claim lodged with the insurance company.”*

### **Stakeholders Comments/Suggestions**

- 1.17.1 M/s Himalaya Hydro (P) Ltd sought clarification stating that if subsequent unit is commissioned during the currency of a different control period, the generic tariff for the new unit be adjusted after taking into account the balance life of the plant. The stakeholder also submitted that the insurance company cannot be adjudicator of the actual extent of the damage and more importantly what is required to reinstate the plant after force majeure even from design, engineering and safety perspective. Insurance company will only consider the cost of restoration of a damaged structure within the narrow confines of the earlier structure/its original design. From a practical standpoint it is impossible to predict in advance the nature of damage caused by a natural calamity and it may very well be the case that that new structure are required to restore the function of the plant and ensure long term safety/operations and also from a design/engineering consideration. Example- after flood, river may change its course. The Regulation may be amended taking consideration of eventualities and if any new structures are required in the aftermath of a force majeure event it could be limited only to those structure that were damaged and in the immediate vicinity of damage.
- 1.17.2 M/s Melkhel Power (P) Ltd. submitted that it is generally seen that the effect of any disastrous event is not limited to the existing structure but goes much beyond. The foundations of the existing structures may be eroded though the structure is standing and for the sake of stability the structure has to be rebuilt and protection works needed. The insurance company shall not entertain such claims. There is loss of generation and repair cost can never be fully substituted by the insurance claim which takes many years for settlement. Further, no financial institutions are ready to finance SHPs. Things are much more difficult for SHPs as they don't have large financial backing. Therefore, it is requested that the provisional project specific tariff may be determined based on the project cost of the project after prudence check.
- 1.17.3 UPCL submitted that as per last proviso of the Regulation, the permission of the

additional capitalization has been linked to the extent of damages duly substantiated by the claim lodged with the insurance company. UPCL submitted that lodging of the claim is totally discretion of the generating company and has no relation with the actual extent of damages which can be linked with the final verified damage by the insurance. Therefore, it is proposed that in the third proviso in place of “claim lodged with the insurance company” it should provide “the damage finally verified and approved for claim by the insurance company”. UPCL also submitted that during the process of determination of tariff due to additional capitalization had resulted in various difficulties like, UPCL has no information regarding the extent of damage caused during natural calamity, the works proposed and its cost and various such other factors including the awarding of works to the contractors in a way which does not appear to be fair and just. UPCL felt helpless as there were no guiding principles in this regard and generators are taking undue advantages out of it.

### **Commission’s View**

1.17.4 With regard to tariff in case of commissioning of units in different control period is concerned, it is to be noted that in case of SHPs, the gap in the commissioning of the units is generally one to two years which will have very minute/ignorable impact on the levelised tariff computed on the basis of life of SHP, i.e. 35 years. However, it is clarified that if subsequent units are commissioned during the currency of a different control period, the generic tariff for the new unit will be adjusted after taking into account the balance life of the plant.

With regard to UPCL’s submissions that it had no information regarding the extent of damage caused during natural calamity, the works proposed and its cost and various other factors including the awarding of works to the contractors, it is unimaginable being a beneficiary how it wasn’t aware of the damages caused to a generating station due to natural calamity. It has its field officers in every part of the State and nobody stopped it from sending its officers to the project site to get the damage assessed. Regarding the information relating to the extent of damages and the works proposed to be carried out for restoration, it can always ask the generator to provide such information by suitably incorporating the relevant provisions in the PPA, if not already there. However, with reference to the awarding of works to the contractors it is the management’s decision and UPCL has no role in interfering with

the work of the management of the private company.

With reference to the UPCL's submissions regarding replacement of "claim lodged with the insurance company" by "the damage finally verified and approved for claim by the insurance company", the information on damages finally verified and approved would depend to the extent the insurance company is forthwith in sharing the information. Further, the insurance companies verifies the claim of the damaged equipment and while settling the same it may not allow the claim for various items as per its policy, like removal of debris etc. thereby limiting the claim against the damaged asset. Hence, it would not be appropriate to consider the damages finally verified and approved for claim by the insurance company. Further, with regard to proposed provision in the draft regulation that the additional capitalization on account of restoration work be restricted to the extent of damages which shall be duly substantiated by the claimed lodged with the insurance company, the Commission agrees with the comments of stakeholders in one way that it depends upon the discretion of the generator and on the other side repair cost cannot be substituted by the insurance claim on account of requirement of restoration works. Accordingly, the Commission decides to remove the provision of additional capitalization duly substantiated by the claim lodged with the insurance company from the last proviso of Regulation 14. However, a proper and diligent review of the damages as well as restoration works to be done by the generating company is very much required. The Commission is of the view that the generating company shall intimate the Commission and distribution licensee within one week from the occurrence of any such force majeure event/natural calamity etc. which leads to shut down of the plant due to damage.

1.17.5 Further, as far as the suggestion of M/s Melkhel Power (P) Ltd regarding determination of provisional project specific tariff based on the project cost of the project after prudence check is concerned, it is to be noted that sub-Regulation (2) of Regulation 13 of these Regulations allows the generator to 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 auditor.

Based on the above discussion, the Commission does not find prudent to amend sub-Regulation (4) of Regulation 14 of these Regulations. However, the Commission amends the last proviso of Regulation 14 which shall be as follows:

*“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 above. The generating company shall intimate the Commission and Distribution Licensee within seven days from the occurrence of any such force majeure event resulting into shut down of plant. The Commission may in such case direct the distribution licensee and state nodal agency to visit the damaged plant and assess the nature & type of damages and restoration works required in coordination with the generator/developer.”*

#### **1.18 Clause (a), (b) & (c) of sub-Regulation (1) of Regulation 15, i.e. Financial Principles-Capital Cost.**

The Commission had proposed as follows in the draft Regulations:

*“(a) The norms for the Capital Cost as specified in the subsequent technology specific provisions in Chapter 5 shall include the expenditure incurred or projected to be incurred, initial spares, interest during construction (IDC) and financing charges, incidental expenditure during construction (IEDC) any gain or loss on account of foreign exchange risk variation during construction on loans arrived in the manner specified in sub Regulation 2 below upto the date of commercial operation or commissioning of the project, as admitted by the Commission after prudence check. The capital cost shall also include the expenditure incurred or projected to be incurred towards the 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 of additional costs on account of IDC, Finance charges and IEDC due to delay in achieving the Schedule CoD, the generating company shall be required to furnish detailed justification with supporting documents for such delay including the details of IDC, Finance Charges and IEDC during the period of delay and liquidated damages recovered or recoverable corresponding to the delay:*

*Provided that if the delay is not attributable to the generating company and is due to uncontrollable factors, such expenditures may be allowed after due prudence check:*

*Provided further that where the delay is attributable to an agency or contractor or supplier engaged by the generating company, the liquidated damages recovered from such agency or*

*contractor or supplier shall be kept in view while computing the capital cost.*

*(c) In case, individual generating company 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. However, in case of a solar generating company a normative levelised tariff of 12 paise/unit over and above the generic tariff determined at the point of inter-connection shall be allowed.*

*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 3 MW, 11 kV S/C - Rs. 44 lakh*
- (ii) Above 3 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*

*Provided that in case of construction of common line for evacuation of power for more than one generator, aforesaid normative levelised tariff shall be apportioned among the users of the said line."*

### **Stakeholders Comments/Suggestions**

- 1.18.1 UPCL submitted that if guidelines are laid down, it would streamline the calculation of IDC as well as provide sufficient safeguard regarding the terms and conditions of the contract entered into between generating company and the contractor carrying out EPC work or the restoration work. Certain terms and conditions in EPC contract should be standardized so that unfair play and manipulations are avoided such as the provisions for imposing penalty upon the contractor, adjustment of compensation received by the generators, competitive and transparent bidding process, certain mandatory conditions such that both generator and the contractor feel bound to comply with the terms and conditions of the contract and also the legal and statutory obligation. With regard to normative capital cost for the construction of evacuation system, UPCL submitted that the slabs and the normative length of line should be reconsidered and normative cost of unit length should be provided. The normative cost should be made more effective and reasonable as the present slabs create a vast disparity and accordingly, has unjust impact upon the recovery of the cost on the basis of plant capacity or for every slab a limit of quantum of energy may be fixed upon

which the recovery through levelised tariff against the cost of construction of line may be permitted. With regard to recovery of cost of line, UPCL submitted that generator can recover the actual cost in a very short span of time and thereafter it becomes a source of income and proposed proviso appears to be ineffective as apportionment of levelised tariff would infact amount to the same effect as the line of that capacity constructed by the single generator, hence, again permitting faster and undue recovery of the cost and additional income. The line should be transferred to the licensee.

1.18.2 UREDA submitted that in the said clause it is not clear that upto what time duration the additional normative levelised tariff will be provided to the generators. The additional normative levelised tariff are taken different for RE generators (except solar) and solar generators whereas the cost of the construction of the evacuation infrastructure are same for all the RE projects. Hence, the Commission is requested to allow RE generating companies a normative levelised tariff over and above the generic tariff till the recovery of evacuation infrastructure cost for the construction of such evacuation infrastructure from point of inter-connection to the nearest sub-station of transmission or distribution licensee to which the generating station is connected. Further, all the RE based generators shall be allowed equal additional normative levelised tariff for the construction of evacuation system.

1.18.3 M/s Avani Bio Energy (P) Ltd. submitted that the actual cost of setting up evacuation infrastructure is Rs. 214745 in case of the 10 kW power plant set up in Simalta village which is proportionately much higher than Rs. 44 Lakh allowed for power plant of 1 MW. It requested the Commission to consider the higher costs to calculate the normative levelised tariff.

### **Commission's View**

1.18.4 All the expenditures are prudently examined by the Commission while approving the hard cost, IDC or IEDC. Further, generally all the construction contracts contain provisions regarding Liquidated Damages, Price Variation and Quantity Variation. Moreover, the contract executed between generator and EPC is a commercial operation, and the Commission does not find it prudent to provide any guidelines or terms and conditions for the same. Further, the Distribution licensee may insert a provision in the PPA regarding submission of progress report including Technical & Financial data and other information which it deems fit for monitoring work in

progress of the project and track delay in the commissioning of the project including time and cost overrun.

- 1.18.5 The Commission had fixed the cost for evacuation system based on the UERC (Release of New HT & EHT Connections, Enhancement and Reduction of Loads), Regulation 2008 as amended from time to time and the costs are presently in vogue. Accordingly, the Commission does not find prudent to change the cost of the same.
- 1.18.6 With regard to the comments of UREDA and UPCL regarding recovery of cost of evacuation infrastructure, it is to be noted that apart from capital cost, other expenditures like Operation and Maintenance, etc. are also required to be incurred to maintain such evacuation line/system and mere recovery of capital cost does not curtail the entitlement on the evacuation line infrastructure created by the developers. Based on the above and considering the useful life of the RE projects, the normative levelised tariff of 12 paise/unit and 5 paise/unit has been worked out for the evacuation line system for solar power plant and other RE power plants respectively. Further, with regard to the cost of evacuation line for the RE plants having capacity of 10 kW is concerned, ideally such capacity plants should be connected on the LT network of the distributor licensee with a supply at 0.415 kV which will not only be technically feasible but also be economically viable.
- 1.18.7 Further, the Commission has specified the minimum voltage at which a particular capacity of RE generating station needs to be connected in the Regulations. The evacuation line should be constructed according to the necessity/requirement of the generating station, in any case, it will not be allowed to recover more tariff than specified in the regulations for construction of evacuation infrastructure unless the generator has constructed a smaller line or a cheaper line. However, in such cases also first right is available with the licensee to purchase the line at the depreciated cost. Accordingly, based on above discussion, no change is required in the Regulation. The Commission would like to mention that the intent of the Regulation is to allow option to a single generating station to construct the evacuation line infrastructure from inter-connection point to nearest sub-station, however, during the last control period it has been noticed that a common evacuation line infrastructure was constructed and all the generating stations raised entitlement accordingly. To bring more clarity in the regulation regarding sharing of common evacuation line infrastructure, the

Commission decides to replace the existing Regulation in the Draft Regulations by the following:

*“(a) The norms for the Capital Cost as specified in the subsequent technology specific provisions in Chapter 5 shall include the expenditure incurred or projected to be incurred, initial spares, interest during construction (IDC) and financing charges, incidental expenditure during construction (IEDC), any gain or loss on account of foreign exchange risk variation during construction on loans arrived in the manner specified in sub-regulation (2) below upto the date of commercial operation or commissioning of the project, as admitted by the Commission after prudence check. The capital cost shall also include the expenditure incurred or projected to be incurred towards the switchyard etc. upto the point of interconnection (i.e. it does not include cost of dedicated line and associated equipment from point of interconnection upto the nearest sub-station of transmission or distribution licensee to which generating station is connected).*

*(b) In case of additional costs on account of IDC, Finance charges and IEDC due to delay in achieving the Schedule CoD, the generating company shall be required to furnish detailed justification with supporting documents for such delay including the details of IDC, Finance Charges and IEDC during the period of delay and liquidated damages recovered or recoverable corresponding to the delay:*

*Provided that if the delay is not attributable to the generating company and is due to uncontrollable factors, such expenditures may be allowed after due prudence check;*

*Provided further that where the delay is attributable to an agency or contractor or supplier engaged by the generating company, the liquidated damages recovered from such agency or contractor or supplier shall be kept in view while computing the capital cost.*

*(c) In case individual generating company opts to construct, at its own cost, 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. However, in case of a solar generating company a normative levelised tariff of 12 paise/unit over and above the generic tariff determined at the point of inter-connection shall be allowed.*

*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 3 MW, 11 kV S/C*

*- Rs. 44 lakh*

(ii) Above 3 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

*Provided that in case more than one generating stations construct, at its own cost, a common evacuation infrastructure including pooling switching station, in accordance with Regulation 41 of these Regulations, for evacuation of power of their generation, then the above normative levelised tariff shall be apportioned among all such generating stations on the basis of their installed capacity."*

### **1.19 Sub-regulation (3) of Regulation 15, i.e. Financial Principles.**

The Commission had proposed as follows in the draft Regulations:

*"(3) Subsidy available from MNRE, to the extent specified under Regulation 24, 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."*

#### **Stakeholders Comments/Suggestions**

1.19.1 UJVN Ltd. submitted that the subsidy available from MNRE is invested in creating assets and the interest paid by the developer is on actual debt, therefore, the interest on loan should be allowed to the developer on actual debt. Therefore, it submitted that the subsidy should be considered to have been utilized towards pre-payment of normative debt leaving balance loan and remaining actual equity to be considered for determination of tariff.

#### **Commission's View**

1.19.2 The Commission has analyzed the scenarios where the renewable energy based developers gets subsidy from MNRE. It has been observed that in some cases, MNRE directly transfers the amount of subsidy to the financial institution from where the funds have been arranged by the developer and in other cases, the subsidy is transferred into the account of developer subject to the fulfillment of certain pre-determined conditions. Where the subsidy is transferred to the account of developer, in such case the developer either may use the subsidy for the repayment of loan or the same may be used for construction works which eventually result in less funds requirement from financial institutions. Moreover, levelised tariffs are determined

based on the norms specified in the Regulations. Further, allowing interest on loan on actual basis and reducing subsidy from the normative debt will be inconsistent. As the tariff is determined based on the normative parameters, it will be irrelevant to reduce the subsidy from normative debt if interest on loan is to be allowed on actual basis.

#### **1.20 Sub-regulation (2), (3) & (4) of Regulation 16, i.e. Interest on loan capital.**

The Commission had proposed as follows in the draft Regulations:

*“(2) For the purpose of computation of generic tariff, the normative interest rate shall be considered as average State Bank of India (SBI) Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) prevalent during the last available six months plus 200 basis points.*

*For the purpose of computation of project specific tariff, interest rate shall be considered as lower of the actual interest payable to the financial institutions or the average State Bank of India (SBI) Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) prevalent during the last available six months plus 200 basis points.*

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

*While calculating project specific tariff, 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 or actual repayment made, whichever is higher.*

*(4) Normative period of loan repayment shall be taken as 12 years”.*

#### **Stakeholders Comments/Suggestions**

1.20.1 M/s Harshil Hydro Ltd. and Mr. Madhav K. Kejriwal submitted that the interest on loan for SHPs has been assumed as MCLR + 200 basis points, which is unrealistically low. SHPs in Uttarakhand are facing difficulty in repaying loans due to many extraneous factors and natural calamities and FIs are unlikely to offer Loans at less than MCLR plus 350 basis points. The Commission may confirm with SBI/IREDA for their present lending rate to SHPs in Uttarakhand.

1.20.2 M/s Himalaya Hydro (P) Ltd. and M/s Birahi Ganga Hydro Power Ltd. suggested to allow moratorium of 6 to 12 month as hydro plant require this much time to tackle the teething problems and stabilization in a manner that it can repay the loan.

Accordingly, they requested the Commission to consider repayment period of 13 years in place of 12 years. In certain projects, financial institutions fix repayment longer than 12 year. The same may be considered for the purpose for project specific tariffs so that actual AFC may be recovered.

1.20.3 UJVN Ltd. submitted that the normative interest rate allowed was based on SBI base rate + 300 basis point in previous regulations. In draft regulation interest rate are linked to MCLR+200 basis points which is very low in comparison to existing regulation considering the fact that at present the SBI MCLR is approximately 1% lower than SBI Base rate. The net impact due to insertion of this regulation will be that the interest will be lower by approximately 2%. This is likely to discourage developers to invest in SHPs.

#### **Commission's View**

1.20.4 The Commission has received suggestion from the developers to consider the repayment period of 13 years as in the initial phase of the project, 6 to 12 months are required to tackle the teething problems and stabilization in a manner that it can repay loan. Further, CERC vide its Explanatory Memorandum stated that the financial institutions like PFC, IREDA, REC; extend the loans to RE project developers for 10-15 years and accordingly has specified the normative period for repayment of loan as 13 years. Taking cognizance of the submission made by developers and CERC regulations, the Commission decides to increase the normative period for repayment of loan to 13 years from 12 years.

1.20.5 Some of the Stakeholders submitted that proposed interest rate is very low in comparison to previous regulation considering the fact that at present the SBI MCLR is approximately 1% lower than SBI Base rate. Net impact due to this regulation will be that the interest will be lower by approximately 2%. Further, SHPs in Uttarakhand are facing difficulty in repaying loans due to many extraneous factors and natural calamities and FIs are unlikely to offer Loans at less than MCLR plus 350 basis points. With effect from 01.04.2016, SBI replaced the Base Rate regime with the new regime of Marginal Cost of Funds based Lending Rate (MCLR) which are pegged on loan tenor basis and are updated on monthly basis. Initially there was a decreasing trend in the interest rates based on changes in monetary policy announcement by the Reserve Bank of India, however, it has been noticed that the MCLR is going upwards from 1<sup>st</sup> March,

2018 onwards. Detail of the MCLR is as follows:

Marginal Cost of Funds Based Lending Rate					
Effective Date	Interest Rate (%)				
	3 Year	2 Year	1 Year	6 Months	Over Night
01.04.2016	9.35	9.30	9.20	9.15	8.95
01.05.2016	9.30	9.25	9.15	9.10	8.90
01.08.2016	9.25	9.20	9.10	9.05	8.85
01.10.2016	9.20	9.15	9.05	9.00	8.80
01.11.2016	9.05	9.00	8.90	8.85	8.65
01.01.2017	8.15	8.10	8.00	7.95	7.75
01.11.2017	8.10	8.05	7.95	7.90	7.70
01.03.2018	8.35	8.25	8.15	8.00	7.80
01.07.2018	8.45	8.35	8.25	8.10	7.90

It can be seen from the table that though w.e.f. 01.03.2018 onwards MCLR has been going upwards, however, it come down from 9.20% on 01.04.2016 to 7.95% on 01.11.2017. The rate of interest is a normative rate and has been considered for a loan tenure of 13 years. Hence, any gain or loss due to variation will be to the account of the developer/generator. Further, the Commission agrees with the comments of the Stakeholders that frequent natural calamities and other factors affects the operations as well as financials of the SHPs which impacts the repaying power of the developers. Accordingly, based on the above the Commission decides to increase the spread of 200 basis points by additional 100 basis points. Hence, the final aforesaid regulation shall be read as follows:

*“(2) For the purpose of computation of generic tariff, the normative interest rate shall be considered as average State Bank of India (SBI) Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) prevalent during the last available six months plus 300 basis points.*

*For the purpose of computation of project specific tariff, interest rate shall be considered as lower of the actual interest payable to the financial institutions or the average State Bank of India (SBI) Marginal Cost of Funds based Lending Rate (MCLR) (one year tenor) prevalent during the last available six months from the date of Petition plus 300 basis points.*

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

*While calculating project specific tariff, 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 or actual repayment made, whichever is higher.*

*(4) Normative period of loan repayment shall be taken as 13 years”.*

### **1.21 Clause (c) of sub-Regulation (3) of Regulation 17, i.e. Depreciation.**

The Commission had proposed as follows in the draft Regulations:

*“(c) The depreciation rate for the first 12 years of the Tariff Period shall be 5.83% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 13<sup>th</sup> year onwards considering salvage value of the project as 10% of the project cost.”*

#### **Commission’s View**

1.21.1 As the Commission has changed the loan repayment period from 12 years to 13 year, necessary changes are also required in aforesaid clause with regard to allowance of depreciation. In previous Regulations, the Commission had specified depreciation per annum based on ‘Differential Depreciation Approach’ over loan tenure and beyond loan tenure over useful life computed on ‘Straight Line Method’. The depreciation rate specified for the first 12 years of the Tariff Period was 5.83% per annum and the remaining depreciation was to be spread over the remaining useful life of the project from 13<sup>th</sup> year onwards. While specifying the same, the Commission had considered the concerns of the investors/lenders about debt service coverage required, as more renewable energy capacity is envisaged to be funded by way of non- recourse finance basis. However, in these Regulations, the duration for repayment of loan has been increased from 12 years to 13 years. Accordingly, following the ‘Differential Depreciation Approach over the loan tenure and beyond loan tenure over useful life computed on ‘Straight Line Method’, the Commission now specifies depreciation rate of 5.38% per annum for first 13 years and remaining depreciation to be spread during remaining useful life of the RE projects considering the salvage value of the project as 10% of project cost. Accordingly, final clause shall be read as follows:

*“(c) The depreciation rate for the first 13 years of the Tariff Period shall be 5.38% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 14<sup>th</sup> year onwards considering salvage value of the project as 10% of the project cost.”*

### **1.22 Sub-regulation (2) of Regulation 18, i.e. Return on Equity.**

The Commission had proposed as follows in the draft Regulations:

*“(2) The Return on Equity (Post tax) shall be 15.5% for the Renewable energy source based power projects.*

*Pre-tax RoE shall be 19% per annum for the first 10 years considering Average MAT rate as on 1st April, 2018.*

*Pre-tax RoE shall be 21% per annum from 11th year onwards considering average Corporate Tax as on 1st April, 2018."*

### **Stakeholders Comments/Suggestions**

- 1.22.1 M/s Harshil Hydro Ltd. and Mr. Madhav k. Kejriwal submitted that ROE should be retained like in earlier Regulations to pre -tax 21% for initial 10 years, and 24% thereafter, or 16% post tax. The risk for SHP developers has increased during this period due to many extraneous factors and natural calamities that have adversely affected the SHP sectors outlook.
- 1.22.2 UJVN Ltd. submitted that the RoE rates specified by the Commission are lower than previous regulations. To encourage the developers to invest in SHPs, it is requested that the Return on Equity (Post tax) should be 16.5% and accordingly Pre-tax RoE may be specified in the proposed RE Regulations.

### **Commission's View**

- 1.22.3 The Commission has analysed the comments of various stakeholders. All the stakeholders have suggested retaining the previous rate of 16% or matching it with the rate of Large Hydro Projects. In this regard, it is to be noted that CERC has worked out RoE rate of 11.40% based on the Capital Asset Pricing Model (CAPM) principle considering the risk free return of 7% and subsequently, specified the Rate of Return on Equity of 14% considering risk free return of 7% and market risk premium of 700 basis points over the prevailing average G-Sec rates prevalent during the last available six months of the relevant year of the Control Period for the determination of tariff. The Commission has taken cognizance of the fact that the risk of the developers increases in the State of Uttarakhand as compared to other states and accordingly, has proposed additional premium of 2% over and above the rate of RoE specified by CERC. Accordingly, based on the above discussion, final Regulation shall be read as follows:

*"(2) The Return on Equity (Post tax) shall be 16% for the Renewable energy source based power projects.*

*Pre-tax RoE shall be 20% per annum for the first 10 years considering Average MAT rate as on 1st April, 2018.*

*Pre-tax RoE shall be 22% per annum from 11th year onwards considering Average Corporate Tax as on 1st April, 2018."*

### **1.23 Sub-regulation (3) of Regulation 19, i.e. Interest on Working Capital.**

The Commission had proposed as follows in the draft Regulations:

*"(3) Interest on Working Capital shall be at interest rate equivalent to the average State Bank India(SBI) Marginal Cost of Funds based Lending Rate(MCLR)(one year tenor) prevailing during the last available six months plus 300 basis points."*

#### **Stakeholders Comments/Suggestions**

1.23.1 UJVN Ltd. submitted that in the previous Regulations, the Interest on Working Capital allowed was based on SBI base rate+350 basis points. However, in draft Regulation interest rates are linked to MCLR+300 basis points which is very low in comparison to previous Regulation considering the fact that at present the SBI MCLR is approximately 1% low than the SBI Base rate. Net impact of this regulation is that the rate of interest would be lower by approximately 1.5%. This is likely to discourage developers to invest in SHPs.

#### **Commission's View**

1.23.2 Based on the discussion made in Para 1.20.5, the Commission is of the view to increase the rate from 300 basis points to 350 basis points. Accordingly, the final sub-Regulation shall be read as follows:

*"(3) Interest on Working Capital shall be at interest rate equivalent to the average State Bank India(SBI) Marginal Cost of Funds based Lending Rate(MCLR)(one year tenor) prevailing during the last available six months from the date of Petition plus 350 basis points."*

### **1.24 Regulation 20, i.e. Operation and Maintenance expenses**

The Commission had proposed as follows in the draft Regulations:

*"(1) Operation and maintenance expenses for the year of commissioning shall be determined based on normative O&M expenses specified by the Commission under Chapter 5 for different technologies for the first Year of Control Period, i.e. for FY 2018-19. These expenses shall be escalated@ 5.72% p.a. to arrive at O&M expenses for the ensuing years.*

*(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."*

### Stakeholders Comments/Suggestions

- 1.24.1 M/s Harshil Hydro Ltd. and Mr. Madhav k. Kejriwal submitted that SHPs in Uttarakhand are located in high seismic zones and also subject to natural calamities such as Earthquakes, Cloudburst, Floods, landslides, etc. which are required to be insured at high insurance premiums. Insurance premiums at 1% of Capital Cost should be further added in O&M Costs or actual premium paid should be reimbursed by distribution licensee and allowed as pass through.
- 1.24.2 UPCL submitted that the escalation of 5.72% per annum for O&M expenses is high and will increase the O&M charges unnecessarily over the years. It is to submit that new plant and machinery actually does not deteriorate immediately after first year but infact the same will remain functional with best capabilities for atleast upto 5 years from COD.

### Commission's View

- 1.24.3 The Commission has specified the normative O&M expenses considering all the necessary expenses, such as expenditure on manpower, repairs, spares, consumables, insurance and overheads which are required for the smooth operation of the plant. Further, the aforesaid components of O&M expenses have direct correlation with the annual inflation indices of varied nature and hence the escalation factor is based on the fundamental rationale. Moreover, CERC has also provided the escalation factor of 5.72%. Accordingly, no change is required in the said Regulation.

### **1.25 Regulation 21, i.e. CDM benefits**

The Commission had proposed as follows in the draft Regulations:

*“(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 or commissioning 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 levelised 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."*

### **Stakeholders Comments/Suggestions**

1.25.1 UPCL submitted that the mechanism of calculation of CDM benefits and its remittance to the distribution licensee has not been mentioned in the regulations, therefore, there is difficulty in applying the provisions of the regulations. Detailed procedure for calculation and remittance should be incorporated in the regulations.

### **Commission's View**

1.25.2 The detailed procedure with regard to remittance/claim of CDM benefits are properly documented by MoEF. The Regulations only provide enabling provisions for such benefits.

## **1.26 Regulation 22 and Regulation 23, i.e. Rebate and Late Payment Surcharge**

The Commission had proposed as follows in the Draft Regulations:

### ***"Rebate***

- (1) *For payment of bills through the letter of credit on presentation or if payment made within 5 working days, a rebate of 2% shall be allowed.*
- (2) *Where 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.*

### ***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 or part thereof shall be levied by the generating company."*

### **Stakeholders Comments/Suggestions**

1.26.1 UPCL submitted that the PPA is a commercial agreement between the parties that should rightly be in line with the Act but rebate and late payment surcharge are purely commercial parameters and the same should be allowed to be negotiated between the parties. The said regulation should be suggestive in nature which may alter as per the commercial arrangement between the parties.

### **Commission's View**

1.26.2 These Regulations are applicable to renewable energy based generators with capacity ranging from few kW to few MW. In case of relatively larger RE generators, the distribution licensee and the generators will be at parity for negotiation of the terms and conditions for the rebate and late payment surcharge. However, in case of the small capacity RE generators, distribution licensee will have an upper hand and may finalize terms and conditions as per its convenience which would be injustice to such small generators. Accordingly, the Commission finds it prudent to retain the provision in this regard of the draft regulation.

### **1.27 1<sup>st</sup> Proviso of Regulation 24, i.e. Subsidy or incentive by the Central/State Government.**

In the draft regulation, the Commission had proposed the 1<sup>st</sup> proviso as follows:

*“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.”*

### **Stakeholders Comments/Suggestions**

1.27.1 M/s Harshil Hydro Ltd. and Mr. Madhav k. Kejriwal submitted that subsidy/incentive should be allowed to be retained by SHP developer as equity to compensate for the high risks and hurdles faced in implementing SHPs specifically in Uttarakhand.

### **Commission's View**

1.27.2 The Commission is of the view that the subsidy is provided to the renewable sources to make their tariff viable so that they can compete in the market and hence, it is imperative to adjust the capital subsidy available to them for enabling their competitiveness in the market. In the existing Regulations, the developer has been allowed to retain 25% of the capital subsidy as an incentive and also to compensate it for the time and efforts expended by it on getting the subsidy released from the Government. Accordingly, no change is required in the said Regulation.

### **1.28 Regulation 25, i.e. Taxes and Duties.**

In the draft regulation, the Commission had proposed as follows:

*“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.*

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

### **Stakeholders Comments/Suggestions**

1.28.1 M/s Harshil Hydro Ltd. and Mr. Madhav k. Kejriwal submitted that any cess or other charges on Water levied by State/Center for hydropower generation or any other kind of cess/fees/charges should be reimbursed by Distribution Licensee as a pass through.

### **Commission's View**

1.28.2 The Commission has already specified in the aforesaid Regulation that all taxes levied by the Central/State Government shall be allowed as pass through. Accordingly, no change is required in the aforesaid Regulation.

### **1.29 Clause (A) & (B) of Sub-Regulation (1) of Regulation 26, i.e. Applicability of Tariff.**

The Commission had proposed as follows in the draft Regulations:

*"(A) For generators opting generic tariff:*

*(a) 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 the Regulations arrived at based on the normative CUF of 40%.*

*...*

*...*

*(B) For generators opting for project specific tariffs, the tariff for generation beyond the applicable CUF (i.e. the CUF envisaged in the approved DPR or the normative CUF specified for the relevant technology under Chapter 5, whichever is higher), when entire fixed cost has been recovered, shall be allowed to be recovered at the generic tariff specified by the Commission in the Regulations.*

*The annual CUF shall be calculated in accordance with the principles specified in Regulation 3(1)(h) of the Regulations."*

### **Stakeholders Comments/Suggestions**

1.29.1 UPCL submitted that in the past the Commission had reduced the annual CUF from 45% to 40% for recovery of the capital cost considering the damages and non-generation caused due to the catastrophe of 2013 but since then almost four years have

passed and almost all the generating stations have revived and are not efficient enough are reaping undue benefits out of the reduced CUF and infact the same is not sufficiently stimulating the generators for improving their performance which would infact affect the interest of the State and lead to the wastage of the natural resources. Further, it can be observed from the available data that capacity utilization of the plants have increased and once again the stable generation has been reached, the generators having some inherent defect are struggling to achieve the requisite CUF, in this regard an enquiry can be set up to ascertain the real cause for lesser CUF. UPCL requested the Commission to consider the CUF of 55% as in Himachal Pradesh.

1.29.2 M/s Himalaya Hydro (P) Ltd. submitted that has traditionally permitted the same tariff for generation below and over applicable CUF even in earlier regulations for generators opting for project specific tariff. Tariff equivalent to generic tariff over and above CUF will be discriminatory against generator who opted for project specific. The Project cost for generic tariff and projects specific tariff are different by definition, and the tariff for generation beyond the applicable CUF must reflect the underlying capital cost of the project.

#### **Commission's View**

1.29.3 With regard to CUF of 40%, the Commission had already provided the detailed reasoning in second amendment to previous Regulation for revising the CUF from 45% to 40%. It is worth mentioning that the Commission had decreased the CUF based on the data submitted for the past years and before the catastrophe of 2013. The Commission had taken cognizance of the fact that the CUF was decreased keeping in view that majority of the developers did not achieve 45% CUF and consequently did not recover their AFC. The norm of 40% was arrived on the basis of actual data received from UPCL from FY 2008-09 to FY 2012-13. Moreover, UPCL has not provided any data in support of its statement that the generation has improved. Besides, issues related to evacuation of power still persist based on numerous representations received by the Commission from developers.

1.29.4 The Commission in the previous Regulations had allowed the developers, opting project specific tariff, to recover tariff for generation beyond the applicable CUF as defined for project specific tariff, at the generic tariff specified by the Commission in the Regulations notified by it from time to time. The Commission has analyzed all the

scenarios regarding incentive over and above specified CUF for developers opting for project specific tariff. The Commission observed that the generic tariff varies from control period to control period based on the capital cost and other technical parameters specified for RE plants. Generic Tariff may be higher or lower than the project specific tariff approved for such developers and it will be an anomaly to allow incentives more than the project specific tariff even when the entire fixed cost is recovered on achieving the applicable CUF. Further, as discussed under Para 1.2.3 and Para 1.17.4 above, the Commission has provided a provision for additional expenditure of capital nature which becomes necessary for restoration works and the levelised tariff to be approved by the Commission shall be project specific tariff in nature. Further, during the previous control period, developers have approached the Commission regarding incentive to be applicable on the levelised tariff determined by the Commission on additional capitalisation. Therefore, the Commission decides to insert a clause to remove the ambiguity in the matter. Accordingly, based on the discussions, the final Regulation shall be read as follows:

*“(B) For generators opting for project specific tariffs, the tariff for generation beyond the applicable CUF (i.e. the CUF envisaged in the approved DPR or the normative CUF specified for the relevant technology under Chapter 5, whichever is higher), shall be allowed to be recovered at the project specific tariff approved by the Commission.*

*(C) For additional capitalization as allowed by the Commission for restoration work, the tariff for generation beyond the applicable CUF to the generating station shall be allowed to be recovered at the project specific tariff approved by the Commission for such restoration work.*

*The annual CUF shall be calculated in accordance with the principles specified in Regulation 3(1)(h) of the Regulations.”*

### **1.30 Regulation 28, i.e. Technology specific parameters for Small Hydro Generating Plants.**

In the draft regulation, Regulation 16(8) specifies as under:

*“The technology specific parameters for determination of generic tariffs for Small Hydro Generating Stations commissioned or to be commissioned on or after 01.04.2018 of these regulations shall be as follows:*

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	1000	45.00	Generic Tariff- 40% Project Specific- 45%	1%
> 5 MW & upto 15 MW	950	38.00		
> 15 MW & upto 25 MW	900	31.50		

\* for the recovery of Annual Fixed Charges.

NOTE: For the purpose of this Regulation, normative CUF is 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. For generic tariff determination, home State share has been taken as 18% from 16<sup>th</sup> year onwards."

### **Stakeholders Comments/Suggestions**

- 1.30.1 M/s Harshil Hydro Ltd. and Mr. Madhav k. Kejriwal submitted that during the Control Period of 5 years, an annual escalation for inflation on the assumed benchmark Capital Costs for SHPs may be allowed. Capital cost of SHPs having COD in 2022-23 will be higher than SHPs having COD in 2018-19 as the primary costs are of materials, labour, transportation, plant & machinery which are inflation linked. They also submitted that 5% higher Generic Capital Cost and 5% higher Levelised Generic Tariff may be allowed for SHPs located at high altitudes of over 2000 m, due to much higher labour, material, construction, transportation etc costs as well as longer durations for project construction.
- 1.30.2 UVJN Ltd. submitted that proposed capital cost is on a lower side as compared to the actual expenses being incurred and estimated costs of the upcoming projects as per the approved DPRs. UVJN Ltd. also requested for the revision of O&M expenses. In SHPs the system & auxiliaries are more or less same irrespective of MW capacity of the plant and require a certain minimum number of employees for operation of the plant. In view of the above the O&M expenses cannot be allowed on pro rata basis of plant capacity/capital cost. Accordingly, UVJN Ltd. proposed the following norms:

Project Size	Capital Cost	O&M Expenses for year of commissioning	Capacity Utilization factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Up to 5 MW	1400	75 (approx @ 5.5% of capital cost)	Generic Tariff 40% Project Specific Tariff 45%	1%
> 5 MW & upto 15 MW	1350	60 (approx @ 4.5% of capital cost)		
> 15 MW & upto 25 MW	1250	50 (approx @ 4.0 % of capital cost)		

UVJN Ltd further proposed to provide a provision for 1% additional free power as pass through in tariff in new regulations as in line with the Hydropower policy, 2008, Government of Uttarakhand was in the process of formation and implementations of LADF management Policy under which additional 1% free power from the project proponent would be contributed for LADF.

1.30.3 TPTCL submitted that for the SHPs located outside the State and commissioned before 01.04.2018, these Regulations may apply.

1.30.4 M/s Melkhet Power (P) Ltd and other stakeholder submitted that O&M Expenses may be increased to 4% of the normative capital cost as provided for the large hydro power projects and the cost of project be atleast escalated to 2018 levels as per CERC Regulations 2017.

### **Commission's View**

1.30.5 With regard to annual escalation, the Commission is of the view that because of indexation, the generators would be inclined to delay the commissioning of their projects so as to take benefit of higher tariffs. And therefore, provision of escalation of capital cost was not incorporated. Moreover, the SHP generator has an option to opt for project specific determination of levelised tariff. Accordingly, if any of the developer feels that the capital cost of its SHP would be more than the benchmark capital cost approved by the Commission for determination of generic tariff, it may approach the Commission for determination of project specific tariff. Further, UVJN Ltd. submitted that the capital cost proposed by the Commission is on a lower side as compared to the actual expenses being incurred and estimated costs of the upcoming projects as per the approved DPRs. In this regard, it is to be noted that generation of electricity is a de-licensed activity and hence, the DPR for the SHP is not approved by the Commission. The same is prepared by the developer based on the project estimates and past experiences. Moreover, no financial data has been provided by any of the SHP

developers in support of the capital cost.

1.30.6 Further, with regard to different capital cost for hilly terrain, the Commission has gone through the Capital cost specified for SHPs by the State Commissions having majority of hills terrain. Detail of the same is as follows:

Capacity	Himachal Pradesh (Rs. Lakh/MW)	Arunachal Pradesh (Rs. Lakh/MW)	Assam (Rs. Lakh/MW)
Upto 500 kW MW	880	1400	1000
Above 500 kW to below 1 MW		1200	
1 kW to 2 MW		Project Specific	
Above 2 MW to 5 MW	850		
Above 5 MW to 25 MW	800		900

It can be observed from the above table, that the neighboring State, i.e. Himachal Pradesh has specified the benchmark capital cost lower than the capital cost proposed by this Commission and Assam ERC has specified benchmark capital cost as specified by Central Commission. Further, as per Section 61 of the Act, the State Commissions shall be guided by the principles and methodology specified by the Central Commission for tariff determination. Accordingly, the Commission does not find it prudent to change the capital Costs in the final Regulation.

1.30.7 With regard to revision of O&M expenses, the Commission has observed that most of the SHP developers had requested the Commission for revision of the O&M expenses and allow O&M expenses equivalent to the Large Hydro Plants i.e. 4% of capital cost for new projects stating that the maintenance expenses more or less are same in nature. Accordingly, to bring parity between the O&M expenses for LHP and SHP, the Commission has decided to revise the normative O&M expenses. Further, UJVN Ltd. requested to allow 1% free power in line with the proposed LADF management policy, in this regard, the Commission is of the view that the said policy is in draft stage and moreover, the developer should try to meet its CUF, as specified by the Commission, considering all the provision of various hydro policies regarding, water discharge etc. The Developers should try to meet the necessary discharge within the provided CUF which is already lower than the other states. Further, with regard to TPTCL comment, the Commission is of the view that Projects located outside the State of Uttarakhand do not come under the ambit of the Commission until such renewable energy based generating plants/developers execute PPA with the State distribution licensee.

Accordingly, Regulations shall apply based on the date of execution of PPA. Therefore, in this regard no change is required.

Accordingly, based on the above discussions, final Regulation shall be read as follows:

*“The technology specific parameters for determination of generic tariffs for Small Hydro Generating Stations commissioned or to be commissioned on or 01.04.2018 shall be as follows:*

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	1000	45.00	Generic Tariff- 40% Project Specific- 45%	1%
> 5 MW & upto 15 MW	950	40.38		
> 15 MW & upto 25 MW	900	36.00		

*\* for the recovery of Annual Fixed Charges.*

*NOTE: For the purpose of this Regulation, normative CUF is 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. For generic tariff determination, home State share has been taken as 18% from 16<sup>th</sup> year onwards.”*

### **1.31 Sub-regulation (3) of Regulation 30, i.e. Non- fossil fuel based Cogeneration Projects.**

In the draft regulation, the Commission had proposed as follows:

*“Fuel Cost (P) for the first year of the Control Period, i.e. FY 2018-19 shall be taken as Rs. 1954/MT, unless specifically reviewed by the Commission. For the purpose of determining levelised tariff, a normative escalation factor of 5% per annum shall be applicable.”*

#### **Stakeholders Comments/Suggestions**

1.31.1 UPCL submitted that 5% increase per annum is very high considering that increase in WPI which represents inflation is not in the tune of 5% hence, it requested that the same should be kept between 2-3%.

#### **Commission’s View**

1.31.2 The average increase/decrease in WPI for the last 6 year is 4.25%. Detail of the same is as follows:

Financial Year	Percentage Increase/(Decrease)
2012-13	8.94%
2013-14	7.35%
2014-15	5.98%
2015-16	2.01%
2016-17	-2.50%
2017-18	3.69%
<b>Average</b>	<b>4.25%</b>

Further, CERC has also specified a 5% increase in its RE Regulations, 2017. Moreover, the life of the Non-fossil fuel cogeneration project is 20 years and it is also evident from the above table that five years average increase in WPI has been about 4.25% in this regard. Accordingly, the Commission does not find it prudent to change the percentage of normative escalation factor in this regard.

### 1.32 Sub-Regulation (1) of Regulation 31, i.e. Technology specific parameters for Biomass Gasifier Power Projects.

In the draft regulation, the Commission had proposed as follows:

*“The technology specific parameters for determination of generic tariffs for Biomass Gasifier Power Projects commissioned or to be commissioned on or after 01.04.2018 shall be as follows:*

<i>Capital Cost</i>	<i>O&amp;M Expenses for year of commissioning</i>	<i>Specific Fuel Consumption</i>	<i>Auxiliary Consumption</i>	<i>Capacity Utilization Factor</i>
<i>(Rs. Lakh/MW)</i>	<i>(Rs. Lakh/MW)</i>	<i>(kg/kWh)</i>		
592.88	55.85	1.25	10%	85%

“

#### Stakeholders Comments/Suggestions

1.32.1 UREDA submitted that “Policy for Energy Generation from Pine Needle and Other Biomass-2018” has been approved by Uttarakhand Cabinet on 27.05.2018 and under the said policy, the minimum capacity allocation to each developer will be 10 kW and the maximum capacity allocation will be 250 kW. UREDA also submitted that the norms of biomass gasifier power projects upto the project size of 250 kW should be considered higher than the norms of biomass gasifier power projects of project size greater than 250 kW or 1 MW. The project cost of biomass gasifier power projects with project size upto 250 kW should be taken as Rs 1,00,000 per kW of project size so that the biomass gasifier based developers will show their interest in the policy and, accordingly, the untapped potential of about 100 MW available in pine needle could be

harnessed.

1.32.2 M/s Avani Bio Energy (P) Ltd. submitted that the capital cost based on the 6 power plants established by the company works out to almost Rs. 150,000 per kW. Further, the O&M expenses will be higher in case of small power plants, therefore, it requested the Commission to consider the higher capital and O&M costs in order to determine the generic tariff for power plants between 10 and 40 kW.

### **Commission's View**

1.32.3 M/s Avani Bio Energy (P) Ltd. submitted the financial data in support of the capital cost. It has been observed from the data that the developer has procured Gasifier with gen set of Rs. 12.11 Lakh in FY 2016-17 for its plant located at Simalta. Subsequently, in FY 2017-18, it has purchased Gasifier with gen set amounting to Rs. 9.00 Lakh and Rs. 8.45 Lakh for its plants located at Dangigaon and Bhatijer respectively. All the plants are of 10 kW capacity. There is significant decrease in the equipment cost from FY 2016-17 to FY 2017-18. Further, it is worth mentioning that during the proceedings for approval of draft PPA to be executed between M/s Avani Bio Energy (P) Ltd. and UPCL, the Stakeholder had submitted that it is planning to develop 60 (approx) more such Biomass Gasifier based power plants in Uttarakhand. The Commission is of the opinion that with the setting up of more and more plants the capital cost for the technology is likely to decrease. Hence, the Stakeholder is advised to negotiate the equipment costs with the supplier. Moreover, "Policy for Energy Generation from Pine Needle and Other Biomass-2018" has been issued by Uttarakhand Cabinet on 27.05.2018 according to which minimum capacity allocation to each developer shall be 10 kW and the maximum capacity allocation shall be 250 kW. Further, the Commission agrees that the capital expenditure towards establishment of such plants and expenses towards operation & maintenance for such small capacity plants would be on higher side. Further, as per the policy, such plants would be entitled to the benefits prescribed under the prevailing Industrial Promotion Policy of Government of India and Uttarakhand micro, small, medium enterprise policy, 2015. The Policy has provided the cost of projects as well as technical parameters of the Project. Further, in the policy for generation from Pine leaves, CFA from MNRE, GoI @ 40% of the capital cost would be provided based on the availability of funds. Based on the above discussion, the Commission of the view that it would be inappropriate to consider the costs provided

by the developer as it is the only developer in this field and it has constructed limited plants only where the cost of gasifier varies from plant to plant having same capacity of 10 kW.

1.32.4 Accordingly, based on the above discussion and considering the fact that the price of gasifier with gen set has decreased approximately by 30% in a year and that the O&M expenses would be on higher side for plants having small capacity, the Commission decides to provide normative capital cost of Rs. 62,500/kW which is equivalent to Rs. 625 Lakh/MW and normative O&M expenses of Rs. 10,000/kW (Rs. 100 Lakh/MW) for pine needle based Biomass Gasifier projects. Taking cognizance of the fact that pine needle based projects are in inception stage and may require additional O&M expenses in the initial couple of years. Such expenses may be met through the subsidy to be received from the Central or State Government and revenue from the sale of charcoal. Accordingly, based on the above discussion, the final regulation shall be read as follows:

*“(1) The technology specific parameters for determination of generic tariffs for Biomass Gasifier Power Projects commissioned or to be commissioned on or after 01.04.2018 shall be as follows:*

Type of Project	Capital Cost (Rs. Lakh/ MW)	O&M Expenses for year of commissioning (Rs. Lakh/MW)	Specific Fuel Consumption	Auxiliary Consumption	Capacity Utilization Factor
			Kg/kWh		
Pine leaves based Biomass Gasifier projects	625.00	100.00	1.50	10%	85%
Other Biomass Gasifier Projects	592.88	55.85	1.25		

*(2) Fuel Price (P) for the first year of the Control Period, i.e. FY 2018-19 shall be taken as Rs. 2355/MT for all type of Biomass Gasifier based power projects, unless specifically reviewed by the Commission. For each subsequent year of the Tariff Period, the normative escalation factor of 5% on previous year’s fuel cost shall be applicable to determine the fuel cost for different years of the Tariff Period.*

### **1.33 Regulation 33 & Regulation 36, i.e. Technology specific parameters for “Solar PV Power Project” and “Grid interactive roof top small solar PV plants”.**

In the draft regulation, the Commission had proposed Regulation 33, i.e. Solar PV Power Project, as follows:

*“Norms for Solar Photovoltaic (PV) power under these Regulations shall be applicable for grid connected PV systems that directly convert solar energy into electricity and are based on the*

technologies such as crystalline silicon or thin film etc. as may be approved by MNRE. The technology specific parameters for determination of generic tariffs for Solar PV Power Projects commission or to be commissioned on or after 01.04.2018 shall be as follows:

<i>Capital Cost</i>	<i>O&amp;M Expenses for year of commissioning</i>	<i>Capacity Utilization</i>
<i>(Rs. Lakh/MW)</i>	<i>(Rs. Lakh/MW)</i>	<i>Factor</i>
387.91	12.30	19 %

“

In the draft regulation, the Commission had proposed Regulation 36, i.e. Grid interactive rooftop and small solar PV plants, as follows:

“(1) The technology specific parameters for determination of generic tariff for Grid interactive roof top and small solar PV plants shall be as below:

<i>Projects Commissioned on or after 01.04.2018</i>		
<i>Capital Cost</i>	<i>O&amp;M Expenses for year of commissioning</i>	<i>Capacity Utilization</i>
<i>(Rs. Lakh/MW)</i>	<i>(Rs. Lakh/MW)</i>	<i>Factor</i>
390.58	11.63	19 %

(2) Roof-top Solar PV sources can be installed for injecting into the distribution system of a licensee by any Eligible consumer.

Provided that the maximum Rooftop Solar PV capacity to be installed at any Eligible Consumer's premises except Domestic Consumers shall be upto a maximum of 50% of consumer's sanctioned load/contract demand; whereas in case of domestic Consumers, the Rooftop Solar PV capacity shall be irrespective of their sanctioned load/contract demand.

Provided, the maximum installed capacity of rooftop PV solar power plant & small solar PV plant at the premises of eligible consumer shall not be more than 500 kW.

(3) Injection from roof-top solar PV sources owned by the Eligible consumer(s) or by third party shall be settled on net energy basis at the end of each Billing period.

(4) The tariff, as per tariff orders of the Commission, in respect of the supply of electricity to the consumers by the distribution licensee shall be applicable for the net energy supplied by the licensee in a billing period if the supplied energy by the licensee is more than the energy injected by the roof-top solar PV sources of the consumer(s) or by third party.

Provided further that no open access charges including surcharges shall be leviable on such eligible consumers for the captive use of power.

(5) If in a billing period the supplied energy by the licensee is less than the energy injected by the roof-top solar PV sources of the consumer(s) or the third party, subject to provisions in sub-Regulation (3) above, the licensee would be billed at the generic tariff as may be specified by the

*Commission or at the rate discovered through tariff based bidding process whichever is lower for such net energy supplied to it."*

### **Stakeholders Comments/Suggestions**

- 1.33.1 UPCL submitted that the ceiling of 50% should also be applied on domestic consumers as the technical limitations with regard to line capacity and transformer are similar for all the consumers irrespective of their supply type. Moreover, it will create an opportunity for unscrupulous persons to circumvent the law by opting for domestic connection.
- 1.33.2 Industries Association of Uttarakhand submitted that considering geographical condition of Uttarakhand, it would be difficult to install multi MW projects especially in hills, and installation of small project size of less than 500 kW is more feasible. Further, benchmark capital cost has been proposed same for 1 kW or 500 kW or 5 MW project size irrespective of the project size. Economies of scale make huge difference in overall cost of the project. The Stakeholder also requested for terrain wise benchmark capital cost. With regard to CUF, the stakeholders submitted that the Commission should consider actual data from installed plants to calculate CUF.
- 1.33.3 Akshay Urja Association submitted that same benchmark cost for 1 kW or 500 kW or 5 MW project size has been considered by the Commission. Economies of scale makes huge difference in overall cost of the project and therefore, benchmark cost for 1 kW should be different from 1 MW project. The proposed benchmark cost by the Commission is making the small solar project unviable (especially capacity up to 500 kW) in Uttarakhand. Considering geographical condition of Uttarakhand, it would be difficult to install multi MW projects especially in Hills. The Stakeholder also suggested to provide benchmark cost based on project size. Project cost cannot be same for plain and hilly terrain. Benchmark cost should be considered terrain wise. The Stakeholder submitted that the Commission may consider the actual data from installed plants to calculate CUF and in support, the Stakeholder provided MNRE report of FY 2015-16 on performance analysis of grid connected solar power projects commissioned under Phase-I of JNNSM for the calendar Year 2014. Further, with regard to the comments on Regulation 36 (c) i.e. "Injection from roof-top solar PV sources owned by the Eligible consumer(s) or by third party shall be settled on net energy basis at the end of each Billing period" the Stakeholder suggested that for

projects in which surplus power is not allowed to be billed at any tariff (e.g. projects installed under SECI scheme) the settlement period should be financial year.

1.33.4 M/s Amplus Solar Power (P) Ltd. and Distribution Solar Power Association submitted that the capacity limit proposed (50% of sanctioned load or contracted demand) in the draft Regulation by the Commission is way too less to set up the plant at industry or commercial consumers roof which may hamper the interest of consumer as well as promotion of solar energy in the state. Most of the states have allowed the capacity of the rooftop plant to the extent of sanctioned load or contract demand of the consumer. In this regard, the Stakeholders referred to the other States regarding capping of net metering. Detail of the same are as follows:

S. No.	State	Capacity Cap	Cap as per sanctioned load
1	Uttar Pradesh	1000 kWp	100%
2	Haryana	1000 kWp	100%
3	Delhi	No cap	Can exceed sanctioned load
4	Bihar	1000 kWp	100%
5	Maharashtra	1000 kWp	100%
6	Madhya Pradesh	2000 kWp	100%
7	Himachal Pradesh	1000 kWp	80%
8	Punjab	1000 kWp	80%

1.33.5 By considering the above scenario of Net Metering Regulation of most of the northern states, the Commission should also allow the plant capacity to be up to the sanctioned load of the consumer. The Stakeholders also submitted that in the present draft regulation, the Commission has allowed 100% capacity for Domestic Consumer corresponding to their sanctioned load. Domestic rooftop market is mostly subsidy dependent and area of vacant roof is also stumpy whereas Industrial and Commercial Rooftop sectors are self-sustainable and mostly have plenty of vacant roof space available. In addition to that, Regulations have a limit of 500 kW on the installed solar capacity of roof-top solar plants on net metering basis, which is contrary to the prevailing Solar Policy, 2013. The policy simply does not contemplate any restriction of 500 kW limit in the installed solar capacity on net metering basis. Clause 5 of the Policy contain clear and unambiguous terms which states the minimum capacity as 100 kW and maximum capacity can go up to 50 MW for a solar power developer. So, for unremitting growth of Solar Sector in the state, capacity cap should be allowed up to the sanctioned load of the consumer and upsurge the maximum cap of 500 kW to 1000 kW. Most of the solar energy generated by a consumer is self-consumed or consumed in the immediate neighborhood. Since the solar energy generated is consumed locally,

the Solar roof- top plants at the tail-end of the grid contributes to a significant reduction on transmission & distribution losses. Consequently, the Commission may increase or decrease the level of penetration and issue renewable energy penetration limits to overall grid level to ensure grid stability. So, the Commission should promote Rooftop solar capacity up to 100% of sanctioned load for all level of consumer without any discrimination for improving local DISCOM losses.

- 1.33.6 M/s ADOS Renewable Pvt. Ltd. submitted that the Capital cost for Small Solar Plants for Hilly region should be realistic appx. 5 Crore per MW because transportation cost, labour cost is higher. CUF should be kept 15%, taking into consideration generation data of plants which are already functional. M/s ADOS Renewable Pvt. Ltd. and Ms. Namita Kaushik referred to SECI Scheme and submitted that under SECI scheme, lot of small plants are installed/under installation but getting net metering done from UPCL is still a big challenge. This process should be simplified. Under SECI scheme generation is adjusted in one billing cycle, and if a customer has to generate more, he should be allowed to utilize his surplus generation in one year. Under SECI or any other scheme NET METER should be provided by UPCL not by EPC Contractor/ Customers as it is the responsibility of DISCOM to provide metering.
- 1.33.7 Some of the Stakeholders submitted that benchmark cost should be 30-35% higher than what is approved for plain terrain reason as in a hilly area the labour cost is high and human labour is placed where roads are not available.

### **Commission's View**

- 1.33.8 With regard to the comments of M/s Amplus Solar Power (P) Ltd. and Distribution Solar Power Association regarding increasing the capping under the net metering arrangement, it is to be noted that the Commission vide its Order dated 27.06.2018 has already given its detailed view in the matter. Relevant extract of the Order as follows:

“3.6 ...

*Further, the Petitioner has submitted that to achieve the objectives of the policy for increasing solar power generation, the regulatory framework should allow the solar power developers to establish and develop rooftop solar power plants of any size without any limits on the installed solar capacity for widespread acceptability of rooftop solar PV system across a large group of consumers. In this regard, it is to be noted that the Commission has put a ceiling for the grid interactive rooftop and small solar PV plants in case of net metering only and reasoning for the*

*same has already been given in above paras of this Order. However, the Commission is of the view that the cap/ceiling on the installed capacity for grid connected rooftop small solar PV plant as provided in Regulation 35 shall not be applicable in case the generation from such plant, which is either a generating plant or a captive generating plant, is entirely for captive consumption by the industry/consumer in whose premises such solar plant is installed and no any generation whether balance/ surplus/residual is fed or allowed to be fed in to the licensee's grid. Accordingly, the Commission vide its Order dated 20.06.2018, taking cognizance of the Section 10 read with Section 42 of the Act, 2003, has allowed M/s Amplus Solar Power Pvt. Ltd to supply entire power from its 3.60 MW capacity rooftop solar PV plant established on the rooftop of M/s Asahi India Glass Ltd. (Industry consumer) to be consumed by it without any injection of power into the grid.*

*3.7 The Petitioner, referring to the Regulations & Orders issued by other States, submitted that there is no such capping on the installed capacity of rooftop solar PV plants in other States. The Petitioner also submitted that the imposition of an absolute restriction based on the capacity of the roof-top solar plant without any basis is arbitrary & unreasonable and such an approach would not be consistent with the principles enshrined in Article 14 of the Constitution of India.*

*It is to be noted that regulations are issued by the State Electricity Regulatory Commission's based on the geographical conditions, consumer mix, policies framed at State/ Central Government level and taking cognizance of other factors within the State...."*

Hence, the above issue is not required to be dealt in the Regulation as the aforesaid regulation is for grid connected rooftop power plants on net metering basis. Such request is to be dealt in accordance with Order dated 27.06.2018 in the matter of M/s Distributed Solar Power Association & M/s Amplus Solar Power (P) Ltd. v/s UPCL & UREDA.

1.33.9 With regard to the comments of UPCL, it is to be noted that it is responsibility of UPCL to verify the nature of premises/consumer and requirement of power before providing connection to any person. Further, sanctioned load for a majority of domestic consumer falls between 1 kW to 25 KW which will not have impact on the Grid as most of the time electricity will be consumed by the consumer.

In this regard, Secretary, MNRE, GoI vide its letter dated 18.07.2018 had requested the Commission to modify the Net-metering Regulations and specify SoP to facilitate promotion of rooftop solar. Vide the said letter it was submitted that the PV system capacity may be permitted upto 100% of the connected load and the limit of 1 MW capacity for rooftop may be increased to 2 MW. Further, the Ministry submitted

that if the DT capacity is limited, the discom should increase the capacity of transformer accordingly and the consumers should not be denied permission on this account to set up a solar rooftop system.

However, taking cognizance of the development in the field of rooftop plants and capping of installed capacity of rooftop and small solar PV plants specified by other SERCs in the country, the Commission is of the view to increase maximum rooftop Solar PV capacity to be installed at any eligible consumer's premises except Domestic Consumers from 50% to 80% of the consumer's sanctioned load and also increase the capping limit from 500 kW to 1 MW for the purpose of net metering. Further, the distribution licensee is advised to augment the transformer capacity in its sub-station to facilitate installation of solar rooftop plants and submit its plan in this regard within 3 months of the date of notification of these regulations. Based on the preparedness of the licensee, the Commission will separately take a view in increasing the capacity of the solar rooftop plants and also in removing the cap on connected/sanctioned load.

1.33.10 Industries Association of Uttarakhand, Akshay Urja Association, M/s ADOS Renewable Pvt. Ltd. and other Stakeholders during the hearing submitted that grid interactive rooftop and small solar are generally installed less than 500 kW capacity and benchmark capital cost for 1 kW or 500 kW or 5 MW projects size would be different. Economies of scales make huge difference in overall cost of the project. Considering geographical conditions of the State, it would be difficult to install multi MW rooftop and Small Solar projects. M/s ADOS Renewable Pvt. Ltd. submitted that the capital cost for small solar PV plants for hill region should be Rs. 500 Lakh per MW, however, no supporting documents have been submitted by the Stakeholder.

Considering the submissions of stakeholders and also the fact that the Commission has revised the cap of capacity upto 1 MW for grid interactive rooftop and small solar PV plants under the net metering arrangement and mostly such plants shall be of smaller capacity, the Commission decides to categorize the benchmark capital cost and other technical parameters for such plants having capacity upto 10 kW, above 10 kW to 100 kW, above 100 kW upto 500 kW and above 500 kW & upto 1 MW.

The Commission, in the past has approved the benchmark Capital Cost of Rs. 6.68 Crore/MW, Rs. 5.88 Crore/MW and Rs. 4.19 Crore/MW for FY 2015-16, FY 2016-17 and FY 2017-18. The Commission notes that the capital cost of solar PV modules has decreased significantly during the last twelve months. During FY 2016-17, the average cost of module was USD 0.48/Wp which has now decreased to USD 0.27/Wp (*source: www.pvinsights.com dated 18.07.2018*). The Commission observed that CERC vide its RE Regulations, 2017 has specified that levelised tariff for Solar PV power plant shall be determined on project specific basis. Further, in line with the decision taken by CERC, other State Regulatory Commissions, such as Assam, Arunachal Pradesh, Chhattisgarh has also specified in their respective RE Regulations that project specific levelised tariff shall be determined for Solar PV based projects. Further, Karnataka, Himachal Pradesh and Maharashtra have determined the generic levelised tariff for Solar PV plants. Following is the summary of the capital cost considered by various states:

State	Benchmark Capital Cost
Assam	Project Specific
Arunachal Pradesh	
Chhattisgarh	
Bihar	In Draft Stage: Less than 5 MW- 442.18 Lakh/MW More than 5 MW- Project Specific
Himachal Pradesh	In Draft Stage: Upto 1 MW - 432.40 Lakh/MW 1 MW to 5 MW - 426 Lakh/MW Above 5 MW- Project Specific
Karnataka	For Rooftop plants - Rs. 40,000/kW For Ground mounted- Rs. 3.50 Crore/MW
Maharashtra	In Draft Stage: For Solar PV plants- Rs. 262 Lakh/MW For Rooftop plants- generic Tariff Rs. 3.21/kWh

From the above table, it can be seen that only Karnataka has finalized the benchmark capital cost and provided the capital cost on per kW basis whereas other States are still in the process of finalization of the benchmark capital cost and generic tariff. For FY 2018-19, the Commission has considered the average module cost from Jan, 2018 to March, 2018, i.e. USD 0.317/Wp and exchange rate of Rs. 65.71/USD and degradation of 0.5% for the purpose of determination of module cost which works out to Rs. 226.94 Lakh/MW. Further, the Commission has followed the methodology as adopted in Order dated 03.08.2017 for the determination of Capital cost for Solar PV plants and Rooftop & small solar PV plants (above 500 kW to 1 MW) which works out

to Rs. 388.19 Lakh/MW and Rs. 39135/kW respectively. Further, for the purpose of determination of benchmark capital cost for rooftop & small solar PV plants having capacity upto 10 kW, above 10 kW to 100 kW and above 100 kW to 500 kW, the Commission has proportionately increased the capital cost for aforementioned slabs on the basis of Office Memorandum dated 15.06.2018 of MNRE which lays down the benchmark costs for off-grid Solar PV systems and grid connected rooftop solar Power plants for FY 2016-17.

1.33.11 With regard to the CUF, it is to be noted that as per the previous regulations, it is the responsibility of the RE based generating companies to submit the information to the Commission in respect to generation, demand met, capacity availability, capacity utilization factor, auxiliary consumption and other parameters on yearly basis. However, no information has been submitted by any of the developer or nodal agency. The MNRE report on Performance analysis of Grid connected solar power projects commissioned in year 2014 is not relevant as the report pertains to FY 2015-16. No current/latest data has been submitted by any of the agency or developer. Further, CERC has specified the CUF of 19% based on the CUF specified by various SERCs and bidding documents issued by various agencies including SECI for competitive bidding and inviting project Developers and Engineering, Procurement and Construction (EPC) companies to setup and construct solar PV projects. Accordingly, the Commission does not find it prudent to change the CUF.

1.33.12 With regard to the comments M/s ADOS Renewable (P) Ltd. it is to be noted that for the purpose of net metering, the developer may procure meter subject to fulfillment of the specification laid down under CEA (Installation & Operation of Meters), Regulations, 2006 and provided that testing of such meter will be done by UPCL. Further, on the request of beneficiaries of SECI scheme that adjustment of generation should be done on yearly basis instead of monthly billing cycle basis, the Commission of the view that this proposal needs to be analysed before taking any decision in this regard and accordingly, the Commission directs UPCL to collect monthly generation as well as consumption data, of such SECI and other schemes' beneficiaries who do not have PPA with UPCL and are supplying excess power to UPCL free of cost, for atleast one complete year and submit the same before the Commission for taking further view in the matter. Further, such SECI scheme beneficiaries also raised the

issue of delay in meter testing, in this regard, UPCL should expedite all the procedures from the procurement to installation of meters at consumers place so that consumers can avail the benefit of various schemes issued by Central/State Governments and UPCL can meet its RPO requirement by way of excess Renewable Energy exported to grid.

1.33.13 Further, in the recent past many developers have approached the Commission seeking clarification on regulation of Uttarakhand Solar Power Policy-Rooftop, for setting up Solar PV power Project into the premises for 100% captive consumption. In this regard, the Electricity Act, 2003 allows the generating company or person to construct, maintain or operate a captive generating plant and dedicated transmission lines and such plants will be commissioned for captive use only, accordingly, all the Rooftop Solar PV plants & small Solar PV plants having capacity of more than 1 MW can be installed by any consumer as a captive generating plant within the definition and other terms & conditions provided in the Electricity Act, 2003 and the Electricity Rules, 2005 prescribed therein.

1.33.14 Accordingly, based on the above discussion, Regulation 33 and Regulation 36 shall be read as follows:

**Regulation 33: Solar PV Power Projects**

*“Norms for Solar Photovoltaic (PV) power project under these Regulations shall be applicable for grid connected PV systems that directly convert solar energy into electricity and are based on the technologies such as crystalline silicon or thin film etc. as may be approved by MNRE. The technology specific parameters for determination of generic tariffs for Solar PV Power Projects commission or to be commissioned on or after 01.04.2018 shall be as follows:*

<i>Capital Cost</i>	<i>O&amp;M Expenses for year of commissioning</i>	<i>Capacity Utilization</i>
<i>(Rs. Lakh/MW)</i>	<i>(Rs. Lakh/MW)</i>	<i>Factor</i>
388.19	12.30	19 %

“

**Regulation 36 i.e. Grid interactive Roof Top and Small Solar PV plants**

*“(1) The technology specific parameters for determination of generic tariff for Grid interactive Roof Top and Small Solar PV plants commissioned or to be commission on or after 01.04.2018 shall be as below:*

<i>Project Size</i>	<i>Capital Cost</i>	<i>O&amp;M Expenses for year of commissioning</i>	<i>Capacity Utilization Factor</i>
	<i>(Rs./kW)</i>	<i>(Rs./kW)</i>	

Upto 10 kW	47153	1627	19 %
>10 kW & upto 100 kW	43224	1448	
>100 kW & upto 500 kW	40612	1320	
>500 kW and upto 1 MW	39135	1230	

(2) Grid Interactive Roof-top and small solar PV plants can be installed for injecting power into the distribution system of a licensee by any Eligible consumer:

*Provided that the maximum Rooftop Solar PV and Small Solar PV plants installed capacity at any Eligible Consumer's premises shall be upto a maximum of 80% of consumer's sanctioned load/contract demand;*

*Provided that in case of Domestic Consumer, such installed capacity of Roof Top and Small Solar PV Plants shall be irrespective of consumer's sanctioned load/contract demand.*

*Provided, the maximum installed capacity of rooftop PV solar power plant & small solar PV plant at the premises of eligible consumer shall not be more than 1 MW.*

(3) Injection from Roof-Top Solar PV plant owned by the Eligible consumer or by third party shall be settled on Net Energy basis at the end of each Billing period.

(4) The tariff, as per tariff orders of the Commission, in respect of the supply of electricity to the consumers by the distribution licensee shall be applicable for the Net Energy supplied by the licensee in a billing period if the supplied energy by the licensee is more than the energy injected by the Roof-Top Solar PV plant of the consumer or by third party:

*Provided that such eligible consumer shall be exempted from payment of monthly minimum charges/monthly minimum consumption guarantee charges, if any, equivalent to the capacity of Roof Top Solar PV plant installed at the premises;*

*Provided further that no open access charges including surcharges shall be leviable on such eligible consumers for the captive use of power.*

(5) If in a billing period the supplied energy by the licensee is less than the energy injected by the Roof-Top Solar PV Plant of the consumer or the third party, subject to provisions in sub-Regulation (3) above, the licensee would be billed at the generic tariff as may be specified by the Commission or at the rate discovered through tariff based bidding process whichever is lower for such Net Energy supplied to it."

### **1.34 Sub-regulation (1) of Regulation 38, i.e. Municipal Solar waste based projects**

The Commission had proposed as follows in the Draft Regulations:

*"No fuel cost shall be considered for determination of tariff for the power projects using municipal solid waste."*

### Stakeholders Comments/Suggestions

1.34.1 UPCL submitted that in case the developer will receive any amount or any other tangible benefit for disposing the municipal solid waste then the same shall be adjusted accordingly in the tariff even if the developer opts for generic tariff and regarding the same provisions be kindly incorporated.

### Commission's View

1.34.2 The Commission is of the view that in case any amount is received for disposing the municipal solid waste then such amount shall be adjusted in tariff on actual basis and accordingly, no adjustment in the generic tariff has been proposed in this regard.

### **1.35 Sub-regulation (1) of Regulation 41, i.e. Evacuation of Power.**

In the draft regulation, the Commission had proposed as follows:

*“(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.”*

### Stakeholders Comments/Suggestions

1.35.1 M/s Harshil Hydro Ltd. and Mr. Madhav k. Kejriwal submitted that the word "endeavor to" and "possible" should be removed in the sentence as it should be the full responsibility of Distribution Licensee to make the required evacuation arrangements and upgrade the nearest sub-station. As per the Commission's Order dated 28.10.2010 the primary responsibility of evacuation of power from substation rests with distribution licensee, UPCL.

1.35.2 UJVN Ltd. requested for providing regulation regarding capital cost escalation due to non-availability of power evacuation system. It submitted that there may be a case when the RE Project has been commissioned whereas the distribution licensee/ Transmission licensee fails to provide power evacuation system by the scheduled completion time, in such cases the Commission should consider for the cost escalation of the project for determination of tariff. A provision for consideration of cost escalation of project for determination of tariff for such cases may be included at

suitable place in proposed RE Regulations, 2018 as the Commission may deem fit.

1.35.3 PTCUL submitted that as per the RE Regulations, the prime responsibility of evacuation of power from RE Generators lies with the Distribution Licensee. Transmission System is augmented/executed based on a coordinated system planning considering the upcoming quantum of Generation or the load requirement. Hence, the responsibility of STU (PTCUL) should be limited only when sufficient quantum of generation is required to be evacuated through its network. PTCUL also submitted that when a number of small RE based Generators opts to evacuate their Power through Transmission System, they may be required by the STU to construct a switching substation at their own cost and on mutually agreed terms and conditions to pool power from their respective power plants which may further be evacuated through a S/C or D/C line up to the nearest Substation of the STU. The cost of establishing these transmission facilities may be considered in overall capital cost as incurred by the Power Plants.

#### **Commission's View**

1.35.4 M/s Harshil Hydro Ltd. and Mr. Madhav k. Kejriwal submitted that it should be the sole responsibility of the distribution licensees to construct evacuation infrastructure and strengthening the existing sub-stations. PTCUL, on the issue has also submitted that the prime responsibility lies with the distribution licensee for providing evacuation of power. However, PTCUL has also submitted that the responsibility of STU (PTCUL) should be limited only when sufficient quantum of generation is required to be evacuated through its network. Based on the above discussions, the Commission has decided to modify the sub-clause (1) of aforesaid Regulation to bring in more clarity in the responsibility of the distribution and transmission licensee. However, it is to be noted that as per clause (a) of sub-Regulation (1) of Regulation 15 of these Regulations, individual generating company shall have an option to construct evacuation infrastructure from point of inter-connection to the nearest sub-station. In this regard, reliance is placed on Section 39(2)(a) and (c) of the Electricity Act, 2003 which stipulates the following:

*“(a) to undertake transmission of electricity through intra-State transmission system;*

...

*(c) to ensure development of an efficient, co-ordinated and economical system of intra-State transmission lines for smooth flow of electricity from a generating station to the load centres;"*

Hence, from the above readings of the provisions of the Electricity Act, 2003 which lays down the functions of the State Transmission Utility, it is evident that the STU is responsible for transmission of electricity as well as development of an efficient, co-ordinated and economical system of intra-State transmission lines for smooth flow of electricity from a generating station to the load centres. However, in the recent past it has been observed that required evacuation of power from the RE generating stations could not be taken up due to lack of transmission system in the vicinity of RE generators. In this regard, PTCUL is directed to submit its transmission plan for the next 5 years alongwith the current status of various lines/sub-stations under execution within 1 month. The Commission has decided to review the status of works being executed by PTCUL on quarterly basis and accordingly, PTCUL is directed to submit the quarterly status of various projects under execution within ten days of the end of each quarter.

UJVN Ltd. in its comments had requested for a provision in the regulations regarding allowance of cost escalation when the generating station is ready for commissioning but due to non-availability of evacuation system the generating station cannot achieve COD and remains idle. In this regard, the generators and licensees (both Transmission licensee and Distribution licensee) are advised to discuss amongst them the issue and devise a suitable condition/clause in the PPA/TSA specifying the liability of either parties in one case where the generating station is ready for commissioning but due to non-availability of proper evacuation system the generating station is unable to achieve COD and is lying idle and in other case where construction of generating station is delayed while the evacuation infrastructure is completed and ready to evacuate generation. Taking cognizance of the comments of PTCUL, the Commission decides to change the Regulation 41 as follows:

*"(1) Distribution Licensees shall provide connectivity to the RE Based Generating Stations having capacity upto 25 MW at its nearest 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) Transmission Licensee shall provide connectivity to the RE Based Generating Stations having installed capacity more than 25 MW, at its nearest transmission 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:

*Provided that any RE based Generating Station having capacity upto 25 MW is willing to connect and evacuate power through 132 kV & above transmission system, it may do so subject to consent of the Transmission Licensee.*

*Provided further that where more than one RE based Generating Stations having cumulative installed capacity more than 25 MW are located in a cluster/area and for the purpose of evacuation, these generating stations agree to pool their generation at a common pooling switching station to be constructed by them at their own cost and further beyond such pooling switching station, the Transmission Licensee shall provide connectivity at its nearest sub-station. They may further mutually agree to provide connectivity at appropriate voltage level subject to technical feasibility and technical standards for construction of electricity lines and connectivity with the grid as may be specified by CEA.*

(3) In case RE based Generating Stations exercise the option to construct the evacuation system including the line upto the nearest substation of Transmission/Distribution Licensee, the required bay, terminal equipments, associated synchronization equipments and above pooling switching station, if any, etc. the cost of such evacuation system shall be borne by such generating stations:

*Provided that such Generating Stations may also get the work of construction of the power evacuation system carried out by State transmission/distribution licensee;*

*Provided further that the land for extending the bay shall be provided by the owner of the transmission or distribution sub-station, as the case may be, free of cost."*

### **1.36 Clause (5) of Regulation 44, i.e. Connectivity and Metering arrangement for grid interactive roof top and small solar PV plants.**

The Commission had proposed as follows in the Draft Regulations:

*"Provided, Check Meter and related equipments can be procured by such plant owner. However, the cost of Check Meter shall be refunded by the licensee to such plant owner."*

#### **Stakeholders Comments/Suggestions**

1.36.1 UPCL submitted that the cost of check meter is to be refunded to the plant owner in case the same is arranged by the plant owner but the same cannot be refunded at any arbitrary price claimed by the plant owner and, hence, it suggested that the cost applicable for refund should be equivalent to the last trend cost of similar meter inclusive of all taxes purchased by the licensee.

### **Commission's View**

1.36.2 It is worth mentioning that the responsibility of providing meters lies with the Distribution Licensee. The generator is required to purchase one meter only and that is also from the open market whereas the Distribution licensee procure meters on a large scale based on tendering. Moreover, the price of single meter will always be on higher side than bunch of meters. The Commission also understands the concern of the Distribution Licensee regarding unreasonable price of meters. In this regard, in accordance with the approach laid down by the Commission in its Order dated July 19, 2016 for arriving at the cost of ABT Check meter, the cost to be refunded would be based on the price discovered through Competitive Bidding Process of licensee which shall be escalated by 25% or the actual cost claimed by the open access customers whichever is lower. Accordingly, the modified Regulation would be read as under:

*“Provided, Check Meter and related equipments can be procured by such plant owner. However, the cost of Check Meter shall be refunded by the licensee to such plant owner. The cost of the check meter to be refunded would be, lower of the following:*

*a. Actual cost of meter; or*

*b. Highest rate discovered through Competitive Bidding Process of licensee escalated by 25%”*

### **1.37 Regulation 46 i.e. Energy Accounting and Billing**

In the draft Regulation, the Commission had proposed as follows:

*“The State Load Dispatch Centre shall carry out scheduling and accounting of energy sent out by the generators 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 IEGC, State Grid Code and Open Access Regulations. Billing for open access transactions shall be done in accordance with the Open Access Regulations.*

*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."*

### **Stakeholders Comments/Suggestions**

1.37.1 TPTCL submitted that joint metering in such cases as per the aforesaid regulation must also include Small Hydro Generating Stations.

### **Commission's View**

1.37.2 The provisions of aforesaid Regulation are also applicable for Small Hydro Power Generating Stations. Therefore, no change is required.

### **1.38 Regulation 49 i.e. Deemed Generation**

In the draft Regulation, the Commission had proposed as follows:

*"(Applicable only in case of Small Hydro Generating Plants & Solar PV & Solar Thermal Projects)*

*(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, 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:*

- (i) The loss of generation at the Station on account of aforesaid factor(s) but attributed to the Force Majeure event(s);*
- (ii) 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 above, is within the limit of:*
  - 48 hours in a month in case of small hydro project, and*
  - 50 hours in a year in case of solar PV and Solar Thermal Project.*
  - Provided further that for working out the ceiling of 50 Hrs. in a year, the interruptions/outages occurring during 18.00 hours in the evening to 6.00 hours in the morning shall not be counted.*

(2) *The distribution licensee 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:*

- In the case of High Voltage, +6% and -9%; and,*
- In the case of Extra High Voltage, +10% and -12.5%.”*

*With effect from 01.04.2018, any loss in generation due to variations in the voltage beyond the limits specified above shall be reckoned as deemed generation provided such loss of generation results in reduction of more than 25% of capacity output.*

(3) *xxx*

(4) *The distribution licensee shall pay for the saleable deemed generation, on annual basis, for small hydro projects and solar PV and solar thermal 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.*

*Any charges paid by the distribution licensee towards deemed generation shall not be allowed as an expense to be pass through in tariffs. The distribution licensee will have to bear such charges”*

### **Stakeholders Comments/Suggestions**

1.38.1 UPCL submitted that the outages/interruptions allowed within which no deemed generation is permitted is drastically reduced from 60 hours in a month in present Regulations to 50 hrs. in a year. The proposed limit is very harsh on distribution utility especially considering that in preceding years no such issue related to interruption were raised by any of the generator. Many generators have installed their plants during the currency of previous regulations and were attracted towards the State with existing regulation specifying a limit of 60 hrs. in a month. It is not understandable that whether the same are proposed to facilitate the existing generators or to attract the new generators in the State because in either situation the same is not going to help considering that none of the existing generators even approached UPCL regarding any issue related with deemed generation and no inquiry for new plant raising any such query has been received. The Commission would appreciate that the proposed duration is totally impractical as in the existing situation it is almost impossible to not

have even one breakdown in the month, further the time required to attend a single breakdown considering the diverse topography and the distance of the line cannot be done within 4 hrs. in every situation. UPCL has improved the distribution network over the years and the benefits of the same has automatically being passed on to the consumers and generators of the State but it does not make any merit of imposing more stringent regulations.

UPCL also submitted that maintaining voltage is important but is also very tricky and complicated at times considering the voltage as per regulations is to be maintained at the interconnection point while the real time voltage at interconnection point is not visible at the concerned sub-station end and one can only speculate the same by considering the voltage available at the sub-station end. There are sub-stations which feed different generating stations through various lines of varied lengths and there are situations when at a given voltage of sub-station end there are different voltages across interconnection points at different lines and managing the voltages of all the plants simultaneously is a complex task. Moreover, the same sub-stations feed the adjoining areas for providing the power supply and any measure taken for correction of voltage at interconnection point may adversely affect the voltages available at the consumer end. Further, the deemed generation clause invokes for as small a period of 15 minutes while practically it is not always possible to micromanage the voltage fluctuations occurring for such small period especially when various generators and load centers are connected simultaneously to the sub-station and dependency on transmission counterpart. Further, sub-station capacitor, reactors etc are temporary and non-sufficient solutions considering that online switching involves heavy expenditure and infrastructure and generator also influence the voltage of line and grid and also affect other generators in close network. Accordingly, the provisioned voltage limit should be allowed to be maintained at the sub-station end rather the interconnection point or extra cushion should be provisioned over and above the prescribed voltage limit at interconnection point. Further, generators should also be made accountable with regard to their efforts in maintaining the voltage which actually is affected due to their connectivity with the grid.

1.38.2 M/s Himalaya Hydro (P) Ltd. submitted that the Regulations, as currently framed,

appear to assume that high voltage conditions are a short-term phenomenon within a 24 hour period. However, voltage remains high every time during monsoon season which is our peak generation season. Motighat and Tanga hydro generating stations evacuate over the same 33 kV transmission line, during monsoon they rarely reach their full rated capacity of 5 MW each due to high voltage. UPCL refuses to pay deemed generation citing some problems related to PTCUL. If UPCL is unable to evacuate power or maintain voltage due to reasons beyond its control, then deemed generation could be made a pass through cost as it is done in other cases, because otherwise the entire financial loss is being borne solely by the Generator.

1.38.3 M/s Avani Bio Power (P) Ltd. submitted that the said clause on deemed generation does not include biomass gasification systems. Setting up of pine needle based biomass gasification systems has the potential of generating large scale rural employment and so save biodiversity in the fragile Himalayan eco-system. The Stakeholder requested to grant deemed generation to pine needle based power generation systems which will make the operations viable for micro-entrepreneurs. The Stakeholder also submitted that in case of Uttarakhand, the problem arising out of burning of pine needles is much more severe as, apart from causing air pollution during the fire season, it is causing biodiversity loss leading to a slow and steady ecological disaster. The Stakeholder submitted that awarding a higher tariff for small, pine needle based power plants between 10 kW and 40 kW, is a way of incentivizing micro-entrepreneurs in setting up such power plants paving way for not only saving fragile Himalayan eco-system, but also providing large scale employment in rural areas to stop outmigration of youth, a burning issue for the state of Uttarakhand with many reported ghost villages.

1.38.4 M/s Harshil Hydro Ltd. submitted that the current exclusion of 48 hours in a month corresponds to 576 hours in a year i.e. 6.57% of PLF excluded from deemed generation. With the loss of revenue in case of non evacuation of power and exclusion from deemed generation upto 48 hours in a month, the revenue from assumed 45% PLF for Levelised Generic Tariff cannot be met, and viability of the SHPs will be eroded.

1.38.5 M/s Birahi Ganga Hydro Power Ltd. submitted that unstable voltage and frequent grid failures are not only causing revenue loss to the plant but also increasing the wear and tear of the machines. Therefore, a more stringent deemed generation regulation is required so as to incentivize UPCL to enhance the stability of the grid.

1.38.6 M/s Emami Power Ltd. submitted that there appears to be an ambiguity as to the availability of the benefits of this regulation to the Solar Plant commissioned prior to April 01, 2018. It is therefore respectfully submitted before the Commission to remove the ambiguity so that benefit of deemed generation provided under Regulations 49 of these Regulations could be made available to the Solar Plants commissioned prior to 1<sup>st</sup> April, 2018 who have signed PPA with UPCL.

### **Commission's View**

1.38.7 With regard to decrease in the outages/interruptions allowed within which no deemed generation is permitted is concerned, the Commission has changed the outages/interruptions based on the Guidelines issued by MNRE for tariff based competitive bidding process for procurement of power from the grid connected solar PV projects dated 03.08.2017. Further, the Commission in its SOR to UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) (Sixth Amendment) Regulations, 2017 & UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) (Third Amendment) Regulations, 2017 had held as under:

*"It is also worthwhile to mention here that most of the solar PV plants have been installed in the State in the plain region, where such problem should not have occurred but if is occurring then it clearly reflects poor planning and negligence on the part of UPCL who having signed the PPAs with these Solar generators, however, did not even bother to review evacuation system including its interconnecting distribution system as to whether it was capable of reliable evacuation of power from these generators which would result not only in generation and revenue loss to the generators but also will have implication on UPCL towards meeting the RPO shortfall. Since, half of the Financial Year is almost over and also keeping in view the existing system of UPCL, the Commission is of the view that it would be reasonable to allow UPCL some time to upgrade/augment its system.*

*The Commission will take a view in the matter in its subsequent MYT Regulations which will be notified before the end of this Financial Year. UPCL is, accordingly, advised to take note of the same and take effective steps to ensure that its system is adequately strengthened/augmented before the end of this financial year so that it is not burdened by payment of deemed generation charges and also of consequent shortfall in its solar RPO."*

UPCL's contention that the proposed limit was very harsh on distribution utility especially considering that in preceding years no such issue related to interruption were raised by any of the generator is incorrect. Based on the comments received from the solar generators the Commission had dealt with the issue in the previous Amendment Regulations as discussed above. The proposed limit of 60 hours in a month will equally apply to the existing generators as well as the new generators in the State. The Commission in the past had allowed sufficient time to UPCL to upgrade its network, however, it seems that no concrete steps have been taken by UPCL in this regard. Further, as almost half of the year would elapse prior to notification of the Regulations, and disputes would arise regarding pro-rata applicability of the limit of 60 hours in a year, the Commission decides to make the ceiling of 60 hours applicable from 01.04.2019. Further, most of the solar PV plants are in plain areas, hence, it would not be too difficult for UPCL to augment its network and facilitate uninterrupted evacuation of power.

1.38.8 With regard to the request of M/s Emami Power (P) Ltd for removal of ambiguity w.r.t. the applicability of the aforesaid regulation on the solar plants commissioned prior to 01.04.2018, it is to be noted that the provisions of the aforesaid Regulations are linked with the generation of electricity during a financial year irrespective of year of commissioning of the SHP or Solar plant. Further, the Commission vide its 2<sup>nd</sup> proviso to sub-Regulation (1) of Regulation 2 of these Regulations has specified that except Chapter 4 and Chapter 5 of these Regulations, subject to certain proviso of these chapters, all the provisions will be applicable to all the generating stations commissioned prior to coming into effect of these Regulation. Accordingly, no change is required in this regard.

1.38.9 As far as the comment of M/s Avani Bio Power (P) Ltd., regarding applicability of deemed generation provisions on the biomass gasification system is concerned, it is to be noted that the said provisions are applicable for the Small Hydro Power plants and Solar PV & Solar Thermal plants which are connected on HT and EHT lines. Moreover, as mentioned by the Stakeholders, the pine needle based plants are of the capacity ranging from 10 kW to 40 kW and these plants will be connected at LT. It would not be feasible to allow deemed generation on LT as there may be many scenarios where LT lines are kept down due to maintenance work, load shedding, tripping etc. However, it

is also important to have a sound evacuation system for the plants connected to LT. As the distribution licensee is aware of the location of the plant at the time of signing of the PPA, it would be appropriate for distribution licensee to strengthen the evacuation system accordingly of that block so that the power generated from such plant can be supplied which would in return will help the distribution licensee to meet its RPO. Accordingly, the Commission does not find it prudent to change the provision of the said regulation in this regard. However, the Commission directs UPCL to strengthen the evacuation system of that particular area where such plants are connected or proposed to be connected.

1.38.10 M/s Himalaya Hydro (P) Ltd., M/s Birahi Ganda Hydro Power Ltd. and M/s Harshil Hydro Ltd. raised the issue of unstable voltage and frequent grid failure. The Stakeholders also submitted that high voltage conditions are not a short-term phenomenon. Voltage remains high every time during monsoon season which is peak generation time for SHPs. In this regard, the Commission in its SOR to 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 had held as under:

### ***2.3 Voltage Fluctuations***

*(1) Regarding the issue of voltage fluctuations raised by the generators, the Commission recognises that the problem of voltage fluctuations in UPCL's system is rampant which often causes generation loss. This issue was also discussed by the Commission during the meeting with senior officers of UPCL. They admitted that this problem exists because of the evacuation lines running for long distances, improper load management and also due to poor upkeep and maintenance of the equipments installed at the sub-stations. The Commission accepted the submission of UPCL, however, UPCL was instructed to maintain their equipments properly and also to ensure installation of capacitor banks at the sub-stations, wherever required, so as to ensure that voltage fluctuations does not lead to generation loss. It is the duty of UPCL to ensure that it gets maximum generation so as to meet its Renewable Purchase Obligation (RPO) specified by the Commission failing which it may be required to buy the Renewable Energy Certificates to meet the shortfall in complying with its RPO. Hence, the Commission feels it necessary to include loss of generation due to voltage fluctuation as deemed generation. However, keeping in view the existing system of UPCL, the Commission is of the view that it would be feasible to give UPCL reasonable time to upgrade/ strengthen the system and also to*

*install the capacitor banks at its sub-stations. The same was also agreed to by the officers of UPCL in the meeting with the Commission. Accordingly, the Commission has decided to enable the provision with regard to deemed generation on account of voltage fluctuations w.e.f. 01.04.2013."*

Despite more than 5 years in the matter has elapsed, the problem of voltage fluctuation persists which is due to inadequate planning by both UPCL as well as PTCUL to evacuate power from the generating stations. Hence, the Commission, taking the cognizance of the submission of the stakeholders regarding the voltage issue, decides to insert a proviso under clause (iii)(a) of sub-Regulation (3) of Regulation 49 of these Regulations. According, Regulations 49 shall be read as follows:

*"*

*(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, 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:*

*(iii) The loss of generation at the Station on account of aforesaid factor(s) but attributed to the Force Majeure event(s);*

*(iv) 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 above, is within the limit of:*

- 48 hours in a month in case of small Hydro Project, and*
- 50 hours in a year in case of Solar PV and Solar Thermal Project.*
- Provided that for working out the ceiling of 50 Hrs. in a year for Solar PV and Solar Thermal Projects, the interruptions/outages occurring during 18.00 hours in the evening to 6.00 hours in the morning shall not be counted.*
- Provided further that till 01.04.2019, the above limit for Solar PV and Solar Thermal Projects shall remain at 60 hours in a month.*

(2) *The distribution licensee 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:*

- In the case of High Voltage, +6% and -9%; and,*
- In the case of Extra High Voltage, +10% and -12.5%.*

*Any loss in generation due to variations in the voltage beyond the limits specified above shall be reckoned as deemed generation provided such loss of generation results in reduction of more than 25% of capacity output.*

(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 specified in the Regulation for small hydro projects and Solar PV and solar thermal projects (in case of project opting for generic tariff) or the CUF considered for recovery of fixed charges (in case of project specific tariff is applicable) for small hydro projects and solar PV and solar thermal projects. In case the sum of actual energy generated and the deemed generation during the year exceeds the CUF at which the recovery of fixed charges has been envisaged, then the deemed generation alongwith the actual energy generated will be allowed only upto the CUF considered.*

(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 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*

*Provided that if such variation in voltage continues for the entire month, generation (in MW) before such variation in voltage occurrence would be treated as the "Actual Generation"*

*(b) The generation achieved during the period when variation in voltages took place.*

- (4) The distribution licensee shall pay for the saleable deemed generation, on annual basis, for Small Hydro Projects and Solar PV and Solar Thermal projects worked out on the basis of the deemed generation on the above lines, at the generic or project specific tariffs as applicable in accordance with the applicable RE Regulations. The settlement of payment towards deemed generation charges shall be carried out within 3 months of the completion of the financial year:*

*Provided that any charges paid by the distribution licensee towards deemed generation shall not be allowed as an expense to be pass through in tariffs. The distribution licensee will have to bear such charges;*

*Provided further that the deemed generation conditions stipulated above shall be applicable only on those Small Hydro projects and Solar PV and Solar Thermal projects who have signed a long term PPA with the distribution licensee;*

*Provided also that the deemed generation conditions shall be applicable only on the Small Hydro projects and Solar PV and Solar Thermal projects where the evacuation line is connected to 11 kV or higher voltage Grid Sub-station."*

*"Provided that if such variation in voltage continues for the entire month, actual generation (in MW) before such variation in voltage occurrence would be treated as the actual generation during the period when voltage variation occurred."*

## List of Stakeholders

Sr. No.	Name	Designation	Organisation	Address
1.	Sh. Mohan Krishna Kejriwal	Managing Director	M/s Harsil Hydro Ltd.	Kishori Niwas, Birhana Road, Kanpur-208001, Uttar Pradesh
2.	Sh. M.R. Ghosh	Whole-time Director	M/s Emami Power Ltd.	687, Anandapur, E.M. Byapass, Kolkata-700 107
3.	Sh. Rajnish Jain	CEO/Founder	M/s Avani Bio Energy Pvt. Ltd.	PO Tripuradevi, via Berinag, Distt. Pithoragarh-262531
4.	Sh. Madhav K. Kejriwal	Director	M/s Jalandharygad Hydro Pvt. Ltd.	Kishori Niwas, 24/73 Birhana Road, Kanpur - 208001, Uttar Pradesh
5.			M/s Kakoragad Hydro Pvt. Ltd.	Kishori Niwas, 24/73 Birhana Road, Kanpur - 208001, Uttar Pradesh
6.			M/s Siyangad Hydro Pvt. Ltd.	Kishori Niwas, 24/73 Birhana Road, Kanpur - 208001, Uttar Pradesh
7.	Sh. R.K. Bahuguna	President	M/s Akshay Urja Association	47/1, Chakrata Road, Vasant Vihar, Dehradun-248006
8.	Sh. Sameer Khirpurikar	Asstt. Manager (Regulatory and Policy Affairs)	M/s Amplus Infrastructure Developers Pvt. Ltd.	Palm Square Building, 6 <sup>th</sup> Floor, Golf Course Extension Road, Sector-66, Gurgaon, Haryana-122102
9.	-	-	M/s Distributed Solar Power Association	A-57, DDA Sheds, Okhla Industrial Phase-II, New Delhi- 110020
10.	Sh. Pankaj Gupta	President	M/s Industries Association of Uttarakhand	Mohabewala Industrial Area, Dehradun-248110
11.	Sh. J.S. Bisht	CEO & Managing Director	M/s Ados Renewable Pvt. Ltd.	Office: G-28, Nehru Colony, Dehradun
12.	Sh. Purushottam Singh	Director (Operations)	UJVN Ltd.	"Ujjwal", Maharani Bagh, GMS Road, Dehradun - 248006
13.	Sh. Sanjaya Mittal	Director (Projects)	Power Transmission Corporation of Uttarakhand Ltd.	Vidyut Bhawan, Near I.S.B.T. Crossing, Saharanpur Road, Majra, Dehradun-248002
14.	Sh. A.K. Tyagi	Chief Project Officer	Uttarakhand Renewable Energy Development Agency	Urja Park Campus, Industrial Area, Patel Nagar, Dehradun
15.	Dr. (Mrs.) Namita Kaushik	-	-	Villa No. 3, Rajpur Road, Enclave Dhoran Khas, Opp. I.T. Park, Dehradun-248001
16.	Sh. Harish Bisht	-	-	Village Bhareth, Block Yamkeshwar, Distt. Pauri Garhwal

<b>Sr. No.</b>	<b>Name</b>	<b>Designation</b>	<b>Organisation</b>	<b>Address</b>
17.	Sh. Bhuwadeshwar Uniyal	-	-	P.O.-Chayi Damrada, Tehsil-Vithyani, Block-Yamkeshwar, Distt. Pauri Garhwal-246121
18.	Sh. S.P. Joshi	-	-	Village-Bukandi, P.O.-Heerakhal, Block-Yamkeshwar, Distt. Pauri Garhwal
19.	Sh. Vikas Uniyal	-	-	Uniyal/Chai Damrara, P.O.-Chai Damrara, Distt. Pauri Garhwal
20.	Sh. Pradeep Singh Bisht			Village-Bhareth, PO-Pokhri, Block-Yamkeshwar, Distt. Pauri Garhwal
21.	-	-	M/s ACME Solar Holdings Pvt. Ltd.	Plot No. 152, Sector-44, Gurugram-122002, Haryana
22.	Sh. Arun Gupta	Chairman-cum-Managing Director	M/s Him Urja Pvt. Ltd.	S-321, Panchsheel Park, New Delhi-110017
23.	Sh. K.V. Vikram Reddy	Managing Director	M/s Himalaya Hydro Pvt. Ltd.	Plot No. 46, Flat No. 202, MLA & MPs Colony, Road No. 10-C, Jubilee Hills, Hyderabad-500033
24.	Sh. Rishabh Kejriwal	-	M/s Birahi Ganga Hydro Power Ltd.	32-33, Nehru Place, Flat No-403, New Delhi-110019
25.	Sh. S.K. Tamta	Chief Engineer	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.

## List of Participants

Sr. No.	Name	Designation	Organisation	Address
1.	Sh. M.R. Ghosh	Whole Time Director	M/s Emami Power Ltd.	Emami Tower, 2 <sup>nd</sup> Floor, 687 Anandpur, E.M. Bypass, Kolkata-700107
2.	Sh. Nitin Tiwari	Project Manager	M/s Emami Power Ltd.	Roorkee
3.	Sh. Rajnish Jain	CEO/Founder	M/s Avani Bio Energy Pvt. Ltd.	PO Tripuradevi, via Berinag, Distt. Pithoragarh-262531
4.	Sh. Devesh Kaushik	Sr. Manager	M/s EDEN Renewables India LLP	Unit 236-B/236-C, DLF South Court, Saket, New Delhi-110017
5.	Sh. Vipul Kapil	Site Incharge	M/s Technique Solaire Invest 1 India Pvt. Ltd.	Village-Maheshwari, Near Chudiyala, Bhagwanpur, Roorkee, Distt. Haridwar-247661
6.	Sh. Atul Kumar	O.N.M. Incharge	M/s ABRE Solar Power Plant	Gurukul Narsan, Gurukul Narsan Road, Narsan Kalan, Distt. Haridwar-247670
7.	Sh. Purushottam Singh	Director (Operations)	UJVN Ltd.	"Ujjwal", Maharani Bagh, GMS Road, Dehradun - 248006
8.	Sh. Meg Bahadur	General Manager (Commercial)	UJVN Ltd.	"Ujjwal", Maharani Bagh, GMS Road, Dehradun - 248006
9.	Sh. Arjun Pratap Singh	Executive Engineer (Commercial)	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.
10.	Sh. R.C. Mayal	Superintending Engineer (Comml.)	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.
11.	Sh. A.K. Tyagi	Chief Project Officer	Uttarakhand Renewable Energy Development Agency	Urja Park Campus, Industrial Area, Patel Nagar, Dehradun
12.	Sh. C.P. Agrawal	Dy. Chief Project Officer	Uttarakhand Renewable Energy Development Agency	Urja Park Campus, Industrial Area, Patel Nagar, Dehradun
13.	Sh. Kamal Kant	Chief Engineer	Power Transmission Corporation of Uttarakhand Ltd.	Vidyut Bhawan, Near I.S.B.T. Crossing, Saharanpur Road, Majra, Dehradun-248002
14.	Sh. Ambrish Sharma	Executive Engineer (Commercial)	UJVN Ltd.	"Ujjwal", Maharani Bagh, GMS Road, Dehradun - 248006
15.	Sh. Dinesh Chandra Sharma	Executive Engineer (Commercial)	UJVN Ltd.	"Ujjwal", Maharani Bagh, GMS Road, Dehradun - 248006
16.	Ms. Neha Nirala	Asstt. Engineer	Power Transmission	Vidyut Bhawan, Near

Sr. No.	Name	Designation	Organisation	Address
			Corporation of Uttarakhand Ltd.	I.S.B.T. Crossing, Saharanpur Road, Majra, Dehradun-248002
17.	Sh. Himanshu Baliyan	Executive Engineer	Power Transmission Corporation of Uttarakhand Ltd.	Vidyut Bhawan, Near I.S.B.T. Crossing, Saharanpur Road, Majra, Dehradun-248002
18.	Sh. Vikas Sharma	Superintending Engineer (C&R)	Power Transmission Corporation of Uttarakhand Ltd.	Vidyut Bhawan, Near I.S.B.T. Crossing, Saharanpur Road, Majra, Dehradun-248002
19.	Sh. Arun Gupta	Chairman-cum-Managing Director	M/s Him Urja Pvt. Ltd.	S-321, Panchsheel Park, New Delhi-110017
20.	Sh. Manu Gupta	Director	M/s Him Urja Pvt. Ltd.	S-321, Panchsheel Park, New Delhi-110017
21.	Sh. B.S. Sehrawat	Plant Head	M/s ACME Solar Holdings Ltd.	Sector-5, Plot No. 3, 4, 5, 6, 7, IIE, Rudrapur, Distt. Udham Singh Nagar-263153
22.	Sh. Mohan Krishna Kejriwal	Managing Director	M/s Harsil Hydro Ltd.	Kishori Niwas, Birhana Road, Kanpur-208001, Uttar Pradesh
23.	Ms. Jyoti Dhar	Director	M/s Alius Energy System	A6, Ganga Stahl, Part-2, Kailash Gate, Rishikesh-249201, Uttarakhand
24.	Sh. D.S. Rawat	Plant Owner	-	Village-Odda, Block-Koti, P.O.-Khandyusain, Distt. Pauri Garhwal
25.	Sh. Kavindra Singh Bisht	Plant Owner	-	1148, Indira Nagar Colony, PO-New Forest, Vasant Vihar, Dehradun-248006
26.	Sh. Manoj Uniyal	-	-	Village-Badongaon, P.O. Lamkot, Distt. Tehri Garhwal
27.	Sh. Manish Kathait	Treasurer	M/s Akshay Urja Association	47/1, Chakrata Road, Vasant Vihar, Dehradun-248006