

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION
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Shri Subhash Kumar Chairman

Statement of Reasons for 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.

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Statement of Reasons for 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

Statement of Reasons

The Commission had issued UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010 (hereinafter referred to as "Principal Regulations-1" or "RE Regulations, 2010") vide notification dated July 6th, 2010.

The Commission subsequently issued 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 "Principal Regulations-2" or "RE Regulations, 2013") vide notification dated April 15th, 2013. To provide clarity on applicability of the Regulations, to introduce third party model under Grid connected Roof Top Solar PV plants and also for revision in % of RPO by obligated entities, the Commission made four amendments to the Principal Regulations (vide notifications dated October 15th, 2013, June 20th, 2014, July 21st, 2015 and September 9th, 2015). The Commission had vide notification dated 29.04.2016 issued Fifth amendment to these Regulations wherein, MSW & RDF based RE generating plants were also included under the Regulations. Moreover, revision in definition of inter-connection point and provision for tariff of canal based solar PV plants had also been made through Fifth amendment to the Regulations.

The Commission had also issued two amendments of RE Regulations, 2010 vide notifications dated 14.08.2012 and 20.06.2014.

The Commission proposed the draft sixth amendment Regulation on 06.06.2017 based on the representations received from various stakeholders. While issuing the Draft amendment the

Commission invited comments from all stakeholders. The Draft amendment covered the following:

- a. Relaxation in bidding process for implementation of Solar PV projects at Government owned premises;
- b. Relaxation in demonstration of MCR for declaration of CoD for Solar PV projects;
- c. Revision in RPO trajectory;
- d. Revision in O&M expenses of SHPs; and
- e. Revision/clarification for applicability of tariff for injection of energy more than 95% of generation by the Rooftop and Small Solar PV Projects.

Last date of submission of the comments/suggestions/objections was kept as 22.06.2017. The list of stakeholders who submitted comments is enclosed as **Annexure-I**. The Commission also held a hearing in the matter on 27.06.2017. The list of the participants is enclosed as **Annexure-II**.

The comments/suggestions/objections received from the stakeholders in respect of draft amendment and the views of the Commission on the same are discussed in subsequent paragraphs.

Comments / Suggestions / Objections of the stakeholders and Analysis & Decision of the Commission:

1. Amendment proposed by the Commission in Regulation 2 of the Principal Regulation (Scope and extent of application):

Sub-Regulation (3) of Regulation 2 of the Principal Regulations was proposed to be substituted as under:

“The generic tariff specified for Solar PV, Solar Thermal power projects under these Regulations shall be the maximum tariff and the distribution licensee shall invite bids from generators/developers for procurement of power from these generators/ developers. The distribution licensee shall enter into a PPA with the generators/developers bidding lower tariff.

Provided, implementation of Canal Bank and Canal Top Solar PV Plants by the eligible government organization (as specified by MNRE) may also be done through tariff based bidding process. In such cases PPA for sale of power from these plants, implemented through tariff based bidding process, shall be signed with distribution licensee at a tariff which shall be 10% higher than the tariff quoted by L-1 bidder.

Provided implementation of Solar PV projects in the land owned by the State Government organizations such as Uttarakhand Sheep and Wool Development Board and Panchayats (Gram Panchayat) shall be exempted from the bidding process and tariff in respect of such projects shall be in accordance with the capital cost approved by the Commission from time to time or the quoted capital cost by the EPC,

whichever is lower. Provided, in no case PPA for purchase of power by the distribution licensee shall be executed at a tariff exceeding the ceiling tariff as specified by the Commission in accordance with the regulations."

Comments received:

UREDA submission

UREDA submitted that there are several patches of unutilized Government lands available in the State which could be efficiently utilised for development of solar projects. These projects will be developed by UREDA alongwith concerned Government department by forming SPV/JV/ Consortium. The ownership of solar power plants will lie under the SPV formed between UREDA and the concerned Government department. The SPV would select the contractor through bidding process quoting the lowest tariff on BOOT basis. UREDA requested the Commission to allow it to build the solar power projects on government land on this proposed model and subsequently allow UPCL to sign the PPA at a tariff 10% higher than the tariff quoted by the selected bidder (L-1 Bidder) as allowed for Canal Bank and Canal Top Solar Plants by the Commission.

UPCL submission

UPCL submitted that the purpose of tariff based bidding process is to ensure transparency and obtain lowest possible price by infusing competition and eliminating inefficiency. UREDA does not have any such infrastructure and only possibility is that they themselves will get it done through an EPC contractor. UPCL further added that the beneficial impact upon lowering the tariff should be assessed otherwise it will not serve any useful purpose because the execution of a project by a State agency or a private person would be immaterial if the implication upon cost is not the outcome. UPCL submitted that UREDA was still in the process of identifying such Non Agriculture / Unutilized lands of the Govt. Owned agencies. UREDA should firstly compile the necessary data and thereafter upon ascertaining the benefit of such land consequent amendment in various components considered for determining the tariff may follow. UREDA has not proposed to run the projects and possibly when the number of projects would increase they cannot be run and maintained by UREDA and have to be ultimately done by the EPC contractor meaning thereby the proposed amendment would not serve any purpose on the contrary may give rise to various doubts and disputes without any apparent benefit. Further, the proposed amendment may prove to be detrimental and if not against the provisions of the Electricity Act, 2003 because in the tariff determined through bidding process the recovery of the cost is based upon guaranteed parameters and upon generation from plant over the period of life of project whereas in case the project if installed without bidding through an EPC contractor then the cost of installing and running the project would be determined initially and the same will not be linked up with the generation nor

the owner of the land would be dependent and interested from the recovery of cost from the generation.

Commission's view and decision

With regard to UREDA's submission that the SPV would select the contractor through bidding process quoting the lowest tariff on BOOT basis and that it should be allowed to build the solar power projects on government land on the proposed model and subsequently allow UPCL to sign the PPA at a tariff 10% higher than the tariff quoted by the selected bidder (L-1 Bidder) as allowed for Canal Bank and Canal Top Solar Plants by the Commission. In this regard, the Commission is of the view that tariff is a function of cost elements which also includes cost component for land. Land is already in possession of Government departments and the opportunity cost would already be factored in the capital cost, hence, allowance of 10% over and above the tariff is not logical. The ownership of the projects would be with the SPV so formed and the returns from the projects in the form of RoE and opportunity cost of land can be shared amongst the constituents of the SPV. The EPC contractor cannot quote tariffs with land as one of the component, i.e. land is not owned by it or it has not incurred any cost towards land. The EPC contractor can only quote the cost of E&M equipments and civil works that it will carry out and also the O&M expenses that it would incur in maintenance of the projects as the SPV would not be having adequate infrastructure to operate the project. Based on the said quote, tariff will have to be worked out and got approved by the Commission considering the opportunity cost of land as that allowed by the Commission in its Order specifying the benchmark capital cost every year. In addition, at this moment it is not clear how much land is available for such projects. If the numbers are large, fixing project wise tariff will be a cumbersome process. In such cases, separate norms will have to be evolved. Accordingly, the Commission directs UREDA to identify the potential lands available with various Government departments/Government/Gram Panchayats, etc. and submit a separate proposal with due approval of the State Government. The Commission based on such proposal will then take appropriate view in the matter.

Hence, the Commission does not accept the proposal of the State Agency at this moment.

2. Amendment proposed by the Commission in Regulation 3(1)(l) of the Principal Regulation (Definitions- Date of commercial operation or Commissioning (CoD))

Regulation 3(1)(l) of the Principal Regulations was proposed to be substituted as under:

"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.*

Further, such generator has to demonstrate MCR of the project within six months from the date of commissioning."

Comments received

UREDA submitted that the last line under the proposed amendment, i.e. "Further, such generator has to demonstrate MCR of the project within six month from the date of commissioning" should be deleted as maximum continuous rating of solar power projects cannot be achieved as it depends on available irradiance, temperature, humidity and other environment conditions. However, the solar power projects could be considered to be commissioned, if the Performance Ratio calculated is minimum 75% at the time of inspection. UREDA submitted that the same has also been considered by Solar Energy Corporation of Indian (SECI), GoI, where the formula for Performance Ratio is as follows:

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

ACME requested the Commission to define "trial run" since definition of Trial Run varies from projects to projects based on fuel used like Gas, Coal, Hydro, Solar, Biomass etc. ACME submitted that for Solar power projects, once the project is certified by the Executive Engineer, Nodal Agency and Electrical Inspector it should not be made mandatory to demonstrate MCR any more as even after installing the project as per norms to achieve the contracted capacity, it is difficult and not in the hand of the developer to demonstrate the MCR as it all depends on modules' standard temperature and condition (STC), irradiation, dust presence etc. During the hearing, ACME also agreed with the submission of the UREDA that Performance Ratio may be considered for the purpose of commissioning of the solar projects instead of MCR.

Commission's view and decision

With regard to "Date of commercial operation or Commissioning (CoD)" of Solar PV plants, the Commission had received representations from Solar power developers stating that their plants were ready for commissioning, however, due to voltage problem in the associated line of the distribution licensee, they could not demonstrate the Maximum Continuous Rating (MCR) of their respective project. The Commission agrees with the submissions made by UREDA in this regard and is of the view that after commissioning of solar PV plants in all respect, generation of power to full capacity is not within the control of the solar power developers since for this purpose adequate solar radiation is essential. If sufficient solar radiation is not available where solar power plant has been installed it cannot generate power equivalent to its installed capacity. Moreover, availability of appropriate evacuation network of the licensee is also necessary for the purpose of determination of date of commissioning of solar PV plants. If there is any shortcoming in the evacuation network such as line voltage beyond the permissible level then it may also obstruct generation of power from such plants to full capacity. The Commission agrees to link the date of commercial operation of the Solar plant with the Performance Ratio instead of MCR as suggested by UREDA and also considered by SECI, GoI.

In light of the above and so as to avoid dispute with regard to date of commercial operation or commissioning of the Solar PV plant and corresponding tariff, in deviation to the draft amendment Regulations, the Commission has decided to amend the definition of date of commercial operation or Commissioning (CoD)" in Regulation 3(1)(l) of the Principal Regulations as follows:

"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.

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.”

Further, following definition of “Performance Ratio” shall be inserted after Regulation 3 (1) (bb) as under:

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

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

3. Amendment proposed by the Commission in Regulation 1(2) (i.e. Short title and commencement) and Regulation 9(1) (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 source)

Regulation 1(2) of the Principal Regulations was proposed to be substituted as under:

“(2) These regulations shall come into force with effect from the date of notification, and unless reviewed earlier or extended by the Commission, shall remain in force for a period of 5 years from the date of commencement of Principal Regulations.

Provided that Regulation 9(1) of the Principal Regulations shall continue to be valid upto 31.03.2019”

Regulation 9(1) of the Principal Regulations was proposed to be substituted as under:

“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.

Year	Renewable Purchase Obligation -Non-Solar	Renewable Purchase Obligation - Solar
	Revised	Revised
2013-14	6.00%	0.050%
2014-15	7.00%	0.075%
2015-16	8.00%	0.100%
2016-17	8.00%	1.50%
2017-18	9.50%	4.75%
2018-19	10.25%	6.75%

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.

Provided, Non-Solar & Solar RPO for FY 2017-18 and FY 2018-19 shall be applicable on total consumption of electricity by an obligated entity excluding consumption met from hydro sources of power.

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."

Comments received

UREDA submitted that the words "purchased" and "consumption" both have been used in the proposed regulation w.r.t. applicable percentage of RPO compliance on the total energy purchase/consumed by the obligated entities. UREDA requested the Commission to clarify the same as both words have different meaning and are contradictory to the statements in the proposed regulations. UREDA further requested the Commission to allow RPO on total energy consumed by the obligated entity including all applicable line losses etc.

Commission's view and decision

Ministry of Power, Government of India had issued an Order no. 23/3/2016-R&R dated 22nd July, 2016 notifying the long term growth trajectory of RPO for Non-Solar as well Solar, uniformly for all States/Union Territories.

The above mentioned Order of the MoP also specifies that the revision in RPO shall be applicable on total consumption of electricity by an obligated entity excluding consumption met from hydro sources of power.

The Commission had initiated the proceedings for revision of the RPO in line with the above mentioned Order of the MoP. However, due to lack of clarity in applicability of the MoP's order dated 22.07.2016, the Commission had discussions with the Regulatory Commissions of other States also. It was inferred that the State Commissions of Himachal Pradesh, Andhra Pradesh and Assam had vide their respective notifications dated 24.03.2017, 31.03.2017 & 14.03.2017 revised the RPO Trajectory in accordance with the MoP's Order wherein, percentage of RPO to be complied by the obligated entities have been specified as percentage of total electricity consumption by an entity excluding the consumption met through Hydro sources of power.

The Commission also noted that despite the efforts for procurement of RE based power by

way of long-term tie-up with the generating stations within the State as well as short-term/medium-term tie-up with the traders or other related RE based sources, Uttarakhand Power Corporation Ltd. (sole of Distribution Licensee in the State) is consistently falling short of RPO compliances primarily on account of inadequate and delayed development of non-solar RE based generating stations as was envisaged at the time of fixing RPO targets. Considering the existing scenario of sluggish development of non-solar RE power resulting in persistent shortfall in compliances by the obligated entities, the Commission has decided to revise RPO targets in accordance with the trajectory specified by Ministry of Power, Govt. of India as mentioned above.

The intent of the GoI was to have uniform RPO targets for all State/Union Territories and the same has been specified initially for three years for FY 2016-17 to FY 2018-19. However, the existing RE Regulations, 2013 have Control Period till 31st March 2018. Since procurement of power for ensuing years and corresponding procurement of RE power has to be planned well in advance by the Distribution Licensee and other obligated entities therefore, the Commission is of the opinion that it would be pragmatic to specify RPO targets upto FY 2018-19. Further, FY 2016-17 is already over, accordingly, the Commission has decided to consider revision in the RPO for FY 2017-18 & FY 2018-19 only so that all the obligated entities may be able to plan their power purchase and RPO compliances. Any revision in RPO targets subsequent to FY 2018-19 and onwards shall be considered alongwith the forthcoming RE Regulations for the next Control Period. Hence, to this account applicability of the Principal Regulations shall be extended up to 31.03.2019.

In this regard, it would be relevant to refer to the Judgment dated April 25, 2014 of Hon'ble ATE in Appeal No. 24 of 2013 & IA no. 39 of 2013 wherein at Para 55 of the Judgment, Hon'ble ATE has held as under:

"...We would, however, give guidelines to the State Commission for future as under:

(A) The State Commission may decide the RPO targets at least one year before the commencement of the Multi Year Tariff period to give adequate time to the distribution licensees to plan and arrange procurement of renewable energy sources and enter into PPAs with the renewable energy project developers..."

The intent of the same is to allow sufficient time to the obligated entities to plan and arrange procurement of renewable energy sources or the REC's so as to comply with the RPO and also to ensure that they are not unduly burdened. However, since the proposed amendment is issued in September, 2017 it will have consequential implications on the other obligated entities such as captive users and open access consumers. Hence, the Commission is of the view that any excess obligation (both solar as well as non-solar) on such obligated entities arising due to the proposed amendment shall be allowed to be carried forward to the next financial year which shall

be met with the RPO of the subsequent financial year.

As far the comment of UREDA is concerned with respect to allowing RPO on total energy consumed by the obligated entities including all applicable line losses etc. The Forum of Regulators (FOR) deliberated on this issue in its 60th meeting held on June 23rd, 2017. The Forum considered the matter related to defining the consumption of electricity for computing RPO target and noted different approaches adopted by various SERCs in this regard. The Forum while considering the recommendations of the “FOR Technical Committee for Implementation of Framework on Renewable at the State Level” in this regard decided that:

It would be desirable to compute RPO for Discoms as a percentage of energy input, uniformly across States, as ‘sales’ in any case will have to be grossed up by T&D losses to arrive at the quantum of purchase of RE by Discoms.

In respect of OA and CPP consumers, the RPO be computed as a percentage of metered consumption recorded at drawal / consumption point.

SERCs may consider notifying suitable amendments to their RPO Regulations, as per above.

Accordingly, the Commission decides to amend the RPO of the obligated entities in Regulation 9(1) of the Principal Regulations.

Regulation 1(2) of the Principal Regulations shall be read as under:

“(2)These regulations shall come into force with effect from the date of notification, and unless reviewed earlier or extended by the Commission, shall remain in force for a period of 5 years from the date of commencement of Principal Regulations. Provided that Regulation 9(1) of the Principal Regulations shall continue to be valid upto 31.03.2019”

Regulation 9(1) of the Principal Regulations shall be read as under:

“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.

Year	Renewable Purchase Obligation -Non-Solar	Renewable Purchase Obligation – Solar
	Revised	Revised
2013-14	6.00%	0.050%
2014-15	7.00%	0.075%
2015-16	8.00%	0.100%
2016-17	8.00%	1.50%
2017-18	9.50%	4.75%
2018-19	10.25%	6.75%

**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, Non-Solar & Solar RPO for FY 2017-18 and FY 2018-19 shall be applicable on total consumption of electricity by an obligated entity excluding consumption met from hydro sources of power.

Provided that any excess obligation (both solar as well as non-solar) on Open Access consumers and Captive users arising due to the amendment for FY 2017-18 shall be allowed to be carried forward to FY 2018-19 which shall be met with the RPO of the subsequent financial year

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."

4. Amendment proposed by the Commission in Regulation 28 (i.e. Small Hydro Generating Plants - Technology Specific Parameters) of RE Regulations, 2013 and Regulation 29 (i.e. Small Hydro Generating Plants- Technology Specific Parameters) of RE Regulations, 2010

Regulation 28 of the RE Regulations 2013 was proposed to be substituted as under:

Draft amendment:

"Small Hydro Generating Plant

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

Projects Commissioned on or after 01.04.2013

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	785	35.33	40%	1%
> 5 MW & upto 15 MW	750	30.00		
> 15 MW & upto 25 MW	715	25.03		

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 16th year onwards.

Regulation 29 of the RE Regulations, 2010 was proposed to be substituted as under:

Draft amendment:

“29. Small Hydro Generating Plant

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

Projects Commissioned after 01.01.2002 to 31.03.2007

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	550	24.75	40%	1%
5 MW to 10 MW		23.38		
10 MW to 15 MW		22.00		
15 MW to 20 MW		20.63		
20 MW to 25 MW		19.25		

Projects Commissioned during FY 2007-08 to 2008-09

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	600	27.00	40%	1%
5 MW to 10 MW		25.50		
10 MW to 15 MW		24.00		
15 MW to 20 MW		22.50		
20 MW to 25 MW		21.00		

Projects Commissioned on or after 01.04.2009

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	700	31.50	40%	1%
5 MW to 10 MW	685	29.11		
10 MW to 15 MW	670	26.80		
15 MW to 20 MW	650	24.38		
20 MW to 25 MW	630	22.05		

”

Comment received

UPCL submitted that the request of generators for amendment in present regulations at the very fag end when the present regulations are about to expire does not appear to be justified as the issue of O&M charges needed to be thoroughly debated and efforts needed to be made so as to arrive at an reasonable expenses. UPCL further added that proposed O&M expenses appear to be assumptive as no data or calculations have been given which has led to such a determination. Further, past data for ascertaining the reasonable O&M expenses are available, there are various new and old plants running in Our State. The same may be scrutinized and past data from the audited balance sheets of both private and government controlled generating stations can be obtained and analysed. UPCL submitted that the Commission has held that the amendment cannot be retrospective but it has devised a way which appears to be nothing but as circumventing the principles of law of not making a subordinate regulations retrospective in effect and moreover it may create practical difficulties.

UPCL also submitted that there must have been a strong reason for the Commission to have switched from keeping the O&M expenses as percentage of the total cost to the normative and further more whatever amount of normative O&M expenses has been given by the Commission for any particular year or for any quantum of energy, must itself have been based upon reasons and upon judicial determination, and to suggest anything contrary to the same now or to accept that cannot be done on some suggestions/assumptions, to deviate today from the past determinations it will not be sufficient to merely say that they are less rather they have to be challenged and ample proof in challenge of the same has to be put forward, which is totally missing at the present juncture. UPCL also submitted that the Commission has been made to believe that the mistake has occurred in determination, however, legislations are neither made nor amended on mere belief and there do not appear justifiable reasons to amend the present regulations as has been proposed.

UPCL submitted that Himachal Pradesh’s RE Tariff Regulations, 2012 (applicable upto September, 2017) provides as follows:

Plant (Capacity)	O&M Expenses (Rs. Lakh)	Capital Cost (Rs. Lakh)
100 kW to 2 MW	25	780
2 MW to 5 MW	22	750
5 MW to 25 MW	18	700

UPCL also submitted that the O&M expenses and capital cost are also lesser in H.P. than what has been provided in UERC's Regulations. The Commission from the very beginning has been very lenient and kind in assuming the Capital and O&M costs of the SHPs. UPCL submitted that the Commission had kept in mind CERC's RE Regulations, 2012 while finalizing the UERC RE Regulations, 2013. However, now at present juncture to disown them as a mistake are not correct and question the due diligence done at the time of finalization of these Regulations. Further, CERC has proposed the draft RE Regulations in March 2017 which are yet to be finalized, where they have provided for the O&M charges as Rs. 36 Lakh/MW, i.e. 3.6% of capital cost (upto 5 MW) and Rs. 27 Lakh/MW, i.e. 3.0% of Capital Cost (5MW to 25 MW). UPCL also submitted that CERC has maintained the CUF as 45% while the same is relaxed to 40% by UERC. Further, at one end HPERC is just allowing for expenses even below the CERC norms and that too at 55% CUF it would not be justified to burden the consumers of Uttarakhand State with such high O&M expenses.

UREDA requested the Commission to also revise the levellised tariff of small hydro generating plants as the O&M expenses have been revised in the proposed amendment. UREDA submitted that it has been the Nodal Agency for the implementation of the projects upto 2MW, hence, requested for an additional category of project size upto 2 MW power plants and also requested that the capital cost of mini & micro hydro power projects (capacity upto 2 MW) should be kept higher than the capital cost of other projects sizes considering the factors that the potential sites of mini and micro hydro power projects are located in very remote places and the approach to these sites is very difficult and thus increase the transportation cost. UREDA requested to keep the capital cost of mini and micro hydro power projects (upto 2 MW) around Rs. 10 Crore/MW. UREDA also submitted that the mini and micro hydro power projects in Uttarakhand are located in hilly snow bound areas, where the project could only be operated for 6 months and during winter seasons (September to February) operations of mini and micro hydro power projects stop due to heavy snowfall. This reduces the CUF of the project. Hence, CUF of the mini and micro hydro power projects should not be considered as 40% as taken for others project sizes. The CUF is far lower than 40% and could be taken as 35%. Further the impact of GST should also be taken into account while finalizing the capital cost of the project.

Uttar Bharat Hydro Power (P) Ltd. (UBHP) submitted that the present draft amendment proposes O&M expenses at about 4.5% to 4% of normative/generic capital expenditure which is lower than that permitted in 2008 Tariff Regulations, i.e. 4% to 5% of normative capital expense.

The actual O&M expenses being incurred for Sarju-III SHP (10.50 MW) is about 7.6% of generic capital cost, in addition to the additional repair and maintenance costs that it needs to bear for the additional structures necessary for its long term safety and operations. Further, there are high Electro-Mechanical O&M costs due to frequent/numerous failures of UPCL's 33 kV transmission grid and high voltage levels and due to high levels of silt in the river result.

UBHP has requested the Commission to allow actual O&M costs of SHPs, which are far higher than that mentioned in the present draft amendment and which also fall short of the expenses presently being allowed for LHPs which don't suffer the same risks and costs as SHPs. UBHP further submitted that the draft amendment currently does not take into account any additional capital expense incurred and approved by the Commission after project commissioning due to force majeure events or Renovation & Modernization. It also submitted that the regulations be amended so that tariffs for generation above 40% PLF be adjusted as per the new O&M expense being allowed. Otherwise, SHPs will under-recover their O&M expenses (especially as it relates to labour, consumables, spare parts and plant wear and tear) for generation above 40% PLF. UBHP has submitted that the Commission has allowed the O&M expenses as 4% of capital cost as for projects having upto capacity of 200 MW vide MYT Tariff Regulations, thus, the same principle may be applied for SHPs as well, and actual O&M costs be allowed to recovered for all SHPs irrespective of capacity.

Himalaya Hydro (P) Ltd. submitted that the present amendments to the O&M expenses are lower than that permitted by the Commission under its earlier regulations of 2008. Moreover, the actual O&M expenses being incurred for Motighat SHP (5MW) is about 8% of normative capital cost (this is over 6% of the actual capital expenditure incurred) and that is due to high administrative and personnel costs, high insurance cost as insurance companies are wary of the risk of insuring these projects which are located in areas prone to natural calamities. High O&M costs are also incurred due to frequent/numerous failures of UPCL's 33 kV transmission grid and high voltage levels. The stakeholder further submitted that the draft amendment currently does not take into account any additional capital expense incurred and approved by the Commission after project commissioning due to force majeure events or Renovation & Modernization. In this context, it has been submitted that as per the MYT Tariff Regulations, 2015 which governs the tariffs for Large Hydro Projects, the Commission in Regulation 48(2)(d) has provided for additional O&M expenses equal to 2% of the additional capital cost admitted by the Commission towards Renovation & Modernization which is over and above the O&M expense of 4% of actual capital cost incurred by Large Hydro Projects (having capacity less than 200 MW). Further, the stakeholder submitted that tariffs for generation above 40% PLF be adjusted as per the new O&M expense being allowed

otherwise, SHPs will under-recover their O&M expenses (especially as it relates to labour, consumables, spare parts and plant wear and tear) for generation above 40% PLF. Further, the Commission has allowed O&M expenses as 4% of capital cost as for projects having upto capacity of 200 MW. It submitted that the same principle may be applied for SHPs as well, and actual O&M costs be allowed to be recovered for all SHPs irrespective of capacity.

Birahi Ganga Hydro Power Ltd. submitted that SHPs in Uttarakhand are indeed more dependent on the vagaries of nature and are more prone to damages and they do incur much higher O&M costs as compared to Large Hydro Projects. The stakeholder submitted that the proposed O&M expenses are lower than that permitted by the Commission under its earlier regulations of 2008 which were 4% to 5% of normative Capital Cost. Further, actual O&M expenses being incurred for Birahi Ganga SHP (7.2 MW) is more than 6% of its actual capital expense of Rs. 65 Crore. The reasons for the high O&M expenses are frequent and failing of UPCL Grid system, frequent civil work repair and maintenance, high administrative and personnel costs and high insurance cost. The stakeholder further submitted that the Commission is allowing 4% of the actual capital cost as O&M expenses for LHPs, whereas for SHPs the proposed O&M expenses are only about 4% to 5% of generic capital cost, which is far lower than the actual capital cost incurred. The stakeholder requested the Commission to allow actual O&M expenses of SHPs which are far higher than those mentioned in the present draft amendment and which also fall short of the expenses presently being allowed for LHPs which don't suffer the same risk and costs as SHPs.

Further, M/s Harshil Hydro Ltd, M/s Regency Gangani Energy Pvt. Ltd, M/s Regency Yamuna Energy Ltd and M/s Regency Aquelectro & Motelresorts Pvt Ltd. expressed their gratitude for increasing O&M expenses and submitted that it will help the stakeholders to maintain the equipments and manpower cost.

Commission's view and decision

The Commission had received representations stating that normative capital cost of SHPs and corresponding normative O&M expenditure specified in the RE Regulations, 2013 are lower as compared to actual capital cost and O&M expenditures incurred on SHPs in the State. Request was made before the Commission for reviewing the RE Regulations, 2013. O&M expenses norms specified for SHPs in the RE Regulations, 2008 were based on the percentage of normative capital cost which were to the tune of 5% to 4% of the capital cost. However, vide subsequent Regulations normative O&M expenses have been reduced to the range of 3.37% to 2.66% of the capital cost of SHP.

Considering the above, the Commission reviewed the trend of O&M expenses specified

vide RE Regulations which is as follows:

Details of O & M Expenses as a percentage of Capital Cost in accordance with the RE Regulations

Regulations — »	RE Regulations, 2008				RE Regulations, 2010									RE Regulations, 2013		
	Before 01.04.2007		On or after 01.04.2007		1.1.2002 to 31.3.2007			FY 2007-08 to 2008-09			On or after 01.04.2009			On or after 01.04.2013		
	Cap. Cost	O&M	Cap. Cost	O&M	Cap. Cost	O&M	Cap. Cost	O&M	Cap. Cost	O&M	Cap. Cost	O&M	Cap. Cost	O&M		
Norms	Rs. Lakh /MW	% of Cap. Cost	Rs. Lakh /MW	% of Cap. Cost	Rs. Lakh /MW	Rs. Lakh/ MW	% of Cap. Cost	Rs. Lakh /MW	Rs. Lakh/ MW	% of Cap. Cost	Rs. Lakh /MW	Rs. Lakh/ MW	% of Cap. Cost	Rs. Lakh /MW	Rs. Lakh/ MW	% of Cap. Cost
Upto 5MW	550.00	5.00%	600	5.00%	550.00	15.9	2.89%	600.00	18.79	3.13%	700.00	21	3.00%	785.00	26.43	3.37%
5 to 10 MW	550.00	4.75%	600	4.75%	550.00	14.77	2.69%	600.00	17.45	2.91%	685.00	20	2.92%	750.00	22.73	3.03%
10 to 15 MW	550.00	4.50%	600	4.50%	550.00	13.63	2.48%	600.00	16.1	2.68%	670.00	18	2.69%	750.00	22.73	3.03%
15 to 20 MW	550.00	4.25%	600	4.25%	550.00	12.49	2.27%	600.00	14.76	2.46%	650.00	17	2.62%	715.00	19.03	2.66%
20 to 25 MW	550.00	4.00%	600	4.00%	550.00	11.36	2.07%	600.00	13.42	2.24%	630.00	15	2.38%	715.00	19.03	2.66%

Note: The percentage of the O&M expenses shown in the Regulation of 2010 and onwards is computed based on the normative capital cost as adopted in the regulations.

The Commission observed that with the passage of time normative capital cost specified in the Regulations have increased from 19% in the year 2007 to 31% in the year 2013, however, normative O&M expenses have reduced from Rs. 24-30 Lakh/MW in the year 2007 to Rs. 19-26.43 Lakh/MW in the year 2013. Considering inflation of market indices increase in O&M expenses should also be allowed following the trend of increase in capital cost of SHPs.

The Commission since 2010 has been specifying the O&M expenses in its Regulations following the normative O&M expenses considered by CERC in its Regulations. In this regard, UERC (Terms and Conditions for Determination of Multi Year Tariff) Regulations, 2015 also specifies normative O&M expenses for the large hydro power projects commissioned on or after 01.04.2016. Relevant regulation 48(2)(c) of the above mentioned MYT Regulations, 2015 is as follows:

“(c) For Generating Stations declared under commercial operation on or after 1.4.2016.

In case of new hydro electric generating stations, i.e. the hydro electric generating stations declared under commercial operation on or after 1.4.2016, the base operation and maintenance expenses for the year of commissioning shall be fixed at 4% and 2.5% of the actual capital cost (excluding cost of rehabilitation & resettlement works) as admitted by the Commission, for stations less than 200 MW projects and for stations more than 200 MW respectively.”

The Commission noted that the above provision of normative O&M expenses for large hydro power projects had also been specified following the CERC (Terms and Conditions of Tariff) Regulations, 2014. By allowing O&M expenses to the tune of 2.66% to 3.37% in respect of small hydro projects appears to be on lower side as compared to normative O&M expenses of 4% as a percentage of actual capital cost specified for large hydro projects in accordance with the MYT Regulations, 2015. In a way, lower normative O&M expense to SHP leads to shortfall in recovery of routine expenditure when compared to normative O&M expenses for large hydro plants despite

economy of scale for large plants. Hence, there appears to be discrimination between large hydro projects and small hydro projects.

Further, as far the comment of UPCL regarding examination of actual O&M expenses of the SHPs is concerned, the Commission had sought financial information for FY 2010-11 onwards from public as well as private generators and analysed the same thoroughly and during the public hearing all the stakeholders were given opportunity to put their comments/suggestions/objections before the Commission. The summary of the actual O&M expenditure as % of normative capital cost for the private as well as public generators is as follows:

Sr. No.	Name of Generator	Name of SHP	Capacity (MW)	O&M Expenses (As % of normative capital cost)						
				2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
1	Chamoli Hydro Power Pvt. Ltd.	Debal	5	5.86%	6.25%	5.97%	8.31%	7.74%	7.64%	8.13%
2	Himalaya Hydro Pvt. Ltd.	Motighat	5	-	3.97%	5.71%	2.98%	4.55%	10.87%	10.53%
3	Regency Yamuna Energy Ltd.	Badyar	4.9	-	-	-	-	2.76%	6.26%	4.27%
4	Regency Aquaelectro & Motelresorts Pvt. Ltd.	Hanumanganga	4.95	3.75%	3.53%	2.41%	4.18%	7.18%	3.87%	3.15%
5	UJVN Ltd.	Kotabagh	0.2	10.89%	11.11%	11.64%	5.62%			
		Charandev	0.4	12.87%	12.60%	11.43%	6.32%	-	-	-
		Sapteshwar	0.3	10.61%	15.20%	11.28%	9.02%	-	-	-
		Garaon	0.3	8.74%	13.72%	9.27%	5.61%	-	-	-
		Suringad	0.8	11.66%	11.37%	9.56%	5.62%	-	-	-
		Taleshwar	0.6	15.99%	14.98%	10.25%	6.51%	-	-	-
		Barar	0.75	10.89%	16.30%	12.80%	9.21%	-	-	-
		Gaurhi	0.2	8.52%	8.86%	8.55%	5.62%	-	-	-
		Kulagad	1.2	6.16%	6.22%	6.31%	4.86%	-	-	-
		Relagad	3	6.33%	7.09%	7.00%	4.94%	-	-	-
		Kanchauti	2	8.55%	7.20%	7.39%	4.61%	-	-	-
		Chirkila	1.5	8.01%	6.97%	7.52%	5.49%	-	-	-
		Pilangad	2.25	2.62%	4.32%	2.16%	2.35%	-	-	-
		Harsil	0.2	5.89%	10.06%	2.16%	2.30%	-	-	-
		Tharali	0.4	4.27%	7.95%	8.30%	6.60%	-	-	-
		Sonprayag	0.5	3.93%	3.15%	12.35%	7.05%	-	-	-
		Badrinath II	1.25	3.48%	3.84%	6.74%	5.02%	-	-	-
		Urgam	3	4.09%	3.35%	5.42%	4.53%	-	-	-
Pandukeshwar	0.75	2.84%	3.32%	4.94%	4.59%	-	-	-		
Jumagad	1.2	3.53%	3.10%	4.15%	4.38%	-	-	-		
Tapowan	0.8	3.27%	3.11%	4.15%	4.36%	-	-	-		
Tilwada	0.2	2.84%	3.09%	4.15%	4.34%	-	-	-		
Average O&M Expenses for projects having capacity upto 5 MW				6.90%	7.63%	7.26%	5.38%	5.56%	7.16%	6.52%
6	Birahi Ganga Hydro Power Ltd.	Birahi	7.2	0.00%	0.42%	3.82%	5.07%	8.99%	9.27%	5.80%
7	Regency Gangani Energy Pvt. Ltd.	Gangani	8	-	-	-	-	2.91%	4.73%	3.27%
8	UJVN Ltd.	Mohammadpur	9.3	3.09%	3.54%	3.74%	4.01%	5.19%	7.11%	8.91%
Average O&M Expenses for projects having capacity greater than 5 MW and upto 10 MW				3.09%	1.98%	3.78%	4.54%	5.70%	7.04%	6.00%
9	UJVN Ltd.	Pathri	20.4	4.63%	4.90%	4.07%	7.28%	6.43%	7.01%	8.51%
10	Swasti Power Pvt. Ltd.	Bhilangana	22.5	3.70%	3.17%	3.91%	4.00%	5.00%	3.09%	2.84%
Average O&M Expenses for projects having capacity greater than 20 MW and upto 25 MW				4.16%	4.04%	3.99%	5.64%	5.72%	5.05%	5.68%

Thus, as is evident from the Table above, the average O&M Expenses for projects having capacity upto 5 MW for the FY 2010-11 to FY 2016-17 ranges from 5.56% to 7.63%. Similarly the average O&M Expenses for projects having capacity greater than 5 MW and upto 10 MW for the FY 2010-11 to FY 2016-17 ranges from 1.98% to 7.04% and the average O&M Expenses for projects having capacity greater than 20 MW and upto 25 MW for the FY 2010-11 to FY 2016-17 ranges from 3.99% to 5.72%. UPCL had suggested to review the O&M expenses for projects under the control of UJVN Ltd. It is evident from the Table above, that O&M expenses of projects under the control of UJVN Ltd. are comparable with the private developers and in some cases the O&M expenses of UJVN Ltd. controlled projects exceeds the O&M expenses incurred by the private developers. Hence, there appears a genuine need to enhance the O&M expenses.

The reference made by UPCL to CERC's and HPERC's Regulations are also not reasonable. Under Section 61 of the Electricity Act, 2003, the Commission has to be guided by CERC's Regulations and there are numerous Judgments of Hon'ble APTEL and Hon'ble Supreme Court which has clearly enumerated that the word guided is not mandatory. The Commission had fixed the O&M expenses in its RE Regulations, 2010 and RE Regulations, 2013 based on CERC Regulations as adequate historical data was not available. But now sufficient data is available and based on the above analysis the review of O&M expenses for SHPs is inevitable.

Every State Commission frames Regulations keeping in view the State specific issues and requirements. Accordingly, reference made towards RE Regulations of HPERC is also not desirable as HP Commission would have framed the Regulations as per their State specific requirements. The State of Uttarakhand has been witnessing unprecedented rainfalls, landslides, floods, etc. during the past years which necessitate higher levels of O&M expenses not only for repairs and maintenance expenses but also for retaining skilled manpower. Hence, there appears a genuine need to revisit the O&M expenses.

Many stakeholders submitted that the proposed O&M expenses are still not sufficient to meet their operative expenses as actual O&M expenses are in the range of 6% to 7% of the normative capital cost. The Commission has analysed the financial information submitted by the stakeholders and agrees that actual O&M expenses as incurred by the generators are higher than the normative O&M expenses allowed by the Commission through its RE Regulations. However, the Commission observes that some prudence needs to be there on the part of the generators and they need to control their O&M expenses so that any inefficient or wasteful expenditure on this head do not get passed on to the consumer. This is the essential difference between a Large hydro project and a Small hydro project. In case of large hydro projects, truing up of their expenses and revenues are carried out each year and any variation in the controllable expenses are majorly borne

by the Generator with Discom sharing such loss to a smaller extent. However, no provision relating to truing up exists for the SHPs. Hence, there is a need to rationalise their O&M expenses so as to bring them at par with the LHPs. Accordingly, the Commission finds it reasonable to allow normative O&M expenses in the range of 3.5% to 4.5% as proposed by it in the draft Regulations.

Further, as far as the comment of Himalaya Hydro (P) Ltd. regarding extra O&M expenses towards additional capitalisation incurred, the Commission is of the view that under the RE Regulations, there is no separate provision for O&M expenses on additional capitalisation. Moreover, reference made to additional O&M expenses being allowed on large hydro plants equal to 2% of the additional capital cost admitted by the Commission towards Renovation & Modernization which is over and above the O&M expense of 4% of actual capital cost incurred by Large Hydro Projects (having capacity less than 200 MW) is not correct. On one hand the Respondent is talking about the capital cost towards Renovation & Modernization of a project which is carried out in old projects which have lived up their useful life and on the other it talks about the additional O&M expenses of 2% over and above the O&M expenses of 4%. The Respondent carefully chose to ignore the fact that 4% O&M expenses are allowed to large hydro projects which are new stations and Renovation and Modernisation of a hydro project is carried out if it is an old station or has outlived its life. The Respondent should have carefully studied the entire Regulations especially Regulation 48(2) in entirety. For stations which are more than 5 years old, the Commission carries out prudence check of the O&M expenses every year and based on the 5 years expenses allows them O&M expenses for subsequent years for which truing up is also carried out, which is not done for SHPs. Further, after Renovation and Modernisation of a project is carried out, it is felt that the requirement for repairs and maintenance in the initial years reduces, hence, a cap of 2% towards Repairs and Maintenance has been put and other components like employee expenses and overheads are worked out on the basis of past years expenses. Hence, the contention of the stakeholder is unfounded.

As far as the request of UREDA to provide separate capital cost and technology specific parameters for the SHP projects upto capacity of 2MW is concerned, the Commission is of the view that for project capacity upto 5 MW, generic norms have been specified in the Regulations and the generator has also been provided with an option to seek project specific tariff if the actual capital cost exceeds the normative capital cost. Hence, the Commission is not considering the issue.

Accordingly, based on the above discussions, the Commission has decided to finalise Regulation 28 of RE Regulations, 2013 as follows:

“Small Hydro Generating Plant

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

Projects Commissioned on or after 01.04.2013

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	785	35.33	40%	1%
> 5 MW & upto 15 MW	750	30.00		
> 15 MW & upto 25 MW	715	25.03		

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 16th year onwards.

In line with the amendment as finalised above and so as to ensure consistency in applicability of normative O&M expenses in respect of all the SHPs, the Commission has also decided to amend Regulation 29 of the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010.

“29. Small Hydro Generating Plant

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

Projects Commissioned after 01.01.2002 to 31.03.2007

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	550	24.75	40%	1%
5 MW to 10 MW		23.38		
10 MW to 15 MW		22.00		
15 MW to 20 MW		20.63		
20 MW to 25 MW		19.25		

Projects Commissioned during FY 2007-08 to 2008-09

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	600	27.00	40%	1%
5 MW to 10 MW		25.50		
10 MW to 15 MW		24.00		
15 MW to 20 MW		22.50		
20 MW to 25 MW		21.00		

Projects Commissioned on or after 01.04.2009

Project Size	Capital Cost	O&M Expenses for the year of commissioning	Capacity Utilization Factor	Auxiliary Consumption
	(Rs. Lakh/MW)	(Rs. Lakh/MW)	(%)	(%)
Upto 5 MW	700	31.50	40%	1%
5 MW to 10 MW	685	29.11		
10 MW to 15 MW	670	26.80		
15 MW to 20 MW	650	24.38		
20 MW to 25 MW	630	22.05		

5. Amendment proposed by the Commission in Regulation 35(3) (i.e. Grid interactive roof top and small solar PV plants) of RE Regulations, 2010

Regulation 35(3) of the RE Regulations, 2013 was proposed to be substituted as under:

“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.

Provided, such net energy shall not be more than 95% of the actual energy generated in the said Billing Period.

Provided, where the net energy injected exceeds 95% of the actual energy generated in a Billing Period, such excess net energy (net energy - 95% of actual energy generated) shall be paid at the lowest base slab of energy charges prescribed in the Rate Schedule for the said Eligible Consumer or at the rate discovered through tariff based bidding process whichever is lower.”

Comments received

XPANZ Energy Solution LLP submitted that in the proposed draft amendment, eligible consumers or third party needs to be elaborated. The stakeholder further submitted that the projects approved by the Central Government agencies are not getting the benefits of this provision. In the past UPCL had issued NoC for interconnect with UPCL Grid with condition that if in billing period the supplied energy is less than the energy injected, the excess energy would be deemed to be injected free of cost.

The stakeholder also submitted that the method of settlement at the end of each billing period should be elaborated and it should also be clarified that whether the settlement be by payment at the end of billing period or credit and payment at the end of accounting year.

Commission’s view and decision

The Commission in its SOR accompanying the draft Regulations had opined as under:

“17. In this regard, the Commission noted that billing for net energy exceeding 95% of the actual energy generated has been allowed since FY 2015-16 when lowest base energy charges for domestic consumers was around Rs. 2.40/unit against the approved tariff of Rs. 5.70/unit for Solar Rooftop plant under net metering mechanism. This provision had been brought in the Regulations so as to maintain financial

equilibrium for both UPCL as well as project developers under the scheme. With advancement of technology and development of solar market over the passage of time, tariff for such projects is showing declining trend as low as Rs. 1/unit has been discovered in the last bidding, therefore, provision of billing of net energy exceeding 95% of the actual energy generated from such projects at the lowest base energy charges as per Retail Tariff Schedule for the eligible consumers is being reviewed..."

Since, there is no comment on the proposed draft, accordingly, the Commission is finalising the same.

As far as the comment of XPANZ Energy Solution LLP regarding similar benefits being extended to projects approved by Central Government agencies is concerned, the Regulations and the conditions therein have been framed for the projects having a long term PPA with UPCL. Accordingly, differentiation for them has been so incorporated.

As far as the comments on elaboration of eligible consumers and third party is concerned, the Commission has already defined "Eligible Consumers" and "Third Party" under Regulation 3(1)(m1) and Regulation 3(1)(mm1) of RE Regulations 2013 (incorporated vide 3rd Amendment to RE Regulations, 2013). Similarly, the settlement conditions have also been specified in the said Amendment Regulations.

In addition to the above, it has been noted that many consumers in the State have opted for solar roof top projects having capacities less than their contracted load with UPCL. First proviso to Regulation 35(4) of RE Regulations, 2013 specifies as under:

"Provided that such eligible consumer shall, however, be exempted from payment of monthly minimum charges or monthly minimum consumption guarantee charges or any other charges."

The Commission is of the opinion that such provision may be misused by a consumer to the effect that a consumer having a contracted load of 500 kW gets a solar rooftop project having capacity of 50 kW installed at his premise and could then claim exemption from minimum charges. The intent of this provision is that any eligible consumer who has installed a solar rooftop or a small solar PV project at its premise, may not be burdened by minimum charges equivalent to the capacity of the solar rooftop or small solar PV project installed and not the other way around. Accordingly, the Commission has decided to clarify by adequately amending the said Regulations.

Accordingly, Regulation 35(3) and (4) of RE Tariff Regulations 2013 shall be read as under:

"(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.

Provided, such net energy shall not be more than 95% of the actual energy generated in the said Billing Period.

Provided, where the net energy injected exceeds 95% of the actual energy generated in a Billing Period, such excess net energy (net energy - 95% of actual energy generated) shall be paid at the lowest base slab of energy charges prescribed in the Rate Schedule for the said Eligible Consumer or at the rate discovered through tariff based bidding process whichever is lower.

(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 that such eligible consumer shall, however, be exempted from payment of monthly minimum charges or monthly minimum consumption guarantee charges equivalent to the capacity of roof-top solar PV sources installed.

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

6. Other Issues: Deemed Generation for solar PV projects

Comments received

M/s Acme Cleantech Solutions (P) Ltd. submitted that the ceiling of 60 hours in a month for claiming deemed generation for a solar project is too high and should not be more than 50 hours/year. The rationale submitted by the stakeholder in support of its claim was that the solar projects are based on single part tariff which depends on energy generated and injected in the grid. Solar projects have generating hours equivalent to 6 to 8 hours in a day and the ceiling of 60 hours per month or 720 hours in a year will expose it to a loss of almost 60% to 90% of its revenue due to non-availability of the evacuation system or backing down if the same occurs during 11:00 hours to 16:00 hours. The stakeholder also placed reliance on the PPA of REWA solar project where the provision of deemed generation was stipulated with a ceiling of 50 hours/year. Similarly, the stakeholder also placed its reliance on the Order dated 24.11.2016 issued by Haryana Commission wherein it had clarified that any backing down on account of non-availability of evacuation lines/system beyond 87.6 hours in a year shall be treated as deemed generation and shall be paid for at the tariff determined by the Commission. Reference was also made to the draft Guidelines issued by MNRE for tariff based competitive bidding process for procurement of power from the grid connected solar PV projects which also provided for compensation for generation loss due to non-availability of grid and backing down by the discom for a period exceeding 50 hours in a contract year. Similar representations were made by JLT Energy India Pvt. Ltd. and Emami Power Ltd.

Copy of the response received from M/s Acme Cleantech Solutions (P) Ltd. was sent to UPCL for its comments, however, no comments were received from UPCL in the matter. Although

UPCL during the hearing objected to the same that since the same was not proposed under the draft Amendment Regulations, accordingly, the same may not be considered.

Commission's view and decision

Section 181 of the Electricity Act, 2003 has empowered the Commissions to make regulations consistent with the Act and the rules to carry out the provisions of the Act. However, Section 181(3) of the Electricity Act, 2003 stipulates that all the regulations made by the Commission shall be subject to the condition of previous publication. In this regard, the Electricity (Procedure for Previous Publication) Rules, 2005 issued by Ministry of Power, GoI on June 09, 2005 lays down the Procedure of Previous Publication which are reproduced hereunder:

“3. Procedure of Previous Publication - For the purpose of previous publication of Regulations under sub-section (3) of section 177, sub-section (3) of section 178 and the sub-section (3) of section 181 of the Act, the following procedure shall apply:-

- (1) the Authority or the Appropriate Commission shall, before making regulations, publish a draft of the regulations for the information of persons likely to be affected thereby;*
- (2) the publication shall be made in such manner as the Authority or the Appropriate Commission deems to be sufficient;*
- (3) there shall be published with the draft regulations, a notice specifying a date on or after which the draft regulations will be taken into consideration;*
- (4) the Authority or the Appropriate Commission having powers to make regulations shall consider any objection or suggestion which may be received by the Authority or the Appropriate Commission from any person with respect to the draft before the date so specified. “*

So agreeing to UPCL's contention during the hearing, since previous publication to this extent was not done by the Commission it would not be reasonable to include the same in the final Regulations as the same would be against the spirit of the Act and Rules made thereunder. However, the Commission appreciates the fact that Solar projects have generating hours equivalent to 6 to 8 hours in a day and the ceiling of 60 hours per month or 720 hours in a year would expose it to a loss of almost 60% to 90% of its revenue due to non-availability of the evacuation system or backing down if the same occurs during 11:00 hours to 16:00 hours as normally most of the generation in the solar project takes during this period. Further, reference made to the draft Guidelines issued by MNRE for tariff based competitive bidding process for procurement of power from the grid connected solar PV projects by M/s Acme Cleantech Solutions (P) Ltd. has been finalised by MNRE on August 03, 2017. The provision for generation compensation in offtake constraints due to Grid Unavailability has been envisaged in the same and the same is reproduced hereunder:

“b) Generation Compensation in offtake constraints due to Grid Unavailability: During the operation of the plant, there can be some periods where the plant can generate power but due to temporary transmission unavailability the power is not evacuated, for reasons not attributable to the Solar Power Generator. In such cases the generation compensation shall be addressed by the Procurer in following manner:

Duration of Grid unavailability	Provision for Generation Compensation
Grid unavailability in a contract year as defined in the PPA: (only period from 8 am to 6 pm to be counted):	<p>Generation Loss = [(Average Generation per hour during the contract year) × (number of hours of grid unavailability during the contract year)]</p> <p>Where, Average Generation per hour during the contract year (kWh) = Total generation in the contract year (kWh) ÷ Total hours of generation in the contract year</p> <p>The excess generation by the SPD equal to this generation loss shall be procured by the Procurer at the PPA tariff so as to offset this loss in the succeeding 3 (three) Contract Years. Contract Year, shall be as defined in PPA.</p>

Provided that as an alternative to the mechanism provided above in Clause 5.5.1, the Procurer may choose to provide Generation Compensation, in terms of PPA tariff, for the Generation loss as defined in Clause 5.5.1, and for Grid unavailability beyond 50 hours in a Contract Year as defined in the PPA.

5.5.2. Offtake constraints due to Backdown: The Solar Power Generator and the Procurer shall follow the forecasting and scheduling process as per the regulations in this regard by the Appropriate Commission. The Government of India, as per Clause 5.2(u) of the Indian Electricity Grid Code (IEGC), encourages a status of “must-run” to solar power projects. Accordingly, no solar power plant, duly commissioned, should be directed to back down by a Discom/ Load Dispatch Centre (LDC). In case such eventuality of Backdown arises, except for the cases where the Backdown is on account of events like consideration of grid security or safety of any equipment or personnel or other such conditions, the Solar Power Generator shall be eligible for a Minimum Generation Compensation, from the Procurer, in the manner detailed below.

Duration of Backdown	Provision for Generation Compensation
Hours of Backdown during a monthly billing cycle.	<p>Minimum Generation Compensation = 50% of [(Average Generation per hour during the month) × (number of backdown hours during the month) × PPA Tariff]</p> <p>Where, Average Generation per hour during the month (kWh) = Total generation in the month (kWh) ÷ Total hours of generation in the month</p>

The Generation Compensation is to be paid as part of the energy bill for the successive month after receipt of Regional Energy Accounts (REA). No Trading Margin shall be applicable on this Generation Compensation. Possible conditions for exclusion of Generation Compensation, on account of Backdown

purposes, shall be clearly specified in the RfS and the PPA. "

UPCL has an obligation to meet certain percentage of its consumption from solar sources. The Commission vide its Order dated August 03, 2017 while disposing the Petition for review filed by UPCL of the Commission's Order dated 29.03.2017 on True up for FY 2015-16, Annual Performance Review for FY 2016-17 and Annual Revenue Requirement for FY 2017-18 had estimated a shortfall in UPCL's solar RPO equivalent to 69.94 MU. This shortfall may increase due to poor evacuation system of UPCL. 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 if 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.

By the order of the Commission

(Neeraj Sati)
Secretary

List of Stakeholders

Sr. No.	Name	Designation	Organisation	Address
1.	Sh. M.K. Jain	Director (Project)	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.
2.	Sh. A.K. Tyagi	Chief Project Officer	Uttarakhand Renewable Energy Development Agency	Urja Park Campus, Industrial Area, Patel Nagar, Dehradun
3.	Sh. Purushottam Singh	Executive Director (O&M)	UJVN Ltd.	"Ujjwal", Maharani Bagh, GMS Road, Dehradun -248006
4.	Sh. Swapnil Bhardwaj	Dy. Manager-Business Development	M/s ACME Cleantech Solutions Pvt. Ltd.	Plot No. 152, Sector-44, Gurgaon-122002, Haryana
5.	Sh. Sushil Kejriwal	Director	M/s Birahi Ganga Hydro Pvt. Ltd.	32-33, Nehru Place, Flat No-403, New Delhi-110019
6.	Sh. Naresh Goel	Director	M/s Uttar Bharat Hydro Power Pvt. Ltd.	A-2/452, Sector-8, Rohini, New Delhi-110085
7.	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
8.	Sh. Madhav Kejriwal	Director	M/s Harsil Hydro Ltd.	24/73, Birhana Road, Kanpur -208001, Uttar Pradesh
9.	Sh. Manu Bishnoi	Director	M/s JLTM Energy India Pvt. Ltd.	C/o Altios India, H-2, 3 rd Floor, Hauz Khas Village, New Delhi-110016
10.	Sh. Rabindra Kumar Satpathy	CEO-Renewable Power	M/s Emami Power Ltd.	Emami Tower, 2 nd Floor, 687 Anandpur, E.M. Bypass, Kolkata-700107
11.	Sh. Shiv Kumar Jain	-	M/s XPANZ Energy Solutions LLP	314, JOP Plaza, Sector-18, Noida-201301
12.	Sh. B. Sadasiva Reddy	Director	M/s Chamoli Hydro Power Pvt. Ltd.	Plot No. 813, Road No. 41, Jubilee Hills, Hyderabad-500033
13.	Sh. Sumer Singh	Director (T)	M/s Swasti Power Pvt. Ltd.	111, Road No. 72, Jubilee Hills, Hyderabad-500033
14.	-	Managing Director	M/s Regency Aquaelectro & Motelresorts Pvt. Ltd.	Paonta Sahib, Regency Complex, River View Road, Shamsherpur Paonta Sahib, Himachal Pradesh-173025
15.	-	Managing Director	M/s Regency Gangani Energy Pvt. Ltd.	Paonta Sahib, Regency Complex, River View Road, Shamsherpur Paonta Sahib, Himachal Pradesh-173025
16.	-	Director	M/s Regency Yamuna Energy Ltd.	Paonta Sahib, Regency Complex, River View Road, Shamsherpur Paonta Sahib, Himachal Pradesh-173025

List of Participants

Sr. No.	Name	Designation	Organisation	Address
1.	Sh. A.K. Singh	Chief Engineer (Commercial & Projects)	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.
2.	Sh. Gaurav Sharma	Executive Engineer (RM)	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.
3.	Sh. Pravesh Kumar	Executive Engineer (Commercial)	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.
4.	Sh. Mahendra Kumar	Sr. Law Officer	Uttarakhand Power Corporation Ltd.	Victoria Cross Vijeta Gabar Singh Bhawan, Kanwali Road, Dehradun.
5.	Sh. A.K. Tyagi	Chief Project Officer	Uttarakhand Renewable Energy Development Agency	Urja Park Campus, Industrial Area, Patel Nagar, Dehradun
6.	Sh. Arun Gupta	Managing Director	M/s Him Urja Pvt. Ltd.	138/11, Vasant Vihar, Dehradun
7.	Ms. Reeta Gupta	Director	M/s Him Urja Pvt. Ltd.	138/11, Vasant Vihar, Dehradun
8.	Sh. Manu Gupta	Director	M/s Him Urja Pvt. Ltd.	138/11, Vasant Vihar, Dehradun
9.	Sh. Siddharth Gupta	Director	M/s Him Urja Pvt. Ltd.	138/11, Vasant Vihar, Dehradun
10.	Sh. Sanjay Sharma	Director	M/s Him Urja Pvt. Ltd.	138/11, Vasant Vihar, Dehradun
11.	Sh. Alok Dangwal	Sr. Manager	M/s Birahi Ganga Hydro Power Ltd.	32-33, Nehru Place, Flat No-403, New Delhi-110019