UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

DEHRADUN

Notification No . F-9(21)/RG/UERC/2012/733

Dated: August 14, 2012

Uttarakhand Electricity Regulatory Commission (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) (First Amendment) Regulations, 2012

STATEMENT OF OBJECTS & REASONS

1 Introduction

(1) Section 86(1)(e) of the Electricity Act, 2003 (hereinafter referred to as "the Act") assigns the following function to the State Electricity Regulatory Commission amongst others:--

"promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee."

(2) The National Electricity Policy notified by the Central Government has emphasized on the urgent need for tapping the untapped potential of energy from non-conventional and renewable energy sources. Even the Tariff Policy issued by the Central Government has provided a mechanism for promoting and harnessing renewable energy. Recognising higher costs of such sources, the Tariff Policy has mandated to provide preferential tariffs for renewable and non-conventional energy sources and guaranteed off-take of a defined percentage of power from such sources till they can compete with conventional sources.

(3) It is, therefore, clear from the above provisions that the function of the State Commission is to promote cogeneration and generation of electricity from renewable sources of energy not only through preferential tariffs but also by providing suitable measure which influence growth of renewable energy such as:

1. connectivity with grid for power evacuation;
2. sale to any person; and
3. purchase obligation as percentage of consumption in the area of Distribution Licensee.

(4) In terms of clause (zd) of sub-section (2) of section 181 of the Act, the Commission has been vested with the powers to make regulations, by notification, on the terms and conditions of tariff under section 61. As per section 181(3) of the Act, the Commission is required to make previous publication before finalizing any regulation under the Act.

(5) In exercise of the powers vested under sections 61 and 181(2) of the Act and all other enabling powers and in compliance of the requirement under section 181(3) of the Act, the Uttarakhand Electricity Regulatory Commission (hereinafter referred to as the "Commission") had notified the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010 on July 06, 2010 which amongst other terms and conditions also specified the preferential tariffs for plants based on renewable sources of generation alongwith the renewable purchase obligation (RPO) for the distribution licensee for FY 2010-11 to FY 2012-13. The Commission, subsequently, also issued the UERC (Compliance of Renewable Purchase Obligation) Regulations, 2010 which provided that if the Obligated Entity does not fulfill its commitment towards Renewable Purchase Obligation during any year it can be fulfilled by purchase of renewable energy certificates.

(6) Further, based on the difficulties expressed by UPCL and the developers of renewable energy based generating stations in interpreting, understanding and implementing certain provisions of UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010, 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, Removal of Difficulty (First) Order, 2010 on October 28, 2010.

The generators amongst other issues had raised the issue of deemed generation due to frequent tripping of the lines connecting the Generating station with the sub-station of distribution licensee, The Commission in the matter had held as under.

"Keeping in view the above concessions/relaxations allowed to RE based generating stations, the provisions of deemed generation has not been considered as necessary under the RE Regulations, 2010 in case of day to day tripping and outage of lines. However, in order to avoid bottling up of much needed generation due to inadequacy of the transmission and distribution system, the Commission is of the view that penal provisions are necessary so as to avoid such situations. This matter is under examination and the Commission shall take a final view on the same after discussions with UPCL and Developers."

(7) For the FY 2011-12, the RPO specified for non-solar sources for UPCL was 4.50% of the total energy purchased from all sources for the purpose of supply to its consumers within its area of supply. Against this, UPCL managed to procure only 4.10% thereby implying a deficit in meeting its RPO.

(8) The Commission was receiving continuous representations from the developers regarding frequent trippings and also voltage fluctuations in UPCL's system leading to generation loss. However, UPCL's approach was found to be lackadaisical in this regard. Proper upkeep of the distribution system to ensure maximum availability of generation was all the more crucial as it would have not only ensured additional generation to the State resorting to frequent over-drawals of power at costlier rates from the grid but would have also assisted UPCL to meet its RPO. Considering the same, the Commission decided to issue amendment to the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010 to incorporate provisions relating to deemed generation. The Commission issued public notice on 24.03.2012 seeking comments/suggestions / objections of all the stakeholders on Draft 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 (hereinafter referred to as the draft regulations). The Commission also held hearing in the matter on June 11, 2012 and June 22, 2012 for deliberations on the draft regulations. The Commission also held a meeting with MD, UPCL and ED (Commercial), UPCL on 30.07.2012 to seek their views in the matter.

(9) In all 6 comments were received on the draft Regulations from the generators as well as UPCL. The Commission considered the comments of the stakeholders on the draft regulations. The regulations have been finalized after detailed analysis and due consideration of the various issues raised by the stakeholders.

2 Issues

2.1 Applicability

In the State of Uttarakhand, the small hydro projects are located at remote and hilly terrains, where bottlenecks related to inadequacy of the transmission and distribution system exists leading to frequent trippings, breakdowns of lines, voltage fluctuations occur leading to loss of generation. In comparison, other renewable sources are set up in plain areas close to the sub-station of UPCL where such problem may not be as persistent and as acute as that encountered for the SHP's. Further, at present only 3 Solar Generation Plants have been set up at Roorkee in the State of Uttarakhand with an installed capacity of about 5 MW and have been in operation for even less than a year. Hence, adequate data would not be available to examine the impact of the breakdowns, etc. for them. Thus, at present the Commission is only specifying the deemed generation conditions for small hydro projects. However, the Commission may consider the same for other renewable energy sources at a later stage on availability of sufficient data.

2.2 Non-availability of evacuation system beyond inter-connection point due to interruptions/outages

(1) Some generators have pointed out that it takes approximately 90 minutes after the grid is restored to bring back the machine to full load. Hence, any outage whether for less than or more than 20 minutes may be considered towards deemed generation. Further, the generators also pointed out that the time limit of 480 hours in a year should be spread equally in 12 months and any loss beyond 40 hours/month should be considered. Few generators submitted that the time limit for grid failure of 480 hours is very high considering the fact that 40 hours will cause the generators approximately 5 to 10 times of this time. Hence, this 40 hours monthly time limit should be removed completely or at least reduced to one fourth.

(2) The Commission discussed the issue of allowing the time limit of 20 minutes at a time and also 40 hours/month towards outages/interruptions to be excluded from deemed generation, with UPCL during the meeting. UPCL submitted that allowance of 20 minutes would be insignificant as normally breakdown in the hilly terrain, if they occur, would take about 12 hours to be restored. Hence, UPCL requested the Commission to increase the limit of 40 hours/month to 48 hours/month to cover eventualities of atleast 4 breakdowns in a month. The Commission on the request of the generators and after seeking UPCL's views on the issue has decided to do away with the time limit of 20 minutes at a time for outages/interruptions. The Commission has also increased the total duration of interruptions/outages to 48 hours/month on the request of UPCL.

(3) Regarding, the time limit of 480 hours in a year, it is a well known fact that generation from a hydro project is seasonal, i.e. maximum during rainy season and minimum during winters. Hence, UPCL should endeavour to ensure maximum availability of evacuation system, thereby, resulting in maximization of generation by the SHPs. Further, it has been observed that major breakdowns occur in the rainy seasons with less or no breakdowns in the winters. Therefore, providing a cumulative ceiling of 480 hours, UPCL will not be inclined to put in extra efforts to ensure maximum availability of evacuation system to maximize generation during the rainy season when the water availability is also maximum. Thus, the Commission has decided to do away with the annual limit of 480 hours and has instead decided to have a monthly limit of 48 hours/month.

The illustrations given below would explain the computation of generation loss due to grid interruptions/outages.

Illustration 1: Computation of month-wise deemed generation due to interruptions/outages

i. *Project having an installed capacity of 8 MW.*
ii. *Total number of hours available during the month (A) = 720 hours*
iii. *Total hours of hours of outage/interruption in the system during the month (B) = 50 hours*
iv. *Number of hours to be considered for deemed generation purposes = 50-48 = 2 hours*
v. *Total actual generation achieved during the month = 2.28 MUs*
vi. *Deemed generation (MU) = 2.28 X 2/ (720-50) = 0.0068 MU*

Illustration 2: Computation of annual deemed generation due to interruptions/outages

For 8 MW project, deemed generation based on actual CUF achieved during the year, actual number of month-wise outages/interruption in the system during the year is given as under:

Month	*Total actual generation achieved during the month (MU)*	*Total hours of outage/interruption in system during the month*	*Number of hours to be considered for deemed generation purposes*	*Deemed generation (MU)*
(a)	*(b)*	*(c)*	*(d)=(c)-48*	*(e) = (b)*(d)/(No. of hours in a month--c)*
April	*2.28*	*50*	*2*	*0.0068*
May	*2.59*	*52*	*4*	*0.0150*
June	*2.74*	*60*	*12*	*0.0498*
July	*2.95*	*75*	*27*	*0.1191*
August	*3.30*	*90*	*42*	*0.2119*
September	*3.14*	*80*	*32*	*0.1570*
October	*2.95*	*60*	*12*	*0.0518*
November	*2.57*	*0*	*0*	*0.0000*
December	*2.36*	*60*	*12*	*0.0414*
January	*2.12*	*46*	*0*	*0.0000*
February	*1.97*	*0*	*0*	*0.0000*
March	*2.12*	*42*	*0*	*0.0000*
Total	***31.07***			***0.6527***

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.

(2) The Commission has, accordingly, decided to include the following in the amended Regulation:

"UPCL shall be required to maintain the voltages at the point of interconnection with the project within the limits stipulated hereunder, with reference to declared voltage:

a) In the case of High Voltage, +6% and -9%; and,

b) In the case of Extra High Voltage, +10% and -12.5%.

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

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

Here, the generation loss of 25% has been provided, keeping in view that for a plant having 4 units, atleast one unit should have tripped/stopped due to voltage fluctuations resulting in appreciable loss of generation due to voltage fluctuations.

For a plant running at a load of 8 MW before voltage variations/fluctuations occurred, the loss in generation due to variation in voltage beyond the limits specified, will be considered for deemed generation purposes only if the generation drops to 6 MW or below after voltage variations/fluctuations occurred.

(3) Further, the calculation of generation loss due to voltage fluctuations included in deemed generation would be carried out in the following manner:

"The generation loss towards the Deemed Generation (in MWh) in accordance with sub-Regulation (2) above, if any, during the month shall be considered as the summation of the product of number of hours the variations in voltage beyond the specified limit existed and the Generation lost (in MW) due to the variation in the voltage beyond the specified limit. The Generation lost (in MW) would be the difference between the following:

a. Minimum of the actual generation (in MW) before the variation in voltage occurred and the generation (in MW) achieved after 90 minutes immediately after variation in voltage was restored within the specified limit would be treated as the actual generation during the period when voltage variations occurred; and

b. The generation achieved during the period when variation in voltages took place."

(4) The rationale behind taking generation after 90 minutes immediately after each fluctuation/ variation in voltage was restored within the specified limit is that, some of the generators submitted that it takes about 70-95 minutes after the grid is restored to bring back the machine to full load. The Commission understands that the meters installed at their stations are ABT Compliant meters which can be read through MRI's. Hence, the Commission has decided to consider the generation achieved after 90 minutes immediately after variation in voltage was restored within the specified limit as it would enable the generator to bring the plant to maximum possible load.

The illustration given below would explain the computation of generation loss due to voltage fluctuations included in deemed generation.

Illustration 3: Computation of generation loss due to voltage fluctuations/variations included in deemed generation considering a case of one instance of variation during the month of April

i. *Actual generation before voltage variation/fluctuation occurred = 6.00 MW*
ii. *Generation during the period when variation in voltages took place*
   a. *3.50 MW for half an hour*
   b. *2.50 MW in next half hour*
iii. *Duration of Voltage Fluctuation/Variation*
   a. *Ist Variation for half an hour*
   b. *IInd variation for next half hour*
iv. *Generation achieved after 90 minutes immediately after voltage was restored within the specified limit = 5.00 MW*
v. *Actual Generation to be considered for generation loss = MIN of (i) & (iv) = 5 MW*
vi. *Deemed Generation (MWh) = [(iii(a)) X (v-ii(a)) +[iii(b)) X (v-ii(b))] = 1/2 X (5.00-3.50) + 1/2 X (5.00-2.50)= 0.75 + 1.25 = 2.00 MWh*

Illustration 4: Computation of Yearly generation loss due to voltage fluctuations/variations included in deemed generation for a 8 MW project :

Month	*Total actual Saleable generation achieved during the month (MU)*	*Deemed generation (MWh)*
(a)	*(b)*	*(c)*
April	*2.28*	*0*
May	*2.59*	*8*
June	*2.74*	*16*
July	*2.95*	*0*
August	*3.30*	*10*
September	*3.14*	*0*
October	*2.95*	*8*
November	*2.57*	*9*
December	*2.36*	*3*
January	*2.12*	*2*
February	*1.97*	*3*
March	*2.12*	*2*
Total	***31.07***	***61***

Illustration 5: Adjustment of deemed generation

a. *Total Annual Saleable energy at CUF of 45% = 31.22 MU*
b. *Actual Annual Saleable Generation = 31.07 MU*
c. *Deemed Generation due to non-availability of evacuation system beyond inter-connection point (From Illustration 2) = 0.6527 MU*
d. *Deemed Generation due to voltage fluctuation (From Illustration 5) = 61 MWh = 0.061 MU*
e. *Total deemed generation = 0.6527+0.061= 0.7137 MU*
f. *Sum of actual annual saleable generation and total deemed generation (b+e) = 31.07+0.7137= 31.7837 MU*

Here, since the actual saleable energy during the year is less than the CUF of 45%, the generator is eligible for the deemed generation under the amended Regulation. Further, since the sum of actual annual saleable generation and total deemed generation of 31.7837 MU is more than the annual saleable energy of 31.22 MU at CUF of 45%, therefore, deemed generation of only 0.15 MU would be allowed in addition to the actual saleable energy of 31.07 MU equivalent to the specified ceiling of 45% CUF.

Further, it would also be relevant to mention that any charges paid by UPCL towards deemed generation shall not be allowed as an expense to be pass through in tariffs. Since, the deemed generation would be applicable due to the inefficiency of UPCL, and any inefficiency cannot be rewarded by allowing it as pass through in tariffs, hence, it will have to bear such charges.

2.4 Retrospective Applicability

(1) One of the generators has submitted that the generators are suffering heavily due to grid failure, voltage fluctuations and rostering carried out by UPCL. Hence, this benefit should be made available retrospectively from 06.07.2010 for old projects.

(2) In this regard, it would be pertinent to mention that Regulation cannot be applied retrospectively. It is held by the Hon'ble Supreme Court in the case of State of Madhya Pradesh V/s Tikamdas (1975) 2 SCC 100 that subordinate legislation cannot be given retrospective effect unless specifically so authorized under the parent statute. The relevant observation made by the Hon'ble Supreme Court is as follows:

"There is no doubt that unlike legislation made by a sovereign legislature, subordinate legislation made by a delegate cannot have retrospective effect unless the Rule-making power in the concerned statute expressly or by necessary implication confers power in this behalf"

(3) Further, the Hon'ble Appellate Tribunal of Electricity in its Judgment dated July 12, 2010 in Appeal No. 179 of 2009 has also observed as under:

"The Electricity Act, 2003 under which regulations are being framed by the respective Commissions does not permit the Commission to make regulations which may apply retrospectively."

Thus, the amendment Regulation would be applicable only from the date of notification.

In exercise of powers conferred under section 181 of the Electricity Act, 2003, and all other powers enabling it in this behalf, and after previous publication, the Uttarakhand Electricity Regulatory Commission hereby makes the following regulations to amend the Uttarakhand Electricity Regulatory Commission (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) Regulations, 2010 (Principal Regulations), namely:

1. Short Title, Commencement and Interpretation

(1) These Regulations may be called the Uttarakhand Electricity Regulatory Commission (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating stations) (First Amendment) Regulations, 2012.

(2) These Regulations extend to the whole of the State of Uttarakhand.

(3) These shall come into force on the date of their publication in the official Gazette.

2. After Regulation 3(1)(i) of the Principal Regulation the following shall be added:-

(i)(a) "Force Majeure Event" means, with respect to any party, any event or circumstance which is not within the reasonable control of, or due to an act or omission of, that party and which, by the exercise of reasonable care and diligence, that party is not able to prevent, including, without limiting the generality of the foregoing:

i. Lightning, storm, earthquakes, flood, natural disaster and action of the natural elements;

ii. acts of public enemy, blockades, insurrections, riots, revolution and sabotage;

iii. unavoidable accident, including but not limited to fire, explosion, radioactive contamination and toxic dangerous chemical contamination;

3. After Regulation 44 of the Principal Regulation the following shall be added:-

44 (A) Deemed Generation:

(1) After the COD of the Project, loss of generation at the Station on account of reasons attributed to the following, or any one of the following, which results in Water Spillage, shall count towards Deemed Generation:

-- Non availability of evacuation system beyond the Interconnection Point; and

-- Receipt of backing down instructions from the SLDC.

Provided that the following shall not count towards Deemed Generation:

(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 (i) above, is within the limit of 48 hours in a month; and

(2) UPCL shall be required to maintain the voltages at the point of interconnection with the project within the limits stipulated hereunder, with reference to declared voltage:

a) In the case of High Voltage, +6% and -9%; and,

b) In the case of Extra High Voltage, +10% and -12.5%.

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

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

(3) The period of outage/interruption on account of such factor(s) specified in sub-Regulation 1 and 2 above, shall be reconciled on monthly basis and the loss of generation at the Station towards Deemed Generation after accounting for the events specified under sub-Regulation (1) (i) & (ii) above, shall be computed on following considerations:--

(i) The recovery on the above account shall be admissible if the actual energy generated during the year is less than the normative CUF of 45%, specified for recovery of fixed charges for small hydro projects. In case the sum of actual energy generated and the deemed generation during the year exceeds the normative CUF specified of 45%, then the deemed generation alongwith the actual energy generated will be allowed only upto the CUF of 45%.

(ii) The generation loss towards the Deemed Generation in accordance with sub-Regulation (1) above, if any, during the month shall be considered on the pro-rata basis on the number of hours lost based on the actual average generation achieved during that month divided by the total number of hours available during the month reduced by the number of hours outage/interruption occurred in the system.

(iii) The generation loss towards the Deemed Generation (in MWh) in accordance with sub-Regulation (2) above, if any, during the month shall be considered as the summation of the product of number of hours the variations in voltage beyond the specified limit existed and the Generation lost (in MW) due to the variation in the voltage beyond the specified limit. The Generation lost (in MW) would be the difference between the following:--

a. Minimum of the actual generation (in MW) before the variation in voltage occurred and the generation (in MW) achieved after 90 minutes immediately after variation in voltage was restored within the specified limit would be treated as the actual generation during the period when voltage variations occurred; and

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

(4) UPCL shall pay for the saleable deemed generation, on annual basis, for small hydro projects worked out on the basis of the deemed generation on the above lines, at the generic/project specific tariffs under the provisions of RE Regulations, as amended from time to time by the Commission. The settlement of payment towards deemed generation charges shall be carried out within 3 months of the completion of the financial year.

(5) Any charges paid by UPCL towards deemed generation shall not be allowed as an expense to be pa. through in tariffs. UPCL will have to bear such charges.

(6) The deemed generation conditions stipulated above shall be applicable only on those small hydro projects who have signed a long term PPA with UPCL on the preferential tariffs specified in the Principal Regulations.

Further, the deemed generation conditions shall be applicable only on the small hydro projects where the evacuation line is connected to 11 kV or higher voltage Grid Sub-station.

(7) The deemed generation conditions as stipulated above shall come into effect from the date of publication of the amendment regulation in the Government Gazette.

By the order of the Commission,

Neeraj Sati,
Secretary.

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मुद्रक एवम् प्रकाशक–अपर निदेशक, राजकीय मुद्रणालय, उत्तराखण्ड, रुड़की।