

Before

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 40 of 2021 (Suo Moto)

In the matter of:

Suo-Moto proceedings in the matter of clarification sought by Akshay Urja Association regarding Performance Ratio which is one of the pre-requisites for declaration of commercial operation of Solar PV Plants.

In the matter of:

Akshay Urja Association

Uttarakhand Power Corporation Ltd.

Uttarakhand Renewable Energy Development Agency

... Respondents

CORAM

Shri D.P. Gairola

Member (Law)-Chairman (I/c)

Shri M.K. Jain

Member (Technical)

Date of Order: December 09, 2021

This Order relates to the Suo-moto proceedings initiated by the Commission in the matter of clarification sought by Akshay Urja Association regarding demonstration of minimum 75% Performance Ratio based on the rated installed capacity which is one of the pre-requisites for declaration of commercial operation of any Solar PV plant.

1. Background

- 1.1. The Commission issued Uttarakhand Electricity Regulatory Commission (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2018 (hereinafter referred to as "RE Regulation, 2018") on 06.09.2018 applicable in all cases where supply of electricity is being made from Renewable Energy Based Generating Stations, commissioned after coming effect of these Regulations, to the distribution licensees or local rural grids within the State of

Uttarakhand. The Commission vide aforesaid regulations provided the definition of Date of Commercial Operation which is as follows:

*“**Date of commercial operation or Commissioning (CoD)**” Date of commercial operation or Commissioning (CoD) in relation to a unit means the date declared by the generator on achieving maximum continuous rating through a successful trial run and in relation to the generating station, the date of commercial operation means the date of commercial operation of the last unit or block of generating station and expression ‘commissioning’ shall be construed accordingly.*

Provided that in case of Small Hydro Plants the date of commissioning shall not be linked to achieving maximum continuous rating, nevertheless the generator will have to demonstrate the same within three years of commissioning.

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

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

1.2. Through the above definition, the Commission specified that the date of commercial operation for Solar PV plant shall be considered as the first date of injection of power into the grid only after installation of energy meter by Executive Engineer of UPCL, receipt of Project Completion Report and Clearance Certificate from UREDA & Electrical Inspector respectively and demonstration of minimum 75% Performance Ratio based on the rated installed capacity in kW or MW.

1.3. With regard to one of the prerequisites for commissioning of Solar PV Plant, i.e. demonstration of minimum 75% Performance Ratio based on the rated installed capacity in kW or MW at the time of inspection for initial commissioning, Akshay Urja Association approached the Commission vide its letter dated 04.08.2021 requesting for clarification regarding Performance Ratio. Akshay Urja Association stated that as per formula provided in the Regulations for Performance Ratio, solar radiation data is one of the factors for

determination of Performance Ratio. However, some of the officials are calculating Performance Ratio based on MRI report of meter without considering solar radiation for deciding the date of commercial operation of Solar PV plants which is injustice to Solar developers who are commissioning Solar PV plants at the time of monsoon/cloudy day. In the matter, Akshay Urja Association requested the Commission to authorise either UPCL or UREDA who is equipped with required equipment needed to calculate performance ratio at the time of inspection of the Solar PV plant.

- 1.4. As Akshay Urja Association requested the Commission to appoint either UPCL or UREDA for computation of Performance Ratio, the Commission forwarded a copy of the letter received from Akshay Urja Association to UPCL and UREDA for comments.
- 1.5. UREDA vide letter dated 21.08.2021 submitted that meter sealing certificate is issued by UPCL once the energy meter is installed at the location of Solar PV plant. Further, based on the records such as certificate issued by Electrical Safety Department, meter sealing report provided by the Solar PV plant developers, the inspection report is issued in the prescribed format by the concerned divisional officers of UREDA, in which the performance ratio is also calculated. The date of the meter sealing by UPCL is also mentioned in the Joint Inspection report based on the meter sealing report of UPCL.
- 1.6. UREDA submitted that it provides a Joint Inspection Report to the developers in a prescribed format wherein date of sealing of meter is considered as date of commissioning of the respective Solar PV plant. The issue of date of commissioning arises because above processes are being discharged by different departments on different dates. Further, RE Regulations does not authorise any particular agency for determination of Performance Ratio because of which there is no clarity in the matter.
- 1.7. UREDA has suggested that after the Electrical Safety Inspection, on receipt of a written request from the developer regarding development of Solar PV plant at full capacity, the Performance Ratio may be worked out jointly by UREDA and UPCL on the date of meter sealing and if the Performance Ratio is found to be more or equal to the minimum prescribed standard on the date of the said inspection, then that date itself should be considered as the commissioning of the plant and in case of lower Performance Ratio, the officials of concerned departments may mutually decide next date for determination of the Performance Ratio.

- 1.8. UREDA also submitted that the Solar PV plant developers should be paid from the date of metering sealing till the requisite Performance Ratio for the electricity supplied by such plants into the grid of UPCL.
- 1.9. In the matter, UPCL vide its letter dated 29.10.2021 submitted that the regulations clearly specify that it is for the generator to demonstrate the Performance Ratio based on the rated installed capacity. The Regulations has categorically laid down the responsibility for demonstrating the Performance Ratio upon the generator who has to be fully equipped with all necessary documentation and instrumentations at the time of demonstrating the capacity of the plant including the Performance Ratio. As the generator is the sole beneficiary and the possible effective party for the purpose of CoD, therefore, no other agency has knowingly been involved in the process as there was apprehension that involving an external agency might adversely affect the interest of the generator.
- 1.10. UPCL submitted that installation of meter has no correlation with the commissioning of the plant and the demonstration of the Performance Ratio is only relevant for the purpose of commissioning and cannot be associated with the date of meter sealing. The regulation do not permit the Performance Ratio to be taken for any other date other than the date offered by the generator for demonstrating the Performance Ratio for the purpose of CoD.
- 1.11. UPCL submitted that on the date of installation of meter and synchronization of the plant with the grid there are various issues that may require adjustments and tweaks which practically makes it impossible for the plant to demonstrate parameters for the commissioning of the plant as per regulation. The generator is the only person who is well aware about the parameters and functioning of the plant to decide when to make a call for commissioning after testing of the installation and to choose how and when to make second call if the day on which the Performance Ratio could not be achieved on the day called upon for demonstration the Performance Ratio for the purpose of commissioning any curtailment on this discretion would adversely affect the interest of generator.
- 1.12. With regard to the determination of Performance Ratio based on MRI data is concerned, UPCL submitted that UPCL at all times consider the Performance Ratio Report submitted by field units and the same is always prepared considering the solar irradiation at the time of inspection/demonstration.

2. Commission's view and directions

- 2.1. Akshay Urja Association vide its letter dated 04.08.2021 requested the Commission to appoint UREDA or UPCL for demonstration of Performance Ratio which is one of prerequisites for declaration of commercial operation of the Solar PV plant. In the matter, UREDA suggested that Performance Ratio may be calculated jointly by the officials of UPCL and UREDA whereas UPCL stated that generator should be responsible for the demonstration of Performance Ratio because involving an external agency might adversely affect the interest of the generator.
- 2.2. With regard to Date of Commercial Operation of a Solar PV plant, Regulation 3(n) of RE Regulations, 2018 specifies as follows:

"(n) Date of commercial operation or Commissioning (CoD)" ...

...

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

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

As mentioned above, four pre-requisites need to be completed for the commissioning of the Solar PV plant one of which is demonstration of minimum 75% Performance Ratio based on the rated installed capacity in kW or MW at the time of inspection for initial commissioning.

Further, with regard to Performance Ratio, Regulation 3(jj) of RE Regulations, 2018 specifies as follows:

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

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

"

It is explicitly clear from the above-mentioned regulation that radiation intensity is one of the factors for measurement Performance Ratio. Accordingly, the Performance Ratio is to be determined based on the readings of solar radiation meter.

- 2.3. With regard to UPCL's suggestion of assigning responsibility of demonstration of Performance Ratio on generator is concerned, it is pertinent to mention that generator is the interested party in the matter, and developer may temper with the data to be used for demonstration of Performance Ratio so that higher Performance Ratio can be shown when the actual Performance Ratio is lower than the required percentage of installed capacity.
- 2.4. It is worth mentioning that UREDA is the state nodal agency of MNRE for development of renewable energy for the operation and execution of various schemes based on renewable energy resources. Further, role of UREDA does not limit only upto implementation of various policies of Govt. of India or State Government but also includes co-ordination between developers & distribution licensee and to ensure the timely commissioning of the renewable energy based power plants. Accordingly, the Commission is of the view that UREDA will be the appropriate authority to check whether the Solar PV plant is able to achieve the requisite minimum percentage of Performance Ratio based on the installed capacity with respect to the radiation measured.

Accordingly, the Commission directs UREDA to measure the Performance Ratio at the time of joint inspection of the Solar PV plant and if the minimum percentage as specified in the RE Regulations is not achieved, a next date shall be decided at that time for the measurement of Performance Ratio based on the radiation measured using Solar Radiation meter.

- 2.5. It is pertinent to mention that the central government has set the target for installed solar energy capacity of 100 GW (40 GW Rooftop Solar and 60 GW ground-mounted Solar) by March, 2023. However, the country has managed to install only 47.67 GW till October, 2021 as per CEA data. Further, as per Uttarakhand Solar Energy Policy, 2013 as amended from time to time, the aim was to set up 500 MW Solar power plants in Uttarakhand by March 2017, however, Solar Power plants having cumulative capacity of 305 MW only have been installed till October, 2021. The Commission observed that many of the Solar PV plants could not be commissioned on time only due to non-achievement of minimum 75% Performance Ratio based on the rated installed capacity on account of bad weather

conditions or some other technical issues while all the other three pre-requisites, i.e. installation of energy meter by UPCL, Project completion report by UREDA and Clearance Certificate from Electrical Inspector, are fulfilled.

Hence, based on the above, it is imperative to quote and invoke the powers vested with the Commission under regulation 49 of RE Regulation, 2018, i.e. 'Power to Remove Difficulties', the said regulation reads as:

"46. Power to Remove Difficulties

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

The Commission is of the view that it is necessary to exercise the powers given under the said regulations as delay in demonstration of minimum 75% Performance Ratio based on the rated installed capacity due to poor weather conditions or technical issues at distribution licensee's end will defer the commissioning of Solar PV plant where all the other pre-requisites have been fulfilled by the developers.

Accordingly, the Commission decides that the date of commissioning of Solar PV plant shall be considered as the date of first injection of power into the licensee's grid after completion of the project in all respect subsequent to compliance of initial three pre-requisites, i.e. (i) installation of energy meter as certified by the concerned Executive engineer of the distribution licensee; (ii) project completion report as verified by UREDA and (iii) issuance of Clearance Certificate by the Electrical Inspector

Provided that minimum 75% Performance Ratio based on the rated installed capacity in kW or MW is demonstrated within Three months from the date of first injection of power into licensee's grid on compliance of aforesaid three pre-requisites.

Provided further, that if the specified limit of Performance Ratio is not achieved within Three months from the date of first injection of power into licensee's grid on compliance of aforesaid three pre-requisites, the actual date of demonstration of minimum 75% Performance Ratio, based on the rated installed capacity in kW or MW, shall be considered the commissioning date of the Solar PV plant.

2.6. With regard to the comment of UREDA on payment to Solar PV plant developers from the

date of metering sealing till the requisite Performance Ratio for the electricity supplied by such plants into the grid of UPCL is concerned, it is pertinent to mention that Regulation 14(7) of RE Regulations specifies as follows:

*“(7) The tariffs determined under these regulations being levelised, any shortfall or gain due to performance or other reasons is to be borne/retained by the RE Based Generating Stations and Co-generating Stations and no true up of any parameter, including additional capitalisation for whatsoever reasons, shall be taken up during the validity of the tariff for projects opting generic tariff or those opting project specific tariff. **The tariff for supply of electricity between the period of synchronization and the commissioning of the unit (Infirm Power) shall be equal to 50% of fixed cost component of levelised generic tariff for the useful life of the project.** However, renewable energy technologies having fuel cost component, like biomass/biogas/biomass gasfier power projects, Refuse derived fuel and non-fossil fuel based cogeneration, shall also be entitled to get the fuel cost component of tariff for that year in addition to 50% of the levelised generic tariff:*

It is explicitly clear from the aforesaid regulation that the tariff for supply of electricity between the period of synchronization and the commissioning of the plant shall be equal to 50% of fixed cost component of levelized generic tariff. Accordingly, as discussed under Para 2.5 above, if the minimum Performance Ratio could not be achieved within Three months from the date of first injection of power into the licensee’s grid after completion of the project in all respect subsequent to the compliance of initial three pre-requisites, as mentioned under Regulation 3(n) of RE Regulations, 2018, then tariff for the supply of infirm power till the demonstration of minimum 75% Performance Ratio/commissioning of project shall be equal to 50% of fixed cost component of levelized generic tariff.

3. Ordered accordingly.

(M.K. Jain)
Member (Technical)

(D.P. Gairola)
Member (Law)-Chairman (I/c)