

**Before**

# **UTTARAKHAND ELECTRICITY REGULATORY COMMISSION**

**Petition No. 43 of 2023**

**In the matter of:**

Application seeking permission for categorisation of Small Solar off grid Irrigation pump system having capacity of 2 kW to 10 kW under 'Grid Interactive small solar PV plants (GSPV)' and to determine the tariff as per RE Regulations, 2023.

**In the matter of:**

Department of Minor Irrigation, GoUK

... Petitioner

**AND**

**In the matter of:**

Uttarakhand Power Corporation Ltd.

Uttarakhand Renewable Energy Development Agency (UREDA)

... Respondents

**CORAM**

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

**Shri M.K. Jain        Member (Technical)**

**Date of Hearing: October 06, 2023**

**Date of Order: November 01, 2023**

This Order relates to the Petition filed by the Department of Minor Irrigation, GoUK (hereinafter referred to as "Petitioner") under Section 86(1)(e) and Section 62 of the Electricity Act, 2003 read with Regulation 37, Regulation 46 and Regulation 52 of UERC (Tariff and Other Terms for Supply of Electricity from Non-conventional and Renewable Energy Sources) Regulations, 2023 (hereinafter referred to as "RE Regulations, 2023") seeking permission for categorisation of Small Solar off grid Irrigation pump system having capacity of 2 kW to 10 kW under 'Grid Interactive small solar PV plants (GSPV)' and to determine the tariff as per RE Regulations, 2023.

## **1. Background & Petitioner's submissions**

- 1.1 The Petitioner submitted that it has undertaken the installation of small solar irrigation pump systems in Uttarakhand with the objective of promoting renewable energy source and enhancing agricultural productivity. These solar pumps systems have been installed across various region of the State and are equipped with solar panels to harness clean and sustainable energy.
- 1.2 The Petitioner submitted that to maximize the benefits of renewable energy, the Petitioner had requested UREDA to create policy framework to facilitate the grid connectivity of the said solar irrigation pump systems with the aid of Uttarakhand Power Corporation Ltd (UPCL). The Petitioner also submitted that the central Government has planned to simultaneously develop decentralized Solar energy and other renewable energy generation Plants of capacity up to 2 MW which could be connected directly to existing 33/11 KW or 66/11 KW or 110/11 KW sub-stations of Distribution Company, thus, saving in transmission system requirement apart from Transmission & Distribution losses. Grid synchronization of the said solar pumps will give farmers an opportunity to contribute their share in the green energy by utilizing their solar pumps and in turn it will provide additional source of income to farmers who will be in a position to sell the surplus power to the distribution licensee.
- 1.3 The Petitioner submitted that irrigation activities typically occurs for only about 120 to 150 days annually, while solar energy remains unused during the remaining time. If the solar pump schemes established by the department and those to be established in the future are connected to the grid, the surplus solar energy produced could be sold, leading to additional income for beneficiary farmers/farmer groups and subsequently improving their economic condition.
- 1.4 The Petitioner submitted that the excess power so generated after use in agriculture work is not being utilized due to non-synchronization with the grid and after Grid synchronization of the said solar pumps, they will give the additional energy to the distribution licensee at cheaper rates and the farmers will also be able to increase their income by utilizing their solar pumps.
- 1.5 The Petitioner submitted that it is continuously constructing solar pump schemes under various programs/plans in all districts of the Uttarakhand state for providing irrigation

facilities. These schemes are being used collectively by beneficiary farmers. As of March 2023, the Petitioner has installed 279 solar pumps and ongoing construction is progressing under several schemes. Furthermore, the Petitioner plans to continue the construction of solar pump schemes in the coming years.

- 1.6 The Petitioner submitted that in a meeting chaired by the Chief Secretary, Uttarakhand Government, of the High Power Committee (HPC) of NABARD, it was directed by the Chief Secretary to integrate the surplus power generated through the solar pump schemes established by the Petitioner with the grid through Net Metering. In this context, a meeting was convened under the chairmanship of the Finance Secretary, Uttarakhand Government, on 23.06.2023, in which representatives from the Department of Minor Irrigation, as well as officials from the UREDA and UPCL departments participated.

During the meeting, it was directed that the Petitioner shall file a Petition before the Commission and formulate plans for connecting surplus power generated from the solar pump-based projects established by the Petitioner to the grid through Net Metering.

- 1.7 The Petitioner submitted that it is currently establishing solar pumps with a capacity of more than 2 HP under various schemes. However, due to the lack of grid integration for the established solar pumps, surplus solar energy remains unutilized. Therefore, as per the Government's direction, the Petitioner proposes to connect the established solar pump and the ones that will be established with the grid. The Petitioner requested that the said solar pumps be categorized in the category of Grid Interactive Small Solar PV Plants (GSPV) and should be accommodated with the generic tariff decided for the GSPV category by the Commission. The Petitioner submitted that the capacity of the said pumps are ranging from 2 kW to 10 kW which can be connected through LT line subject to technical feasibility and approval by DISCOM.
- 1.8 The Petitioner submitted that a similar scheme has been launched by the Government of India under the name of Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahabhiyan (PM-KUSUM) Yojna. Hence, the proposal of including the said solar pumps in the GSPV RE Category or a separate RE Category should be accepted and the tariff for the same should be decided accordingly. Further, after deliberation with UREDA, UREDA had agreed to work out on a policy framework regarding the aforementioned issue once the tariff for the sale of

energy produced by the said solar pumps is decided by the Commission. The Petitioner also submitted that the Commission has introduced a category of Renewable Energy Called 'Agro Voltaic' under Regulation's Clause 4(2)(C) with the clear intention of categorising farming based RE sources into RE Regulation. The said solar pumps are squarely covered under the agro voltaic category as well as GSPV.

1.9 Accordingly, the Petitioner has sought the following relief:

- a) Appropriate direction to ensure the grid connectivity of small solar irrigation pump systems established and to be established by the Department of Minor Irrigation.
- b) Small solar irrigation pump systems be categorized under 'Grid Interactive Small Solar PV Plant' (GSPV) of Regulation 37 of RE Regulations, 2023.
- c) The excess power generated by the said solar irrigation pumps should be dealt under Regulation 37 of RE Regulations, 2023 as small solar power plant up to 10 kW capacity so that the generation from the said solar pumps be sold as per the existing generic tariff decided for small solar PV plants up to the capacity of 10 kW under RE Regulations, 2023.
- d) Any other tariff, which the Commission thinks fit in this case be decided for surplus solar energy from various capacity solar pumps established and to be established by the Department of Minor Irrigation under various schemes.

## **2. Respondents' submissions and Petitioner's reply**

2.1 The copy of the Petition was forwarded to Uttarakhand Renewable Energy Development Agency (UREDA) and Uttarakhand Power Corporation Limited (UPCL) for comments on the Petition filed by the Petitioner. UPCL and UREDA vide their replies dated 29.09.2023 submitted comments on the Petition filed before the Commission.

2.2 UREDA vide its letter dated 29.09.2023 referring to PM-KUSUM guidelines, stated that there are three components. Component-A deals with the installation of cumulative capacity of 10,000 MW of Solar PV plants with individual plants of capacity upto 2 MW. Component-B deals with installation of 20 lakh standalone Solar Powered Agriculture pumps and Component-C deals with solarisation of 15 lakh Grid-connected Agriculture pumps. UREDA submitted that under Component-C, there is a provision for purchase of additional electricity

generated from solar pumps by the distribution licensee after fulfilling the irrigation requirement.

UREDA submitted that Minor Irrigation department is the nodal agency for installation of off-grid Solar pumps which can be connected to grid under net metering arrangement so that excess energy can be injected into the grid of licensee.

- 2.3 In the matter, UPCL submitted that the relief claimed by the Petitioner is not tenable as the Petitioner seeks categorisation of small solar off grid pump systems having capacity of 2 kW to 10 kW under 'grid interactive small solar PV plants (GSPV)' to determine the tariff as per RE Regulations, 2023. UPCL submitted that the relief would require amendment of the RE Regulations, 2023 and the same cannot be done by way of Order passed in any Petition.
- 2.4 UPCL submitted that the Petitioner has not provided necessary information regarding the installation of such solar pumps like whether these installations have been made by the Petitioner from the investment out of its own funds or any subsidy or grant has been availed and also whether these installations are at the own initiative of the Petitioner or the same have been carried out under any scheme of the government. Such disclosures are very relevant and important for the consideration of the present Petition and to see the cause of action, the Petitioner has not disclosed nor has provided any information about the manner or scheme under which these small solar off grid irrigation pump systems were installed or whether there is any subsidy involved or not? If these pumps have been installed under PM-KUSUM Yojna which has been mentioned by the Petitioner as a scheme similar to their proposed scheme, these kinds of Solar Power Pumps fall under category-B, i.e. Standalone systems (Off grid system having battery backup to store the electrical energy) with 90% subsidy. The purpose of these Standalone systems is to save high expenses on diesel operated pumps incase of off-grid locations. In such a case the very Petition would be against the mandate of the scheme and presenting such a Petition would not be considered as a bonafide action on behalf of Petitioner.
- 2.5 UPCL submitted that under PM-KUSUM scheme "category" has already been provided, as per different scenario, the said scheme only lays down that the Commission has to determine the tariff for category 'C'. UPCL also submitted that earlier also the Petitioner had moved a Petition for determining the tariff for the category "C", due to the reason that the tariff for the amount of subsidy provided for that category was not determined by the Commission and,

therefore, the Commission suo moto on request of UPCL has determined the generic tariff for solar power plants having 80% subsidy.

UPCL submitted that if the solar pumps which are subject matter of the present Petition is too governed by the said scheme then it would fall under the category 'B' created in the scheme for the cases where the grid was not available, if these Standalone systems will now be connected to grid, they will tantamount to fall under Category-C i.e. 80% subsidy category for which the Commission has already decided the tariff. Permitting such change of category would infact amount to amending the scheme itself under which they have been installed, this would eliminate the category 'B' altogether. This is legally not tenable.

- 2.6 UPCL submitted that there are practical difficulties and legal barriers in considering such a Petition. UPCL submitted that as to why the Petitioner has taken up the installation of solar irrigation pumps when they consider that the grid is easily available or distribution system is in place at such places. Further, if grid is easily available or distribution system is in place, the installation of off-grid system in place of grid connected system which are far cheaper than off-grid system (the off-grid system should have battery to store the electrical energy) is beyond the logical understanding.
- 2.7 UPCL submitted that the Petitioner has mentioned that these off-grid solar system has been installed across various regions of the State, it would be against the interest of consumer of the State if vast network is to be developed for evacuating this small amount of power which is not only infirm but will be highly variable. Apart from this, it would also involve huge human resource for maintaining the electricity network and billing such consumers.
- 2.8 UPCL submitted that the Petitioner be directed to provide complete details and relevant information with respect to the installation of these solar pumps as has been mentioned above. Thereafter the Respondents be provided with an opportunity to file its comment after considering such information, which at present juncture, it is not possible to file a comprehensive comment due to lack of information provided by the Petitioner.

### **3. Commission's Analysis and view**

- 3.1 The present Petition has been filed by Minor Irrigation Department, GoUK under Section 86(1)(e) read with Section 62 of the Electricity Act, 2003 and Regulation 37 & 52 of RE

Regulations, 2023 seeking categorisation of small solar off-grid irrigation pump systems having capacity of 2 kW to 10 kW under 'GSPV' and requesting for determination of tariff for the same in accordance with the provisions of RE Regulations, 2023.

- 3.2 Section 86(1)(e) of the Electricity Act, 2003 specifies that the State Commission shall 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. Accordingly, the Petitioner has sought inclusion of solar irrigation pumps developed by it under Regulation 37 'Grid Interactive Roof-top Solar PV Plants (GRPV)/Grid Interactive Small Solar PV Plants (GSPV)'.

Further, the Petitioner has requested for determination of tariff of such solar irrigation pumps in accordance with section 62 of the Act, 2003 read with Regulation 52 of RE Regulations, 2023.

- 3.3 The Petitioner has sought the following relief from the Commission:

- (i) Appropriate actions be taken to ensure the grid connectivity of small solar irrigation pump systems established and to be established by the Department of Minor Irrigation.
- (ii) The small solar irrigation pump systems be categorised under 'Grid Interactive Small Solar PV Plant' (GSPV) of RE Regulations, 2023.
- (iii) Excess power generated by the said solar irrigation pumps should be dealt under Regulation 37 as small solar power plants upto 10 kW capacity so that the generation from the said solar pumps be sold as per the existing generic tariff decided for small solar PV plants upto the capacity of 10 kW under Regulation 37 of RE Regulations, 2023.

- 3.4 The Commission conducted a hearing in the matter on 06.10.2023. The Petitioner and the Respondents reiterated their submissions before the Commission. Based on the submission of the Petitioner and the Respondents, the Commission directed the Petitioner to submit certain information which was submitted by the Petitioner vide its reply dated 16.10.2023. After examining the relevant material available on records, issues raised by the Petitioner in the Petition and in the rejoinder, replies of the Respondents, the analysis of the Commission are dealt in the subsequent paragraphs of this Order.

- 3.5 From the very first glance of the Petition, it appears that the Petitioner has requested the Commission for grid connectivity and categorisation of stand-alone small solar irrigation pumps installed under PM-KUSUM Scheme in the category of 'Grid Interactive Small Solar PV Plant (GSPV)'. However, in the subsequent submissions, the Petitioner has clarified that a meeting was held on 10.05.2023 with Secretary of Finance Department, GoUk and it was directed that solar pump-based irrigation projects being established by the Petitioner should be integrated with the grid to generate additional source of income for the farmers. These solar irrigation pumps are established under different sponsored schemes, NABARD funded schemes, State Schemes, District Schemes etc.
- 3.6 With regard to the request of the Petitioner for ensuring the grid connectivity of small solar irrigation pumps system established and to be established, the Commission has gone through the Solar Policy, 2023, RE Regulations, 2023, PM-KUSUM Scheme and MoM dated 23.06.2023. It is to be noted that Para 8.2.5(II) of the Solar Policy, 2023 specifies that individual farmers having grid-connected agriculture pumps shall be supported to solarise pumps. Solar PV capacity up to two times of pump capacity in kW is allowed under the scheme and the tariff shall be as determined by the Commission. Further, the State shall promote the deployment of standalone solar pump schemes or other state government's initiatives to support the irrigation needs of farmers.

PM-KUSUM Scheme - Component-B deals with the installation of 17.50 Lakh Stand-alone Solar Pumps and also provides that whenever grid reaches in the off-grid area, the stand alone Solar Agricultural Pumps can be connected to the grid to feed surplus power depending on grid capacity and distribution licensees may purchase surplus power from the farmer at the rate derived by the respective SERC. Hence, it may be optional for the discom to enter into the PPA with the farmer, however, in the interest of UPCL since it is having deficit in meeting its requirement and the tariffs for these plants will be cheaper than the sources available with UPCL the Commission does not find any issue in allowing connectivity to these plants. Furthermore, the Commission has gone through the MoM dated 23.06.2023 and observed that instructions were given to UPCL and the Petitioner to establish coordination among themselves and design good projects related to solar irrigation.

Based on the above discussion, the Commission is of the view that in line with the provisions specified under PM-KUSUM Scheme for connectivity of the stand-alone Solar



Pumps, distribution licensee shall ensure the connectivity of small solar irrigation pump system established or to be established by the Petitioner under various schemes after technical and financial feasibility which will result in achieving the renewable purchase obligations towards solar energy and additional source of income will be generated through sale of surplus solar energy to the distribution licensee.

- 3.7 The Petitioner has requested for small solar irrigation pump systems be categorised under 'Grid Interactive Small Solar PV Plant' (GSPV) of RE Regulations, 2023. In the matter, UPCL has submitted that the relief would require amendment of the RE Regulations, 2023 and the same cannot be done by way of order passed in any Petition. It is pertinent to mention that the Commission based on the request made by UPCL referring to the guidelines for implementation of *Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM-KUSUM) Scheme* issued by MNRE on solarization of grid-connected Agricultural pumps, vide Suo-moto Order dated 15.09.2020 had determined the generic tariff for the small solar PV plants with a subsidy at the rate of 80%. Accordingly, it is implied that the generic tariff determined by the Commission for GSPV shall also be applicable for grid connected small solar irrigation pump systems developed by the Petitioner. Further, in the past also PPA's have been entered into by UPCL with agricultural consumers having GSPV plants. Hence, there seems no requirement of amendment of the RE Regulations, 2023 as these plants can be categorized as GSPV plants. Further, if connectivity is allowed to these plants, surplus energy generated by these plants will aid UPCL in meeting its requirement at a cheaper tariff. However, since at present these plants are off-grid plants any expenditure to be incurred towards metering and connectivity will have to be borne by these prosumers.

As far as, generic tariff is concerned, it is worth mentioning that the Commission sought information w.r.t. funding pattern and execution of PPA with distribution licensee. In reply, the Petitioner submitted that the entire amount for the project is provided by the Central Government and/or State Government and PPA shall be executed with the farmers. Accordingly, it is explicitly clear that no equity will be infused by farmers and the solar irrigation pumps are 100% funded as grant. However, the farmers are required to incur expenses towards O&M and working capital. Accordingly, considering the 100% subsidy, the generic tariff works out to Rs. 1.95/kWh based on the parameters specified in RE Regulations, 2023 which shall be charged for surplus energy to be injected into the grid of

distribution licensee in accordance with the RE Regulations, 2023.

3.8 Ordered accordingly.

**(M.K. Jain)**  
**Member (Technical)**

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