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No. CEE/SLDC/SEE-SCADA/EE-MIS/AEE-MIS/2023-24/749

Date: 22.05.2023

Procedure for Metering, Communication, Monitoring, Reporting of Renewable Energy Power Plant, owned by the obligated entities.

Preamble:

The Commission vide Notification No: Y/03/16/2641 dated 21.02.2017 had published the Regulations amending the KERC (Procurement of Energy from Renewable Sources) Regulations, 2011.

Whereas, the Regulation 5 of the said Regulations specify that every distribution Licensee, captive consumer and open Access consumer which is an obligated entity specified in Regulation 3, may purchase REC or consume electricity generated from its own renewable energy plant (grid connected or otherwise) to meet either partly or entirely its RPO specified in Regulation 4.

Provided that capacity of the Renewable Energy Power plant owned by the Captive Generator, shall not be less than 250 kW.

Provided also that the SLDC shall prepare a detailed procedure for metering, communication, reporting and monitoring of RPO compliance and host the same on KPTCL/SLDC website.

Subsequently, the Commission vide Notification No: KERC /DD(TRN)/Y/02/ 22 /1849 dated 25.11.2022 had published the Regulations amending the KERC (Procurement of Energy from Renewable Sources) Regulations, 2011.

Whereas, the Regulation 5 of the said Regulations specify that the obligated entities specified in Regulation-3, to meet either partly or entirely, its RPO specified in regulation 4, may in addition to purchasing /procuring electricity generated by renewable sources directly from generators/developers, can comply with the RPO specified in these Regulations in the following manner:

1. *By own renewable electricity generation (grid connected or otherwise) under captive mode;*

Provided further that suitable metering and communication arrangement with the SLDC shall be established for such Renewable Energy Power Plant by the obligated entity for the purpose of monitoring the RPO compliance.

Provided also that the SLDC shall prepare a detailed procedure for metering, communication, reporting and monitoring of RPO compliance and host the same on its website.

The requirement of metering and communication are as mentioned below:

- 1. Metering:** The Energy injected and the Energy drawn shall be metered at both the injection point of generator and at drawal point of the consumers (to be specified clearly by the company) respectively.
- 2. Communication:** The generator shall make arrangements for installing at his own cost, the communication system for integrating the energy Meter to SLDC to transfer real time data and shall comply with the following:
 - a. Net Energy Meter: The Net Energy meter shall be of Device Language Message Specification (DLMS) protocol 0.2s class accuracy with RS-485 communication port or Transmission Control Protocol/Internet Protocol(TCP/IP) with 15 min block (having facility to convert to 5 min block in the future) (both main & check meters) for Automated Meter Reading (AMR) solution.
 - b. Meter Equipment and testing: Each meter (both main & check meters, Export/Import) shall be inspected, tested and sealed by concerned ESCOMs in the presence of Generator/or his representative.
 - c. Data Concentrator Unit (DCU): DCU, shall be provided at the generator end for data acquisition, transfer of energy data to the central database, and for automated meter reading.
 - d. 4G-communication Modem: 4G modem with provision to upgrade to 5G, shall be provided for interfacing real time data and Net Energy meter data. The communication network selected should have high signal strength and ensure the reliability of the communication.
 - e. Maintenance: Maintenance of the hardware, accessories, communication network provided at generator end shall be under the scope of the generator and he shall submit an undertaking for maintenance of the same. Any issues related to the failure of hardware and the communication, is the responsibility of the generator

and should take necessary actions for repair/replacement of the faulty equipment so as to resume the system to normalcy, at the earliest.

3. At SLDC Control Center: For integration of the generator's data to SLDC, the following existing infrastructure will be provided by the KPTCL/SLDC.

a. 4G –Router: 4G Router with VPN connections at control center shall be provided, with provision to upgrade/replace to 5G.

b. Firewall: Firewall system to monitor incoming and outgoing traffic and to prevent unauthorized access to the network.

c. MDAS (Meter Data Acquisition System) Server: MDAS shall be suitable for VPN connections for real-time data acquisition from the deployed "DCUs", and organize the data in the database in a Common Data Format (CDF). MDAS shall do real time monitoring, summary reports and Graphs. MDAS application shall mainly consists of Five components:

(1) Communication server application: Communication server application will establish communication with modem associated to DCU and process the data sent by the device.

(2) OPC (Open Platform Communication) Server application: OPC server will read the raw data which was received by communication server application and convert the raw data to actual meter data.

(3) User interface using web based application: Web server provides web based user application which provides access using public IP, where the user should be able to login and get to know the details of their meter status and data. Utility Operation/Dashboard user will have the interface for supervisory activities involved in meter data acquisition, processing and analysis. User can take print outs of these reports, export the data into spread sheets, or convert the data in the form of flat files.

(4) Meter Data Acquisition System: for reading instantaneous parameters, Mid-night reading and 15 min block wise Load survey data from all the energy meters.

(5) Data storage: Storage of energy meters' data facility.

a. Workstations: 1 +1 redundant work stations for configuration and monitoring of Energy meters' data.

b. Leased line: Dedicated leased line for data connectivity.

4. Reporting & Monitoring:

a. Meter Test Checking: All the main and check meters shall be tested for accuracy every calendar quarter with reference to a portable standard meter which shall be of accuracy class of 0.1. The portable standard meter shall be owned and maintained by ESCOM at its own cost and tested and certified at least once every year against an accepted laboratory standard meter in accordance with electricity standards. The meters shall be deemed to be working satisfactorily if the errors are within specifications for meters of 0.2 accuracy class. The cost of such test checking shall be borne by the company at the rates specified by the Corporation/ESCOM/s from time to time. The consumption registered by the main meters alone will hold good for the purpose of billing as long as the error in the main meter is within the permissible limits.

i) If during the quarterly tests, the main meter is found to be within the permissible limits of error and the corresponding check meter is beyond the permissible limits, then billing will be as per the readings of the main meter. The check meter shall, however, be calibrated immediately.

ii) If during the quarterly tests, the main meter is found to show reading beyond permissible limits of error, but the corresponding check meter is found to be within permissible limits of error, then the billing for the month up to the date and time of such test shall be as per the check meter. There shall be a revision in the bills for the period from the previous billing date up to the current test date, based on the readings of the check meter. The main meter shall be calibrated immediately and billing thereafter shall be as per the calibrated main meter.

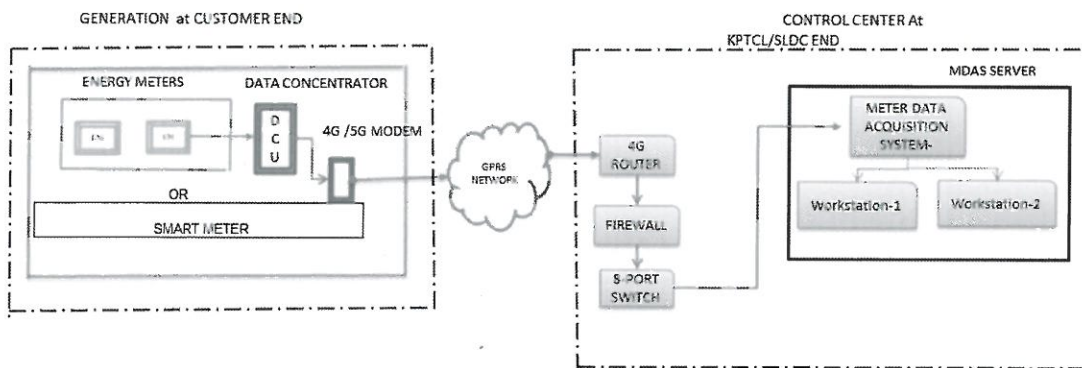
iii) If during the quarterly tests, both the main meter and the corresponding check meter are found to show readings beyond the permissible limits of error, both the meters shall be immediately calibrated and corrections

applied to the reading registered by the main meter to arrive at the correct reading of energy supplied for billing purposes for the period from the last month's meter reading up to the current test. Billing thereafter shall be as per the calibrated main meter.

iv) If during any of the monthly meter readings, the variation between the main meter and the check meter is more than that permissible for meters of 0.2s accuracy class, all the meters shall be re-tested for their accuracy immediately.

b. Interconnection and Metering facilities: The Company at the injection point and the consumer at the drawal point, shall provide at their cost dedicated core for the metering. Both the main meter and the check meter shall be installed nearest to the PT at both the injection point and the drawal point and shall be housed in a suitable weatherproof cubicle.

5. The schematic diagram for the above procedure is as follows:



“Approved by KERC”


22/5/23
Chief Engineer (Electy.,)
SLDC, KPTCL Bengaluru

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