e-REW Express

December 2018

Welcome

to our "e-REW Express". HK Electric has announced the details of Feed-in Tariff (FiT) Scheme, which will come into effect on 1 January 2019. Subsequent to the "General Requirements of Meter Position, Metering Arrangement, Meter Cubicles and Operation of Meters for REPS" introduced in the last issue of our e-REW Express. In this issue, we will introduce the technical requirements for grid-connected renewable energy power system (the REPS).

We hope you will find the information of this e-REW Express useful. If you have any suggestion, please send an email to us at mail@hkelectric.com or contact our Customer Installation Section on 2887 3455 so that we can further improve our service.

Technical Requirements for Grid-connected Renewable Energy Power System

1. Inverter

1.1 The inverter shall be designed with an "anti-islanding" function to automatically disconnect the REPS from the Grid in the event of de-energisation of the Grid. The time delay for the automatic disconnection of the REPS shall not exceed 2 seconds.

1.2 The inverter shall be designed with a synchronisation check function such that the voltage fluctuation at the connection point of the Grid during synchronisation operation of the REPS shall be limited to below 3%.

1.3 The inverter shall protect the REPS against transient abnormalities (e.g. supply interruption, voltage fluctuation, frequency fluctuation and voltage dip) that may originate from the customer installations and the Grid.

1.4 When sustained voltage and frequency fluctuations are detected, the inverter shall be able to disconnect the REPS from the Grid with a time delay according to Table 1 below.

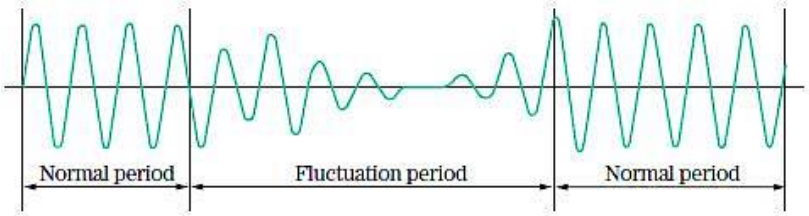


Table 1	
Voltage (measured at the connection point of the Grid)	**Maximum trip time***
V < 50 %	0.1 s
50 % ≤ V < 85 %	2 s
85 % ≤ V ≤ 110 %	Continuous operation
110 % < V < 135 %	2 s
V ≥ 135 %	0.05 s
Frequency (measured at the connection point of the Grid)	**Maximum trip time***
f < 49 Hz	0.2 s
f > 51 Hz	0.2 s
* The REPS does not have to cease to energize if the voltage returns to normal continuous operation conditions within the specified trip time. The owner or registered electrical contractor of the REPS shall arrange to design the protection settings of the REPS taking into consideration its ride-through capability under abnormal voltage and frequency conditions.	

1.5 In the event of automatic disconnection of the REPS due to fluctuation in voltage, frequency or anti-islanding operation, the inverter shall only reconnect the REPS to the Grid after the Grid has resumed to normal conditions continuously for at least 5 minutes.

1.6 The power output of REPS to the Grid shall not be less than 0.85 power factor lagging.

1.7 The total harmonic current distortion of the REPS output shall not exceed 5 % at the output of the REPS.

1.8 After the connection of the REPS to the Grid, the voltage fluctuation at the connection point of the Grid due to the output power of the REPS shall not exceed 1%.

2. Isolation Transformer

An isolation transformer shall be installed to prevent direct current (DC) from flowing into the Grid.

3. Electrical Installation

3.1 Technical assessment shall be carried out by the Customer's Registered Electrical Contractor (REC) / Registered Electrical Worker (REW) to ensure that all the electrical equipment in the customer installations and the Grid are safe to operate in the new fault level with the grid connection of the REPS and to avoid improper operations of protective devices during fault conditions and under all possible operation conditions. The new fault level shall not exceed 40 kA.

3.2 The REPS shall be equipped with an appropriate earthing system which shall remain effective even when the REPS is disconnected from the Grid.

3.3 For connection of 1-phase REPS to the Grid, the maximum rated output current shall not exceed 60 A. For REPS with maximum rated output power greater than 13.2 kVA, the REPS shall be connected to the Grid in 3-phase arrangement.

Single Phase RE Meter

Three Phase RE Meter

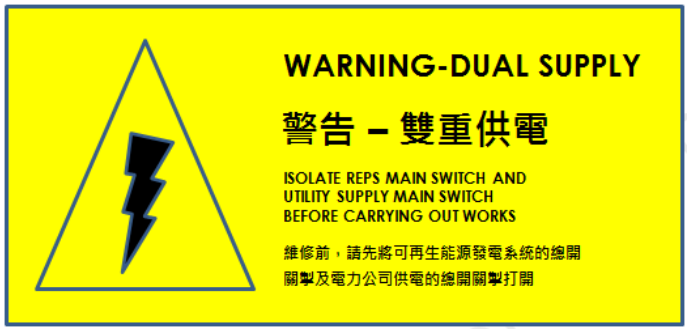
3.4 The negative phase sequence voltage at the supply point shall not exceed 1.3% of the positive sequence voltage in a 3-phase supply system.

4. Other

4.1 An up-to-date single-line electrical diagram (showing clearly the connection arrangements via the electricity account meter to the HK Electric's supply point with Supply Number) shall be displayed in prominent positions at different appropriate locations.

4.2 Proper warning labels shall be displayed at all electrical equipment with dual power supply sources.

DC Warning Label



Dual Power Supply Warning Label No.1

Dual Power Supply Waning Label No.2

4.3 A Registered Electrical Worker shall be designated by the Customer to communicate directly with HK Electric under normal and emergency operations.

For details of technical requirement of FiT scheme, you may visit our FiT page via www.hkelectric.com/FiT-en. We are also pleased to provide our advisory service to Registered Electrical Contractor/Registered Electrical Worker (REC/REW) regarding the grid connection requirements of REPS, you may call our hotline at telephone number 2843 3228 or contact us via the dedicated email address RE@hkelectric.com.