4 Solar PV System Installation Requirements

4.1 Electrical Installation Licence

An electrical installation refers to any electrical wiring, fitting or apparatus used for the conveyance and control of electricity in any premises. A solar PV system installed within such premises forms part of the consumer's electrical installation and should comply with the requirements stipulated in the Electricity Act (Cap. 89A), the Electricity (Electrical Installations) Regulations and the Singapore Standard CP5 Code of Practice for Electrical Installations.

Under the Electricity Act, the Energy Market Authority ("EMA") licenses all non-residential electrical installations, with demand exceeding 45 kilo volt ampere or kVA. For residential electrical installations and non-residential electrical installations with demand below the threshold 45kVA, no electrical installation licence is required.

The licence requires the owner of the electrical installation to engage an LEW to take charge of the electrical installation and comply with the relevant safety standards and requirements. Your appointed LEW shall consult SP PowerGrid Ltd on their technical requirements and procedures, if you wish to operate your solar PV system in parallel with the power grid. The objective is to ensure all electrical installations, including solar PV systems, are safe to use.

4.2 Electrical Safety Standards and Requirements

A grid-connected solar PV system operates in parallel with the power grid supply. The power grid supply is considered the source, and the electrical installation with the solar PV system connected is considered as the load.

The technical requirement for installation of a solar PV system is given in Section 612 of the Singapore Standard CP5.

There are international product standards on PV modules and electrical components. For example, PV modules should comply with the requirements of IEC 61215 for crystalline silicon terrestrial PV modules or IEC 61646 for thin-film terrestrial PV modules. In addition, PV array junction box, PV generator junction box and switchgear assemblies should comply with the requirements of IEC 60439-1.