Advisors Toolkit
Factsheet No 6.b

Solar Photovoltaic (PV)

Solar Photovoltaic (PV) is a technology in which daylight is converted into electrical power. The most common systems comprise a number of cells (the cells comprise one or two layers of a semi conducting material, usually silicon, which converts solar energy into electrical energy) interconnected to form a solar panel or module. A number of modules are usually connected together in an array. Solar PV systems are sized by their optimum output energy measured as Kilowatt Peak (kWp).

Solar PV can either be roof mounted or free-standing in modular form, or integrated into the roof or façades of buildings as solar shingles, solar slates or solar glass laminates. Solar PV can be connected to the national grid or used as a stand-alone system.

Solar PV:

- Does not produce greenhouse gases or cause pollution when in use. Each kilowatt-peak (kWp) of electricity produced can save approximately 455 kilograms of carbon dioxide emissions compared with electricity generated from fossil fuels
- Has no moving parts, and is low maintenance
- Can be integrated into the building fabric
- Does not require direct sunlight.

The cost of a solar system varies depending on the type of system used and the size of the array installed. A typical array on a family home would produce 1.5 to 3kW peak output (providing approximately half of the household's electricity needs every year). In grid-connected solar PV systems any surplus electricity can be sold back to the local distribution network with the agreement of the network operator and an electricity supplier.

- See Factsheet 4.l Feed-in Tariffs and Factsheet 4.o Smart Export Guarantee

The optimum location for PV panels is facing south and at a tilt of 35 - 40˚. Direct sunlight is not needed but care must be taken to avoid overshadowing from buildings, trees and other structures. If the roof surface is in shadow for parts of the day, the output of the system decreases.

Solar PV installations should always be carried out by a trained and experienced installer. Solar PV is low maintenance, however wiring and components should be checked regularly by a qualified technician.

Stand-alone systems, i.e. those not connected to the grid, need maintenance on other system components, such as batteries.