Smart Energy Management for Reduced Electricity Bills
Increase your self-consumption

Grid electricity prices are constantly on the rise. This is a motivation to install large PV systems that allow owners to minimize consumption from the grid during the day. However, in some countries local regulations limit the amount of PV power that can be fed-in to the grid or allow no feed-in whatsoever, while allowing the use of PV power for self-consumption. Therefore, without an energy management system, PV systems cannot be installed (if no feed-in is permitted) or are limited in size (if feed-in is limited to >0W limit).

The SolarEdge Smart Energy Management solution offers a feed-in limitation option, integrated in the SolarEdge inverter firmware, which dynamically adjusts PV power production. This allows you to use more energy for self-consumption when the loads are high, while maintaining the feed-in limit also when the loads are low.

SolarEdge Feed-in Limitation

- Feed-in limitation is integrated into the inverter firmware - install only an energy meter
- Fast Response Time - ensuring that even with rapid changes in load consumption and PV production the feed-in power does not exceed the limit
- Failsafe Operation - the operation is designed to guarantee that the exported power will never exceed the preconfigured limit under any fault

SolarEdge Inverter as Energy Manager

- Feed-in limit is configured using the inverter user interface
- In a multi-inverter system, one inverter will serve as the energy manager
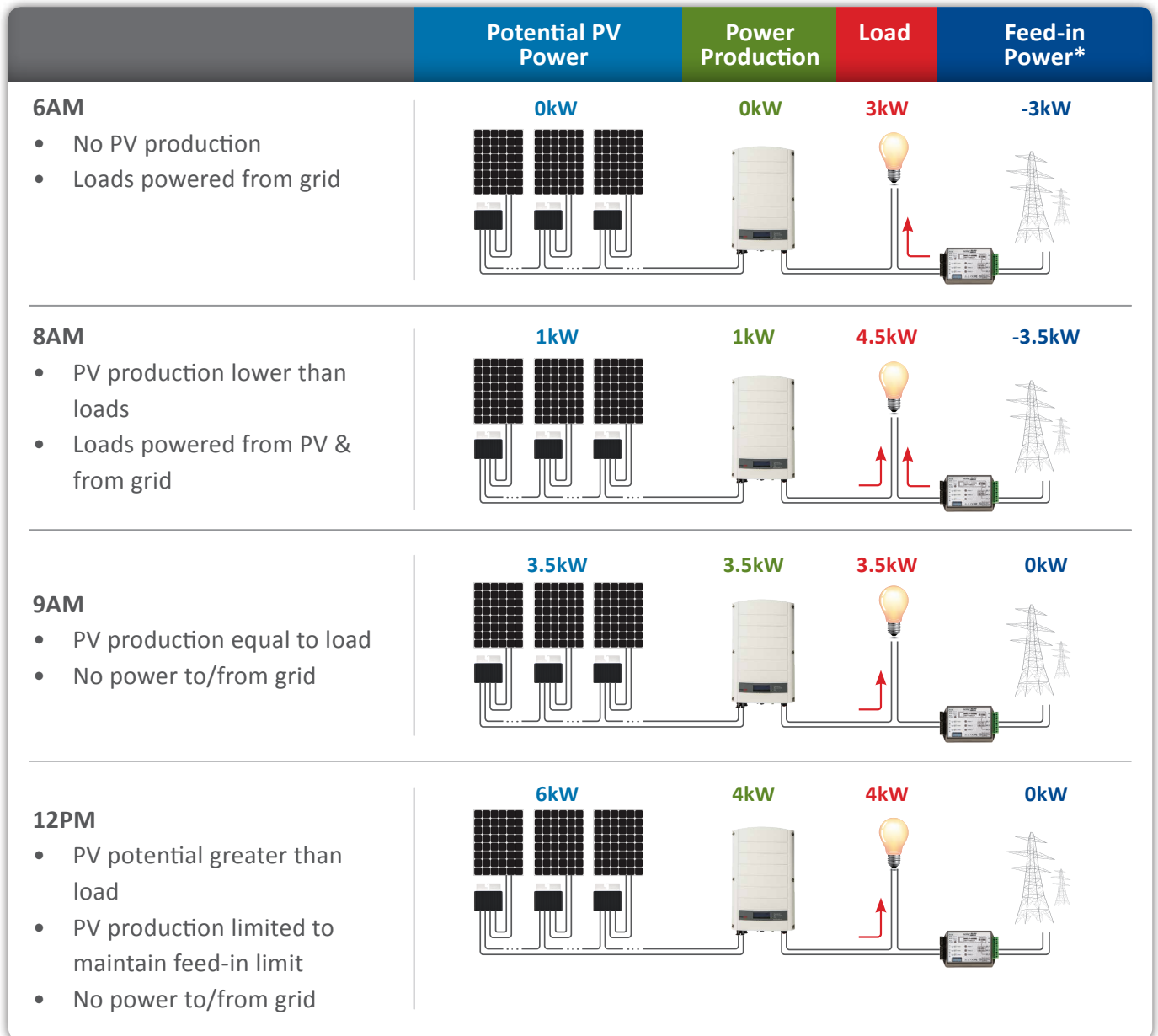- Installed SolarEdge inverters can be firmware upgraded with the feed-in limitation option

Meter Support

- The inverter can read a meter installed either at the grid connection point or at the load consumption point
- Two types of meters may be used:
  - ‣ An RS485 meter, available from SolarEdge; the meter connects to the RS485 terminal block of the SolarEdge inverter
  - ‣ A meter with an S0 interface and an S0 meter adapter cable available from SolarEdge
- The inverter maintains the output power limit with accuracy equal to that of the meter

Feed-in Limitation Operation Example

The following example illustrates the behavior of a 6kW PV system, with a feed-in power limit of 0W - no feed into the grid.

	Potential PV Power	Power Production	Load	Feed-in Power*
6AM • No PV production • Loads powered from grid	0kW	0kW	3kW	-3kW
8AM • PV production lower than loads • Loads powered from PV & from grid	1kW	1kW	4.5kW	-3.5kW
9AM • PV production equal to load • No power to/from grid	3.5kW	3.5kW	3.5kW	0kW
12PM • PV potential greater than load • PV production limited to maintain feed-in limit • No power to/from grid	6kW	4kW	4kW	0kW

* Minus sign indicates power is purchased from the grid

The overall behavior of the example system throughout the day can be seen in the following chart: