



**IMEON ENERGY**  
Your Power, Your Rules



**THE SELF CONSUMPTION  
SMART GRID INVERTER  
NEW GENERATION**



- SMART GRID INVERTER

- COMPACT "ALL-IN-ONE" SYSTEM

- SMART-GRID / BACK-UP / OFF-GRID / GRID-TIE

- SMART STORAGE MANAGEMENT

- 30% MORE EFFICIENCY<sup>(1)</sup>

- PLUG-&-PLAY INSTALLATION

- USER FRIENDLY OPERATION & INTERFACE

- LOCAL OR REMOTE MONITORING



# ABOUT IMEON ENERGY

IMEON ENERGY has designed a revolutionary Smart Grid Inverter, resulting from over five years of R&D and thousands of projects involving the electrification of remote sites. The IMEON Smart Grid Inverter provides the perfect solution to the intermittency and fluctuation of solar energy by managing multiple sources of a solar system (PV, Batteries and Grid). The

cost of electricity from the national grid has increased in recent years and it is expected to continue to increase, while the cost of photovoltaic modules are becoming more affordable. The IMEON Smart Grid Inverter increases the overall efficiency of photovoltaic systems through the use of smart storage management systems. With an IMEON Smart Grid Inverter and the increasing affordability of photovoltaic modules, the cost of solar power is becoming more competitive. The IMEON Smart Grid Inverter can be integrated with existing infrastructures by relieving the grid during low consumption times, e.g. during the day when the batteries will be charging, and by supporting the grid during high consumption times, e.g. during the night when the batteries will be discharging. The IMEON Smart Grid Inverter enables photovoltaic installations to be economically viable and accessible to all.

## IMEON ENERGY'S CONCEPT

Solar energy is a limitless resource. In the current climate, fossil fuel resources are being exhausted and the cost of conventional energy is continuously rising. Thus, self-consumption of solar power is rapidly becoming the more economical and environmentally friendly way of producing electricity. The IMEON ENERGY team has always believed in the need to combine ecological solutions with economical savings and so the IMEON Smart Grid Inverter supports both of these needs. The IMEON Smart Grid Inverter is designed to be the most versatile all-in-one inverter currently on the market, by combining all the essential renewable functions of a Grid-Tie Inverter, Off-Grid Inverter and MPPT Regulator. The IMEON Smart Grid Inverter does not require complex configurations as it analyses real-time available energy sources and consumption patterns to adapt its operation. As a key feature, IMEON Smart Grid Inverters ensure optimum performance by directing energy where needed. This "Grid Optimised Storage" technique reduces the required storage capacity and significantly increases battery life.

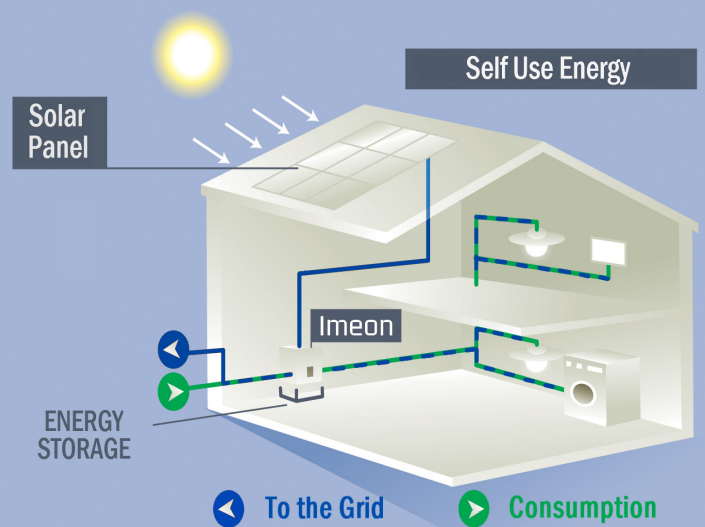
« WITH IMEON: PRODUCE, MANAGE, STORE AND OPTIMISE YOUR OWN ENERGY »»

# ▶▶ SELF CONSUMPTION OF SOLAR ENERGY ▶▶

Smart Grid / Back-up (UPS) / Isolated sites (Off-Grid) / Connected to the grid (Grid-Tie / Hybrid (Grid-Tie and Off-Grid))

## SMART GRID

IMEON is the ideal solution for photovoltaic systems whether in Off-Grid, Back-Up or Grid-Tie. The IMEON Smart Grid Inverters are dedicated to using solar energy for optimal performance. Specific energy readings from different energy sources (PV, Batteries and Grid) are used and the photovoltaic system is optimised according to the required production and consumption needs. The IMEON Smart Grid Inverter prioritises solar energy first and ensures the compliment of power by drawing energy from the batteries and the public grid during consumption peaks.



## OPTIMISED STORAGE

The IMEON Smart Grid Inverter intelligently manages the solar system by first directing the generated solar power to the loads. Only the excess power is used to charge the batteries. Battery discharging only takes place during times of high consumption, night-time and during times of limited solar production, resulting in improved overall efficiency of the system and extended battery life. Therefore, the self-consumption of solar energy will be optimised.

## ECONOMIC

With IMEON's intelligent energy management and all-in-one features, there is no longer a need for separate components such as charge controllers or added inverters. The overall cost of the photovoltaic system can be reduced by 30%<sup>(1)</sup> when using an IMEON Smart Grid Inverter. The innovative "Smart Grid Mode" of IMEON allows for a lower required battery capacity and reduced battery cycling, as well as further prolonging the battery life.

## ALL IN ONE

The IMEON Smart Grid Inverter was specifically designed for any solar installation, regardless whether the system is an Off-Grid, Back-Up, Grid-Tie, or a hybrid power system. The IMEON is a Plug-and-Play Smart Inverter which simplifies the installation process and reduces the overall setup time of a solar system. Energy independence and autonomy is now possible with the IMEON Smart Grid Inverter with one's own self-generated solar production.

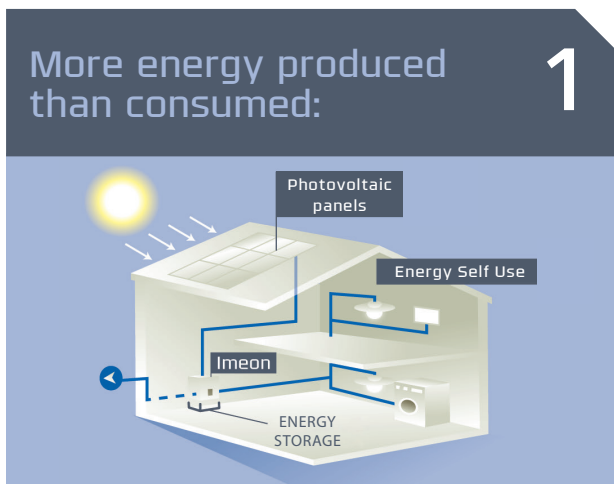
# ▶ SMART GRID & ENERGY SOURCES MANAGEMENT



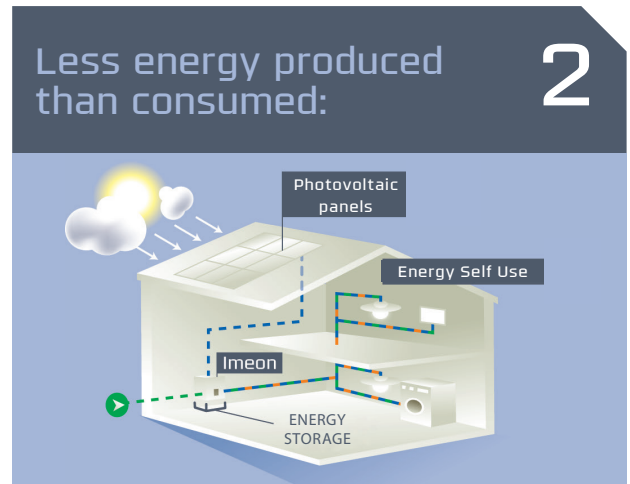
IMEON PRIORITISES RENEWABLE ENERGY  
USING THE IMEON SOLUTION IS TAKING A STEP  
TOWARDS AUTONOMY



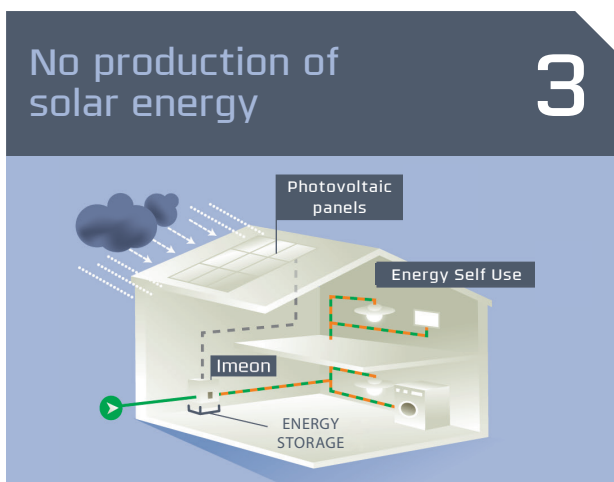
IMEON manages multiple energy sources (PV, Batteries and Grid) and adapts the available power according to the conditions of solar production and overall consumption. Each kWh produced is directly consumed and stored in batteries or sold to the grid.



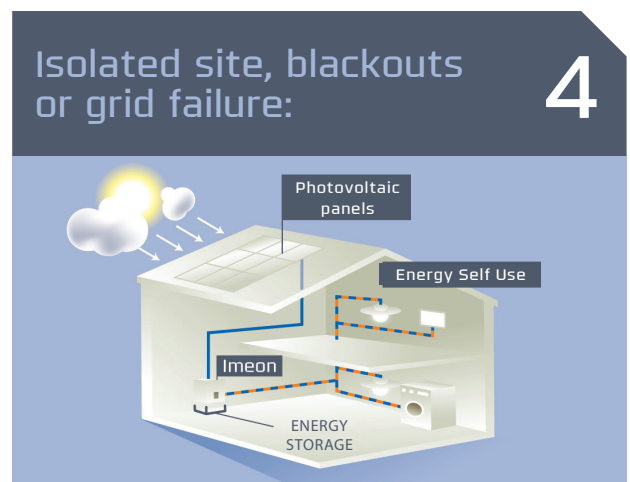
The generated solar power supplies the consumption needs and simultaneously charges the batteries. Any eventual surplus of solar production is then exported to the public grid.



The generated solar power supplies part of the consumption needs. The batteries and the public grid will provide the remaining power for the rest of the consumption needs.



The batteries will feed the consumption needs. When needed, supplementary power will be provided from the public grid to assist in supplying the consumption needs.



The generated solar power supplies the consumption needs first, and surplus power will be used to charge the batteries. The batteries then provide any additional power required.

← Towards the grid

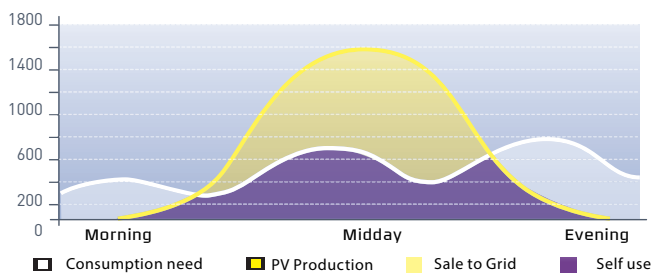
→ Consumption

Stored Energy

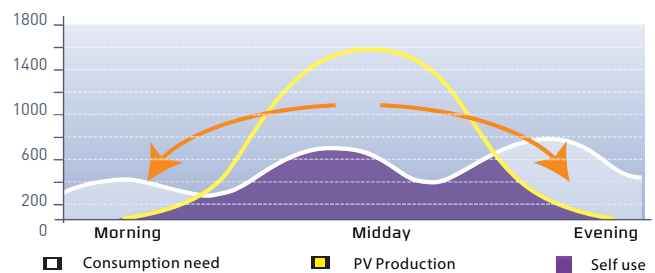
# ▶▶ INTELLIGENT BATTERY MANAGEMENT ▶▶

## Reduced & Optimised Storage

IMEON intelligently manages storage systems by limiting battery use. The system uses surplus energy to charge the batteries, and only discharges them when additional power is needed to compliment solar production. The IMEON Smart Grid Inverter reduces the required storage capacity and extends the battery life span by minimising the number of charging and discharging cycles. Most traditional Off-Grid technologies manage storage using fixed thresholds, while IMEON Smart Grid Inverters continually adjust the thresholds according to the charge (Production) and discharge (Consumption) currents. Moreover, the IMEON Smart Grid Inverter provides two different levels of discharge depth according to the grid availability: The first threshold level is used to optimise the battery life span. The second level is used to increase the autonomy with batteries in case of grid failure. The IMEON Smart Grid Inverter is configurable for use with different battery types including GeL, AGM and Lithium<sup>(2)</sup>



Operation without battery bank:  
selling excess power to the grid.



Operation with uncharged battery bank:  
excess power is stored for later consumption.

## Day time

Solar production feeds the consumption needs. Any surplus power is then stored in the battery bank to avoid any loss of production. If there is any surplus of solar power after the batteries are charged, IMEON will export it to the public grid (optional setting).

## Evening

Solar production is low during the evening, therefore power will be drawn from the batteries to cover the consumption needs of the household. If necessary, the IMEON Smart Grid Inverter will draw additional power from the public grid.

## Night Time

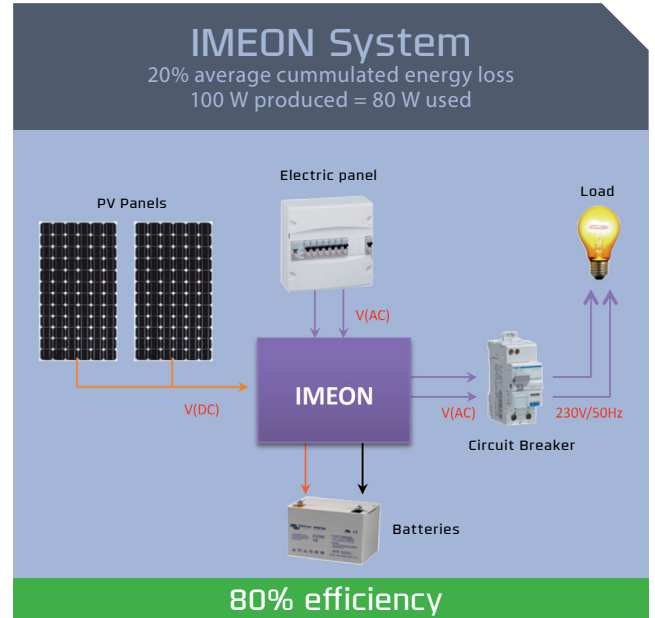
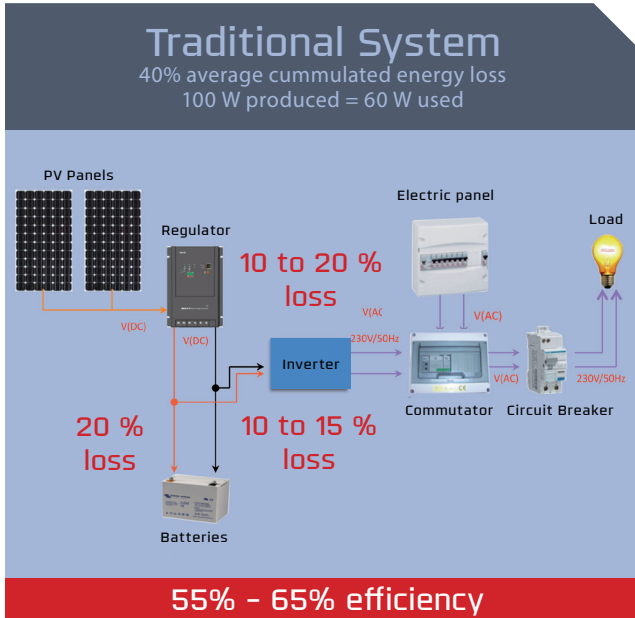
The IMEON Smart Grid Inverter will first draw power from the batteries to supply the consumption needs at night. IMEON will only draw electricity from the public grid if additional power is need to meet the households' consumption needs.

## Grid Failure

The IMEON Smart Grid Inverter's "Back-Up Mode" ensures supplying the household with power in case of sudden grid failure<sup>(1)</sup>. The batteries are charged to further secure continuous operation of certain appliances under all circumstances.

# ▶▶ OPTIMISED EFFICIENCY ▶▶

With the IMEON Smart Grid Inverter there is no longer the need for complicated designs and installations. The IMEON Smart Grid Inverter adjusts itself to optimise the use of all available energy resources. Compared to traditional Off-Grid systems, the IMEON Smart Grid Inverter optimises the level of self-consumption and generates higher solar yields, requiring a lower battery capacity and consequently reduced cost of a renewable energy system of up to 30%.



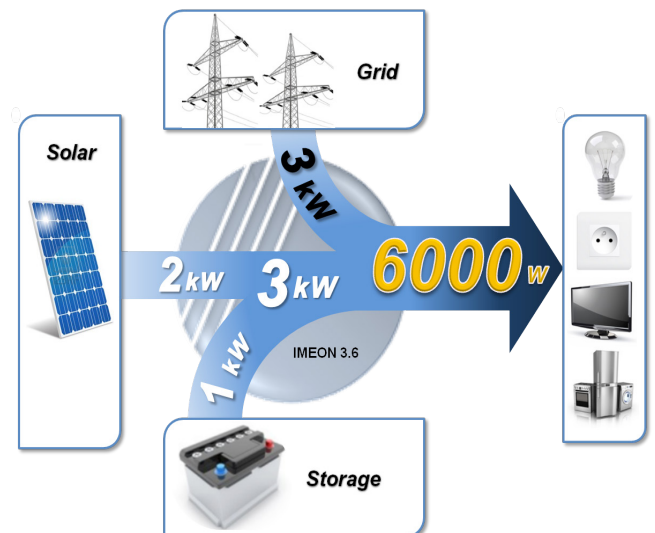
# ▶▶ INNOVATIVE PHASE COUPLING ▶▶

## Multiple Energy Source Coupling

IMEON is a result of high innovation and technology. Multi-sources phase coupling (Phase Coupling Energy, or PCE) is used to couple several energy sources (eg: PV / batteries / grid). There is no longer a need for source switching, which often leads to micro-cuts of electricity supply. PCE solves age old renewable energy concerns such as intermittence and fluctuation. IMEON's PCE has now made it possible to guarantee constant power supply and optimal solar yields.

## Doubled Output

When grid power is available, the IMEON Smart Inverter can constantly provide double its nominal power. For example, the IMEON 3.6 can provide up to a maximum 6kW by using 2kW of solar energy, 1kW of battery power and 3 kW from the grid. Thus, no modifications of the household's distribution board are necessary if the demand is less than or equal to 6kW.





# ▶ SMART MONITORING ▶

The IMEON Smart Grid Inverter provides real-time operational data of the solar installation as well as energy source selection so that, at any time, the user can choose to optimise his or her consumption based on the level of production.



IMEON is an intelligent and interactive inverter



- Constant monitoring of system performance
- Ergonomic, user-friendly LCD screen
- Real-time operational display
- Visual alert in the case of malfunctioning
- RS232/USB and Ethernet/IP communication (optional)
- Remote monitoring and management

The user can consult the system at home as well as remotely (via the internet) using the monitoring software (via USB or optional Ethernet/IP). It is also possible to configure IMEON 3.6 to automatically send specific system information via email or SMS. IMEON 3.6 can be configured remotely to accommodate technical modifications (batteries, grid, etc.). The system provides continuous monitoring and can inform the user of various events when necessary (alerts can be sent via email or SMS).

With an ergonomic, user-friendly display, the user can monitor the system status at any time. The IMEON MANAGER APP, available on Google Play, allows to keep a close eye on the level of autonomy with real-time data. A variety of system parameters can be consulted in a simple and interactive manner: instantaneous solar production and consumption, battery charge and discharge status, grid usage, etc. Users can easily manage and modify certain element of their installation



Google play



# ▶ QUALITY & SECURITY ▶

Of French conception and design, IMEON ENERGY's high quality Smart Grid inverters guarantee safe and simple installations with reliable long-term performance. Connection to solar panels, the electrical grid and battery storage is performed through safe "Plug-and-Play" connectors, thus avoiding any electrical contact and simplifying the installation process. The IMEON Smart Grid Inverter is certified and conforms to the European (EC) and international norms (VDE) ensuring maximal level of performance, reliability and safety. IMEON ENERGY's Smart Grid Inverters are guaranteed for 5 years, with an option to extend to 10 years.

<sup>(1)</sup> According to condition of use <sup>(2)</sup> According to manufacturers' technical specifications



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