SOLAREDGE COMMERCIAL SOLUTIONS FOR INCREASED REVENUE & ADVANCED ASSET MANAGEMENT

About SolarEdge

About Us

In 2006, SolarEdge invented an intelligent inverter solution that has changed the way power is harvested and managed in PV systems. Since beginning shipments in 2010, SolarEdge has shipped more than 4.7GW of its DC optimised inverter solution and its products have been installed in PV systems in 100 countries. SolarEdge is traded on the NASDAQ under the SEDG symbol.

Vision

> For every solar module to be individually managed by DC-DC module-level electronics
> To accelerate the pace toward grid parity and make clean energy affordable and widespread

Bankability

> Bankable in major European and North American solar financing institutions and banks
> Publicly traded on NASDAQ as SEDG

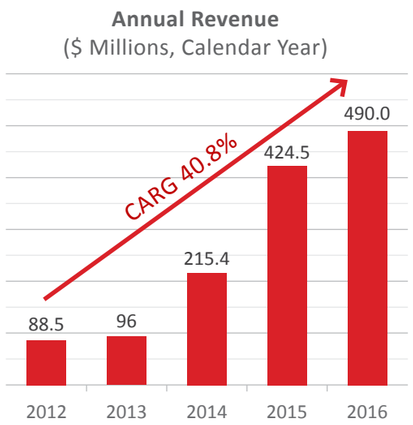
Global Outreach

> Products sold in 53 countries
> Sales via leading integrators and distributors
> Follow the sun call centers
> Local expert teams
> Global manufacturing with tier 1 electronic manufacturers

INNOVATION GUARANTEED

Business Figures

> 16,800,000 power optimisers and over 691,000 inverters shipped worldwide
> Monitoring system continuously tracks over 427,000 PV installations



Product Reliability

> Long product warranties: 25-year power optimiser warranty and 12-year inverter warranty, extendable to 20 or 25 years
> Each SolarEdge product and component undergoes rigorous testing
> Products and components have been evaluated in accelerated life chambers
> Reliability strategy includes proprietary application specific ICs (ASIC)

90 awarded patents and 129 additional patent applications

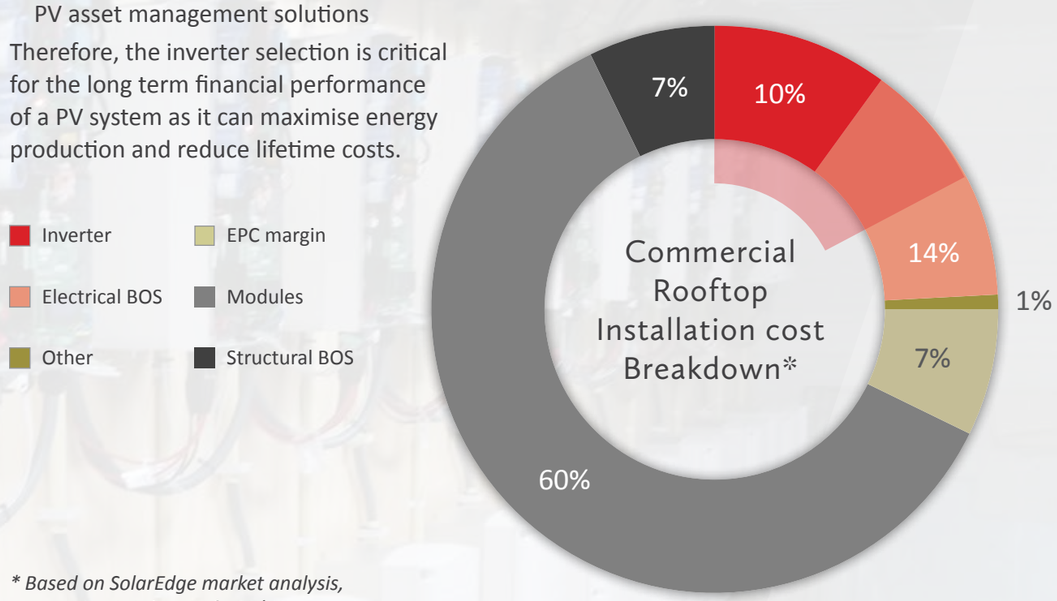
The Importance of Inverter Selection

While inverters account for only ~10% of the system cost they:

> Manage 100% of system production

> Control O&M expenses through PV asset management solutions

Therefore, the inverter selection is critical for the long term financial performance of a PV system as it can maximise energy production and reduce lifetime costs.

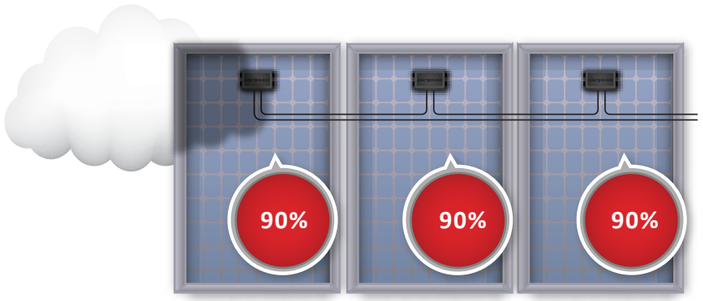


** Based on SolarEdge market analysis, assuming total cost of ~€1/Wp*

Increased Revenue

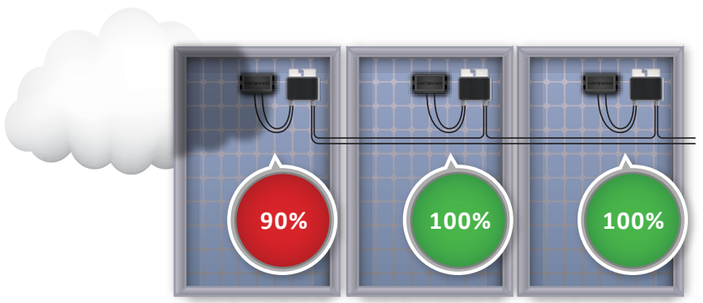
MAXIMUM ENERGY FROM EACH MODULE

In a PV system, each panel has an individual maximum power point. Differences between panels are unavoidable in commercial installations. With traditional inverters, the weakest panel reduces the performance of all panels. **With SolarEdge, each panel produces the maximum energy, and mismatch-related power losses are eliminated.**



Traditional Inverter

> Weak modules reduce the performance of all modules in the string or are bypassed
> Power losses due to module mismatch



SolarEdge System

> Maximum power produced and tracked from each module individually
> 2%-10% more energy from the PV system

POWER LOSSES CAN RESULT FROM MULTIPLE FACTORS, INCLUDING:

Manufacturing Tolerance Mismatch

The warranted output power range for PV modules received from a manufacturing plant may vary greatly. A standard deviation of ±3% is sufficient to result in ~2% energy loss.

Guaranteed power output from module manufacturers
0~+3%

Soiling, Shading & Leaves

Module soiling, from dirt, bird droppings, or snow contributes to mismatch between modules and strings.

While there may be no obstructions during site design, throughout a system's lifetime, a tree may grow or a structure may be erected that creates uneven shading.

Soiling

Snow

Bird droppings

Leaves

Uneven Module Aging

Module performance can degrade up to 20% over 20 years, however, each module ages at a different rate, causing aging mismatch, which increases over time.

Source: A. Skoczek et. al., "The results of performance measurements of field-aged c-Si photovoltaic modules", Prog. Photovolt: Res. Appl. 2009; 17:227–240

Advanced Asset Management

Full visibility of your system's performance

> Full visibility into your assets through module-level monitoring – free for system lifetime

> Automatic alerts on system issues, pinpointed on a virtual site map

Anytime, anywhere

> Complete system status on your mobile device (iOS or Android)

Future compatibility and warranty

> 25-year power optimiser warranty
  12-year inverter warranty;
  Low cost inverter replacement out of warranty

> Any panel model can be used for future replacement & extension

> For agricultural areas – products are certified for ammonia resistance

For system lifetime

> Automatic performance reports

> Remote troubleshooting and enhanced maintenance capabilities

Superior Safety

With millions of photovoltaic (PV) systems installed around the world, this technology is designed to be relatively safe and reliable. However, as traditional PV installations can reach voltages as high as 1,500VDC, precautions should be taken to ensure the safety of people and assets.
Traditional string or central inverters are limited in the safety level they offer installers, maintenance personnel and firefighters. Shutting down the inverter or the grid connection will terminate current flow, but electrocution risk remains, since DC voltage in the string cables will stay high for as long as the sun is shining.
In addition, the possibility of electrical arcs, which can result in a fire, creates a threat to the asset on which the PV system is installed, as well as to people who live or work in the vicinity of the PV system.

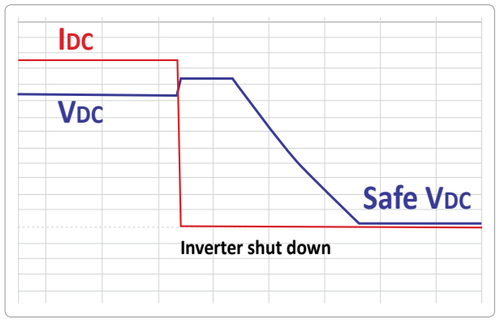
The SolarEdge system provides a superior safety solution for both electrocution and fire risks.

SAFEDC™

SafeDC™ is a built-in module-level safety feature which minimises electrocution risk. During installation or when the grid or inverter is shut down (including during maintenance), power optimisers are designed to automatically switch into safety mode, in which the output voltage of each module will be reduced to 1V. String voltage will be maintained below risk levels. For example, if 19 power optimisers are connected in series, the string voltage will be 19V.
Module-level shutdown is designed to occur automatically in either of these cases:

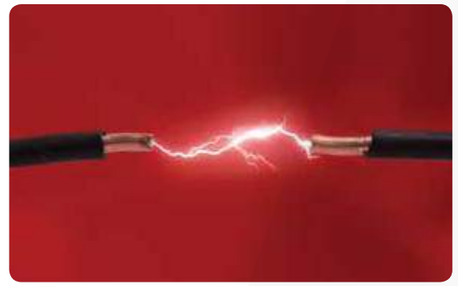
> During installation, as long as the string is disconnected from the inverter, or the inverter is turned off
> During maintenance or emergency, when the inverter is turned off or when the AC connection of the building is shut down
> When the thermal sensors of the power optimisers detect a temperature above 85˚C

The SolarEdge SafeDC™ feature is certified in Europe as a DC disconnect according to IEC/EN 60947-1 and IEC/EN 60947-3 and to the safety standards VDE AR 2100-712 and OVE R-11-1.



This graph represents an automatic string shutdown. As demonstrated, the current is shut down immediately once AC power or Inverter is turned off. The string voltage is reduced to safe voltage.

ARC FAULT DETECTION AND INTERRUPTION



SolarEdge inverters have a built-in protection designed to mitigate the effects of some arcing faults that may pose a risk of fire, in compliance with the UL1699B arc detection standard.
The US standard, which came into effect as part of NEC2011, includes requirements for serial arc detection (i.e. arcs within the string) and for manual, on-site restart after an arc detection event.
No comparable arc detection standard exists in EU, and therefore non-US SolarEdge inverters can detect and interrupt arcs as defined by the UL1699B standard, but in addition to manual restart, a mechanism for auto-reconnect is enabled.

4.7GW OF SYSTEMS SHIPPED WORLDWIDE

GROUND MOUNT

INDUSTRIAL ROOFTOPS

FARMS & AGRICULTURE

PUBLIC BUILDINGS

CARPORTS & SAFETY

Featured References

GROUND MOUNT

Turkey, 5MW

Denmark, 2MW

France, 2.7MW

United States, 1MW

Featured References

INDUSTRIAL ROOFTOPS

The Netherlands, 2MW

United Kingdom, 1.63MW

Western International Market, London, The installation won the 2015 Annual European Energy Service Awards for 'Best Energy Project'

Italy, 1.3MW

United States, 525kW

Featured References

AGRICULTURAL ROOFTOPS

Denmark, 1.22MW

The Netherlands, 303kW

Israel, 700kW

South Africa, 250kW

Featured References

CARPORTS

The Netherlands, 3MW

39 electric car charging stations

United States, 335kW

Motorcars Honda, Ohio

Germany, 1MW

Carport of TSG Hoffenheim Stadium, Sinsheim

United Kingdom, 150kW

John Lewis car park, Exeter

Featured References

SCHOOLS

Singapore, 1MW

American School

The Netherlands, 303KW

De Meerwaarde, Barneveld

United Kingdom, 250KW

Nottingham Emmanuel School

United States, 756KW

Farmington Central School District #265, Illinois

Featured References

FIREFIGHTER STATIONS

United Kingdom, 700KW on 15 sites

Hampshire Fire and Rescue Service

"Fire precautions and revenue reduction are important factors for all Hampshire County Council projects. We have standardised our Solar PV solution for the whole estate in order to isolate the PV energy in fire alarm events"

> Paul Roebuck MIET, Engineering Manager, Hampshire County Council

United States, 42kW

Putnam Lake Fire Department, New York

"I am truly proud of this installation, Putnam Lake Fire Department & New York State Solar Farm Inc. have set the standard of what is possible in a community that wants to take control of its energy future using quality products and a great local installer. The best part is that this fire station will be a training facility for other first responders about PV safety."

> Anthony Sicari Jr., CEO of New York State Solar Farm Inc.

Featured References

GAS STATIONS

Israel, multiple 50KW

Gas stations

"We have been working with the SolarEdge solution for commercial systems for a long time, and when we were asked as advisors for Dor Alon gas stations to recommend a PV solution, SolarEdge was the obvious choice, not only for the added yields it provides, but also because of the comprehensive safety solution it offers, which is particularly important in this kind of installation."

> Eyal Baharav, Owner, Golan Solar

South Africa, 20kW

Port Elizabeth

"Without SolarEdge's SafeDC™ technology, the installation would not have been approved and we would have missed out on this important business opportunity."

> Barry Davis, Director, Kwikelec

Featured References

HEALTH CARE

South Africa, 100KW

3 NHC health care centers

United States, 220KW

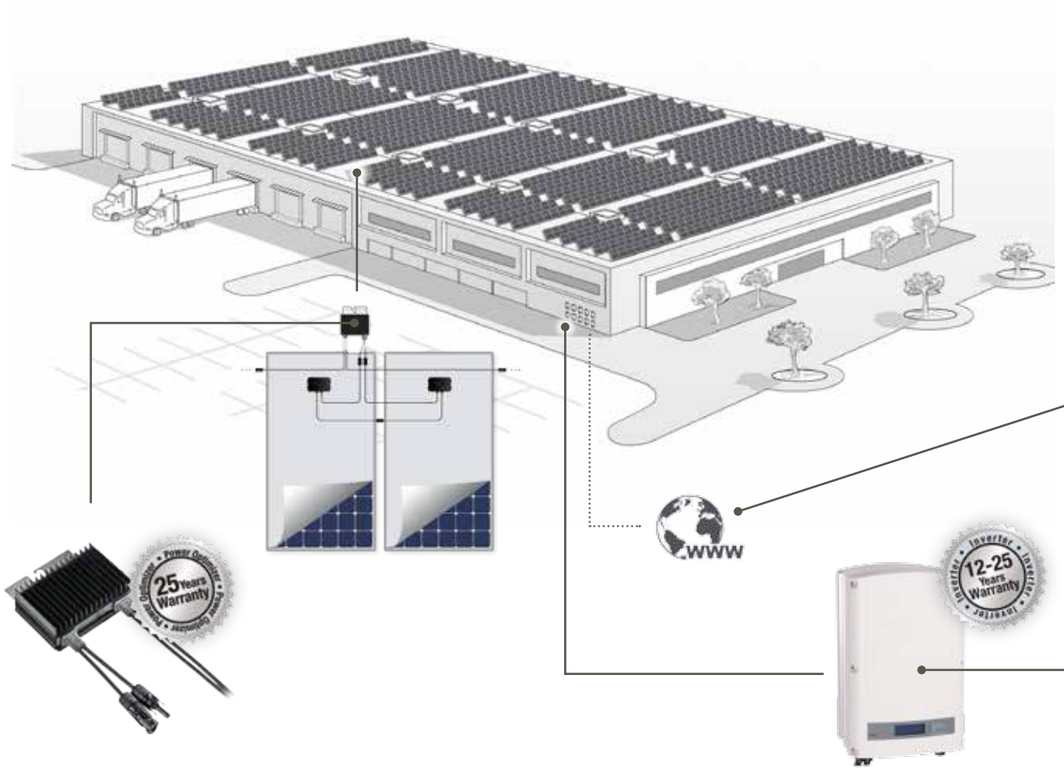
Kuakini hospital, Hawaii

United Kingdom, 32kW

Birds Hill nursing home

Commercial System Diagram

The SolarEdge solution consists of inverters, power optimisers, and a cloud-based monitoring platform. The technology provides superior power harvesting and module management by connecting power optimisers at the module level. The ability to connect two modules to just one optimiser, combined with DC to AC conversion and grid interaction being centralised at a simplified PV inverter maintains a competitive cost structure.



P600-P800 2-to-1 Power Optimiser Configuration

Module-level MPPT – no mismatch power losses

Compatible with SolarEdge inverters SE15K & larger

SafeDC™ – automatic module-level safety shutdown

15kVA – 33.3kVA Inverter

Lower cost compared to traditional inverters

High efficiency

Simple and reliable

Cloud-based Monitoring Platform

Full visibility of system performance

Access via browser or any Android, iOS smartphone or tablet

Automatic performance and alert reports

Firefighter Gateway

Can be added to the PV system to provide centralised safety management

Gives real-time indication of the system's DC voltage

Smart Energy Management

Increasing self-consumption by export limitation and consumption-monitoring

Environmental Sensors

Connection of environmental sensors for advanced site monitoring to calculate site performance ratio and environmental conditions

UK Council Testimonials

Hampshire County Council

"Fire precautions and revenue reduction are important factors for all Hampshire County Council projects. We have standardised our Solar PV solution for the whole estate, and are able to automatically isolate the PV energy outside of the building on the roof if a Fire Alarm event occurs. This ensures the internal electrical services can be safely turned off for fire fighting saving buildings quickly.

"Hampshire County Council can reassure the Fire Service that the building is safe for their activity using the fire alarm interface and the Firefighters gateway supported with diagrams of where the PV is fitted.

"The interfacing of the Inverters to standby generators is critical in the event of power supply failure where a generator may start and electrically damage inverters in both generator and PV. The online monitoring and ability to view individual panels means that PV performance and yield can be clearly seen, and maintenance (if needed) targeted at the right time. Hampshire County Council haven't cleaned any panels yet, we check for the next rain cloud !

If the PV should be accidentally turned off or stop working, we get an Email so we can get the PV generating again fast. The "on line" interface also provides the ability to view the generation meter reading saving another phone call or a visit.

Low maintenance and staff support means low revenue cost and more generation efficiency".

WYCOMBE DISTRICT COUNCIL

"Wycombe District Council installed 99.9 kWp of solar panels on our Council Offices with SolarEdge Technology in October 2015. The system has been running successfully since that date, without any problems. The major benefit is the on-line monitoring system that allows us to monitor the performance. An added safety benefit that is really important to us is the ability to shut down the system to a safe voltage for maintenance and firefighting purposes".

BRIDGEND

"Bridgend County Borough Council have specified SolarEdge on a number of projects which include their Civic Centre Offices in the centre of Bridgend and a number of In House designed Primary Schools under the 21st Century for Schools Programme.

"When specifying Photovoltaic systems the designer chose to include power optimisers connected to the modules which would alleviate the risks associated with generating DC voltages, maximise the systems efficiencies whilst offering remote monitoring which will assist in the systems future operation and maintenance".

Exeter City Council

"Safety is of high priority when it comes to public buildings that Exeter City Council are responsible for, this is also the case when connecting Solar PV. Sungift Solar, who have installed all our PV systems, specify SolarEdge inverters which provide exceptional quality and safety benefits. Including, a 12 year warranty as standard, improved output and module optimisation, excellent monitoring platform and importantly the ability to significantly reduce the risks of electrocution. The Safety benefits, including being able to Isolate the high DC voltage coming from the solar panels, are very important to us when it comes to safety of the public. We are reassured and confident by having SolarEdge we can isolate the DC coming from the solar panels on the roof at an accessible point. We take safety very seriously as solar installations become more frequent. Exeter City Council chooses SolarEdge for the added performance and the monitoring system that's included. This reduces maintenance costs for the life of the system which can be expensive, and together with the safe DC function makes SolarEdge our preferred choice of inverter selection".

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