



# The StorEdge™ Solution

Enabling Energy Independence



# The StorEdge Solution

Combining SolarEdge's breakthrough PV inverter technology with leading battery storage systems, the StorEdge solution helps homeowners reduce their electricity bills while maximizing energy independence from the grid.



StorEdge is based on a single SolarEdge DC optimized inverter that manages and monitors PV production, consumption, battery storage and backup power. StorEdge is compatible with the Tesla Powerwall Home Battery.

## Available Applications

### Backup Power and Self-Consumption

Homeowners are automatically provided with backup power in the event of grid interruption to power pre-selected loads. A combination of PV and battery is used to power important loads such as the refrigerator, TV, lights and AC outlets, day or night. Solar energy can also be stored in a battery for on-grid applications such as meeting export limitations, offering demand response and peak shaving, and performing time of use shifting for reduced electric bills.

Providing backup power day or night



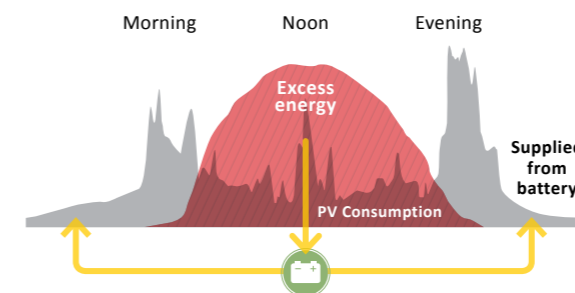
Charge battery from the PV system

Daytime: Important loads are powered first by the PV system and then by the battery. The battery can be charged from the PV as needed

Nighttime: Important loads are powered by the battery



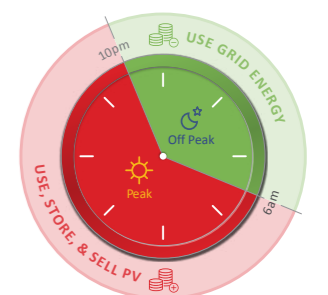
### Utilizing Excess Energy



Using StorEdge, excess energy produced during peak sunlight hours when consumption is low is stored to a battery and used later. Energy isn't wasted!

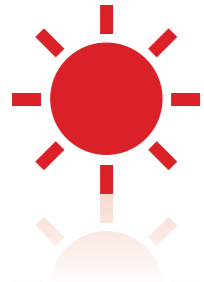
### Profile Programming

The StorEdge system can be programmed to operate according to different charge/discharge profiles, also referred to as Time of Use (TOU) arbitrage. By increasing energy consumption when electric demand from the grid is low (off-peak tariffs) and lowering consumption when demand is high (peak tariffs), household electricity bills can be reduced.



# Maximizing the Homeowner's Solar Investment

The StorEdge system is full of benefits for the installer and homeowner alike.



## More Energy

- > Power optimizers increase rooftop energy harvest
- > PV power is stored directly in the battery
- > DC coupled battery solution allows high system efficiency
- > No additional conversions from AC to DC and back to AC



## Simple Design & Installation

- > A single inverter for PV, storage and backup power
- > Outdoor installation allows flexibility in battery location
- > No special wires are required > utilizes the same PV cables



## Full Visibility & Easy Maintenance

- > Monitor the battery status, PV production, and self-consumption data
- > Smarter energy consumption to reduce electricity bills
- > Monitor battery energy levels and remaining hours of backup power
- > Remote access to inverter/battery software

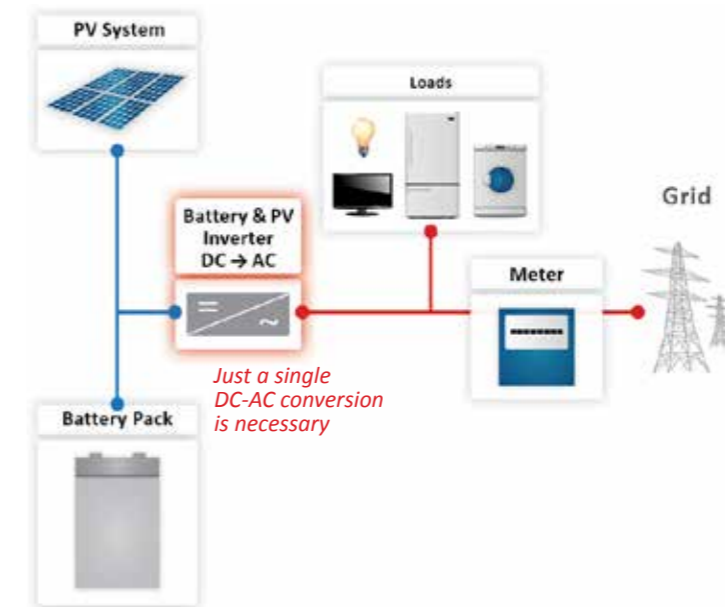


## Enhanced Safety



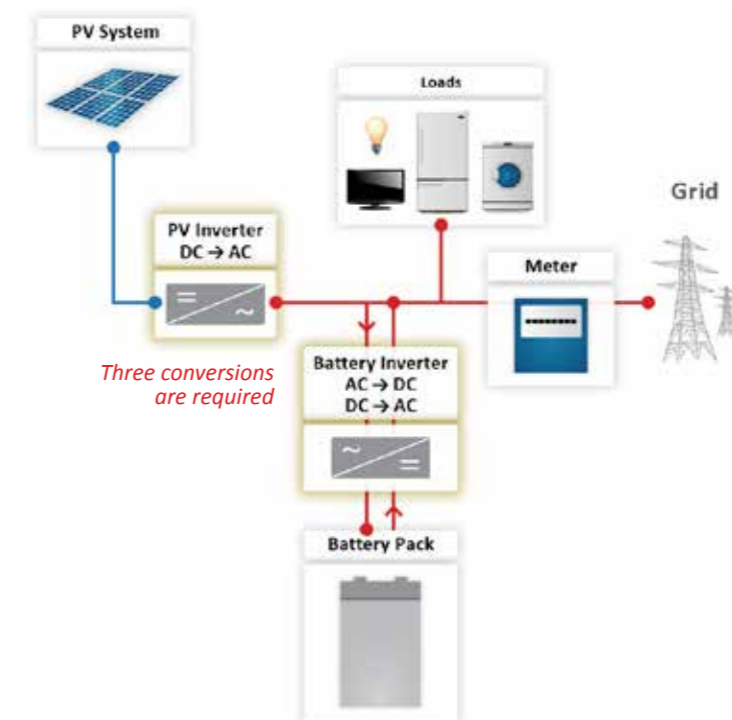
- > PV array and battery voltage reduced to a safe voltage automatically upon AC shut down when not in backup mode
- > Complies with NEC 2014 690.12

## PV System with DC-Coupled Storage solar<sub>edge</sub>



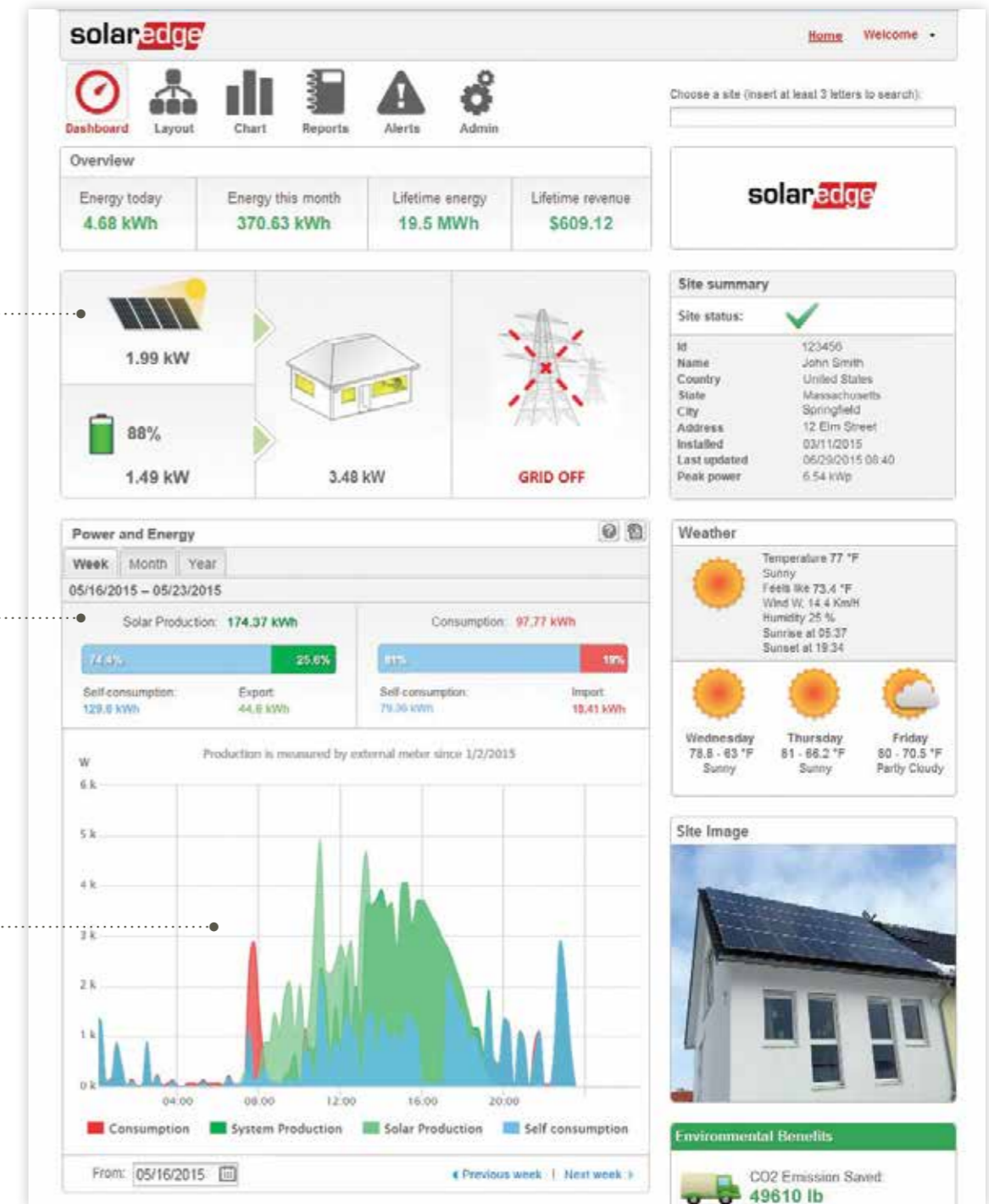
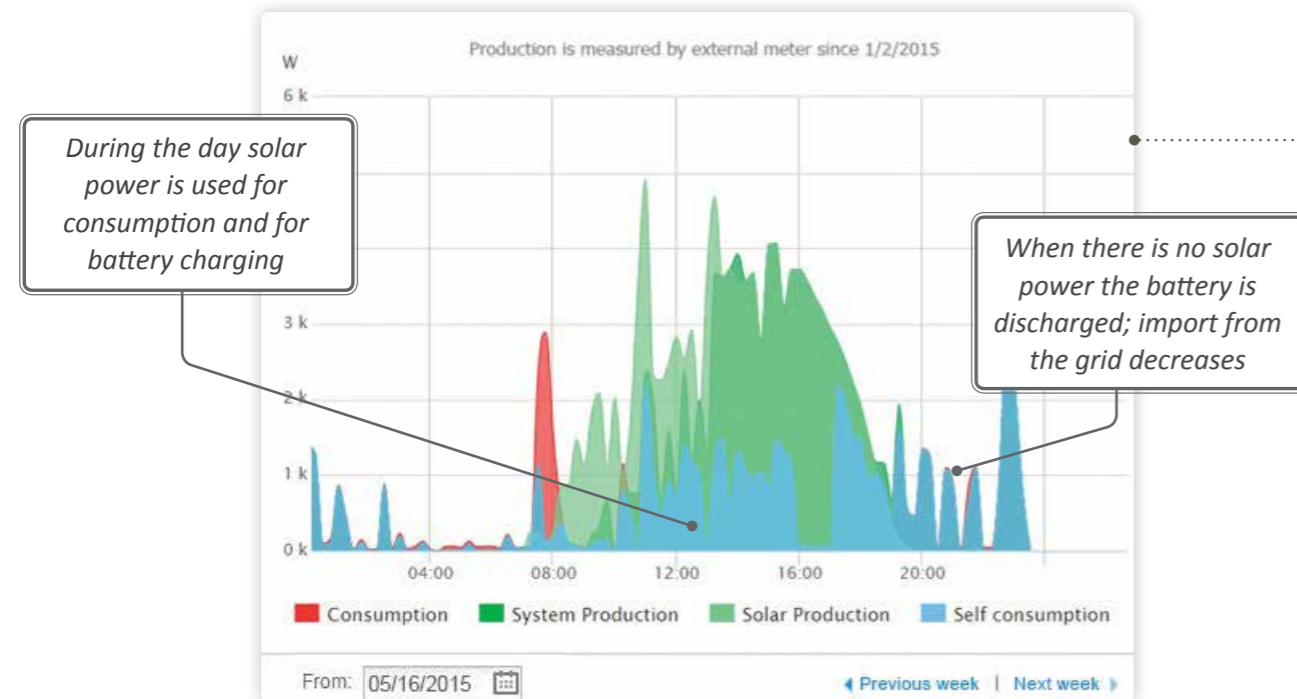
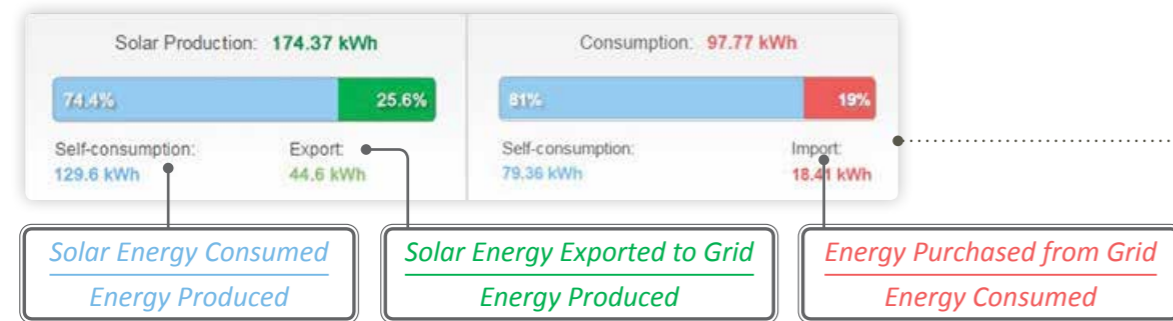
Vs.

## PV System with AC-Coupled Storage



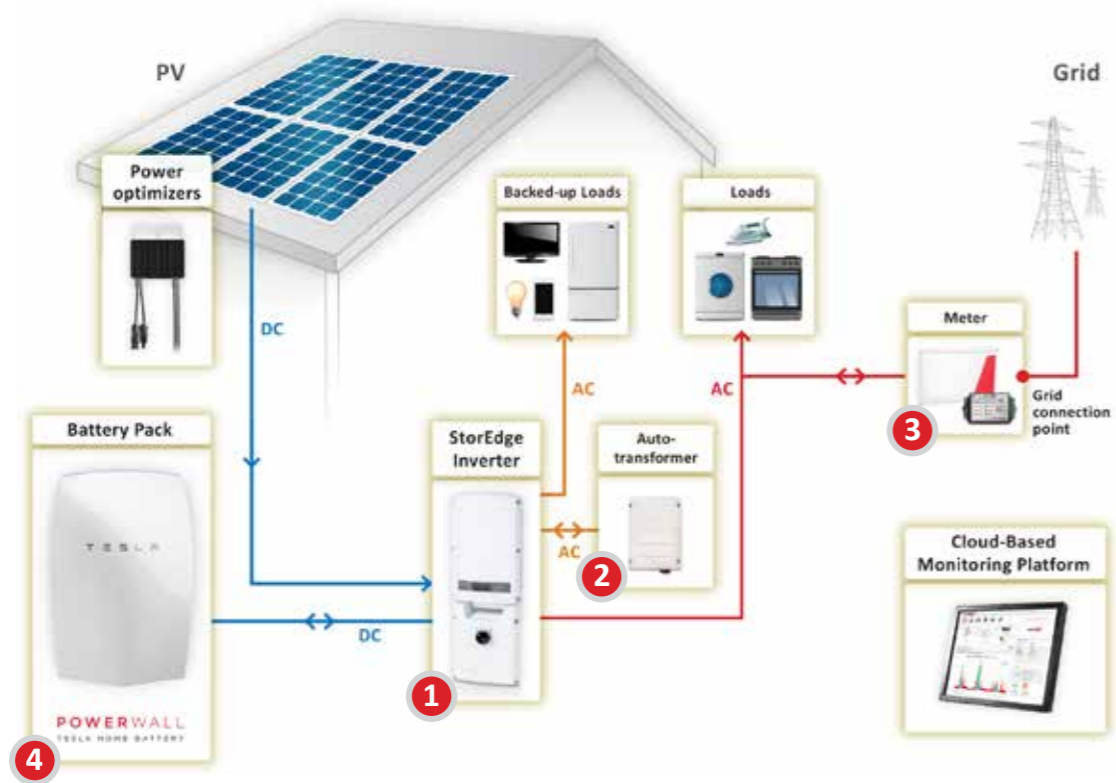
# SolarEdge Monitoring Platform Dashboard

The cloud-based monitoring platform provides insight into household PV production and consumption, displaying the power flow between the PV array, battery, grid and house loads as well as tracking real-time system data.



Dashboard from the SolarEdge cloud-based monitoring platform

# StorEdge Applications - Backup Power and Self-Consumption



1

## SolarEdge Single Phase StorEdge Inverter

The StorEdge Inverter manages battery, system energy and backup power, in addition to its functionality as a DC-optimized PV inverter

2

## Auto-Transformer (Optional)

Only needed for backup power applications. Connects to the StorEdge Inverter to enable split phase balancing for 120V loads

3

## SolarEdge Meter (Optional)

Only needed for on-grid applications such as export limitation, demand response and peak shaving, and time of use shifting. Integrates with the SolarEdge Inverter and monitoring platform

4

## Tesla Powerwall Home Battery

High-efficiency DC coupled battery enables easy connection of storage to a SolarEdge PV array

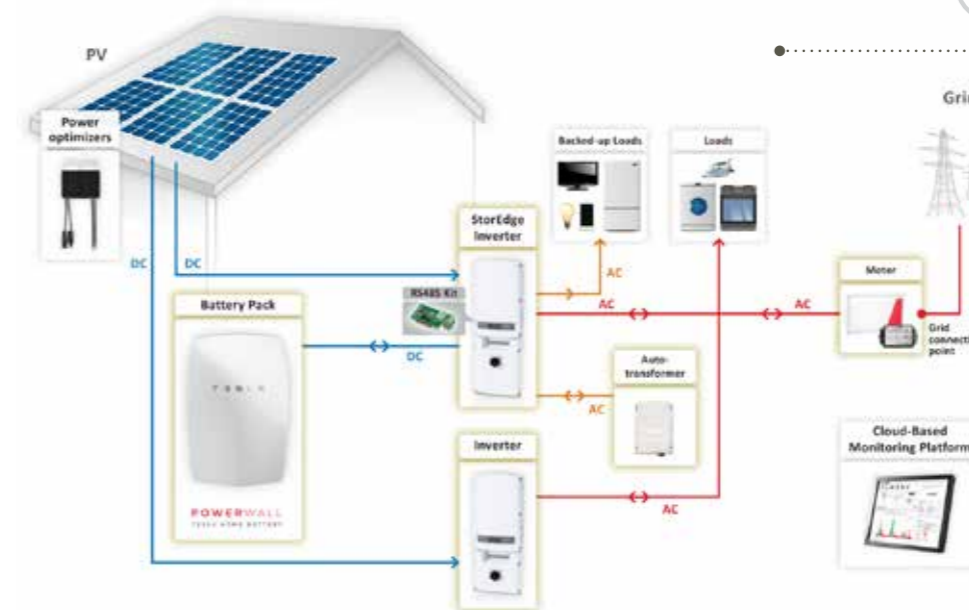


# Additional StorEdge Configurations

Each StorEdge application supports modifications to the basic system configuration, providing homeowners with a StorEdge solution specific to their energy requirements.

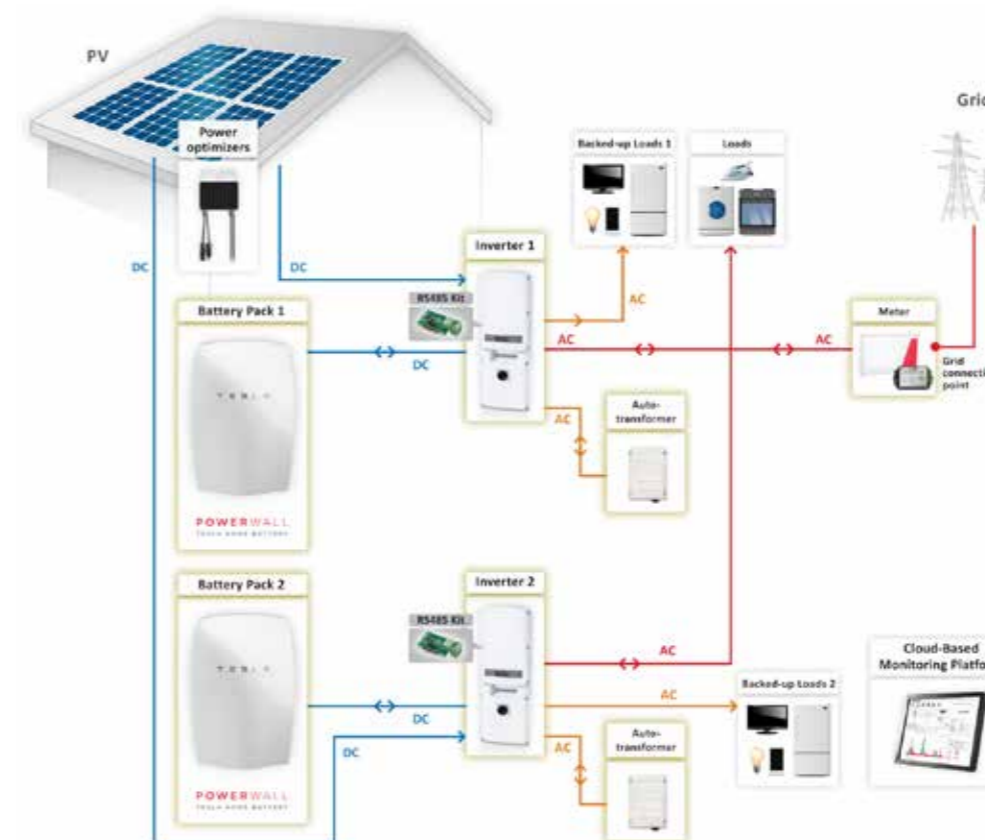
Homeowner Requirement	Details
<b>1 Large PV Systems</b>	Add another 1-ph inverter to handle additional PV power from the array
<b>2 More battery capacity (kWh) &amp; power (kW)</b>	Add a second inverter and battery. Each of the two batteries is connected to a separate StorEdge inverter. Note: As many as two batteries may be connected to each StorEdge inverter
<b>3 More battery capacity (kWh)</b>	Connect two batteries to a single StorEdge inverter with one battery operating at a time
<b>4 AC Coupling using a non-SolarEdge PV inverter</b>	The StorEdge inverter can also be used to control the battery even on legacy PV systems installed with non-SolarEdge inverters.
<b>5 Backup Power without PV</b>	Charge the battery by connecting it to the AC grid for backup power
<b>6 More battery capacity (kWh) &amp; power (kW) - one inverter</b>	Connect two batteries to a single StorEdge inverter where both batteries can operate at the same time. Available: 2H 2016

## 1 Large PV Systems



For systems larger than 10,250Wdc (the max DC capability of the StorEdge SE7600A-USS inverter) use a separate SolarEdge inverter to handle the extra PV power. The StorEdge inverter manages the battery and functions as a PV inverter. During power outages, the StorEdge inverter provides power to backed-up loads, and the second inverter remains shut down until the grid is back.

## 2 More battery capacity (kWh) & power (kW)

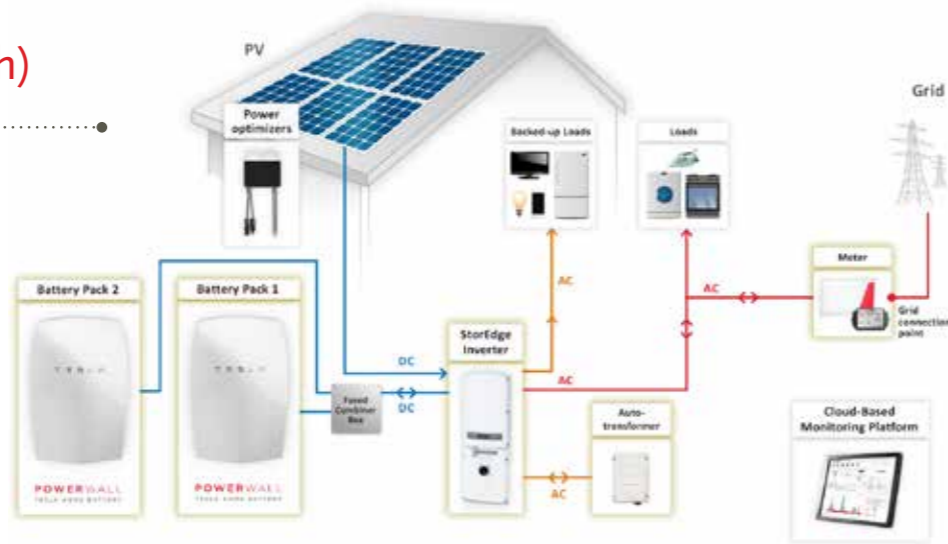


Where more capacity and power are needed (for example, to enable more backed-up loads to be powered simultaneously), two StorEdge inverters and two batteries may be installed. Each battery connects through a separate StorEdge inverter, and each inverter manages the battery and the PV connected to it.

# Additional StorEdge Configurations

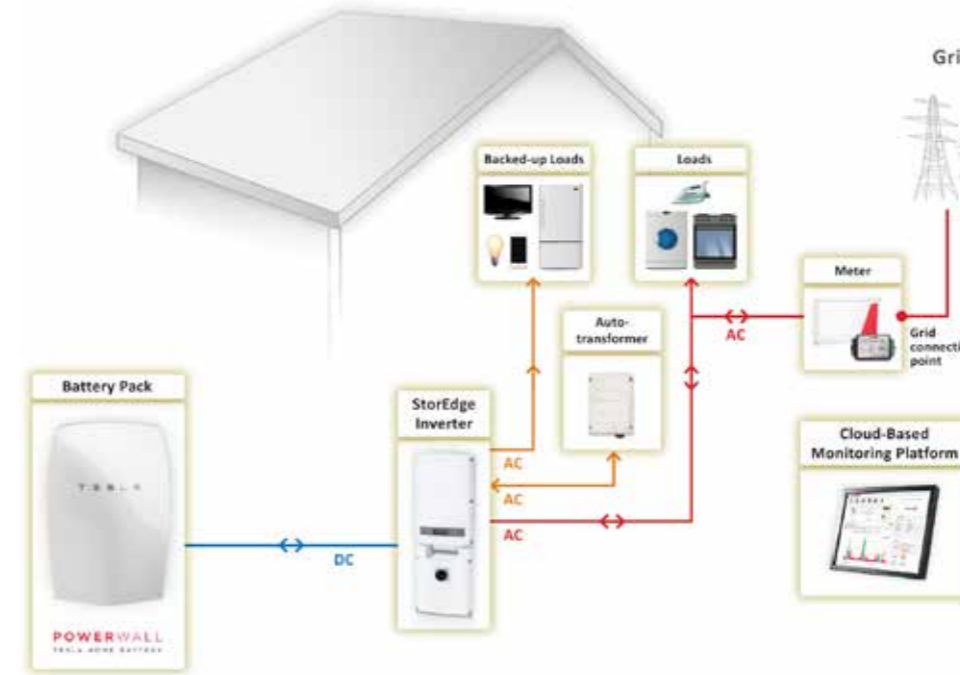
## 3 More Battery Capacity (kWh)

For sites where additional battery capacity is needed (e.g. to enable backed-up loads to be powered from the battery for longer periods), two batteries are connected to a single StorEdge inverter. Only one battery operates at a given time.



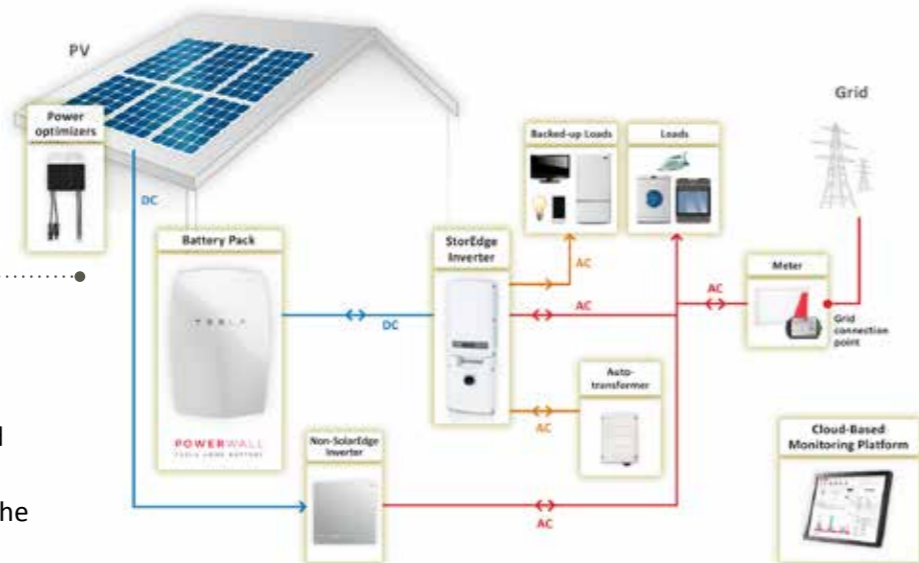
## 5 Backup Power without PV

A StorEdge system may be installed for sites without a PV system requiring backup power. The battery is charged from the AC grid only.



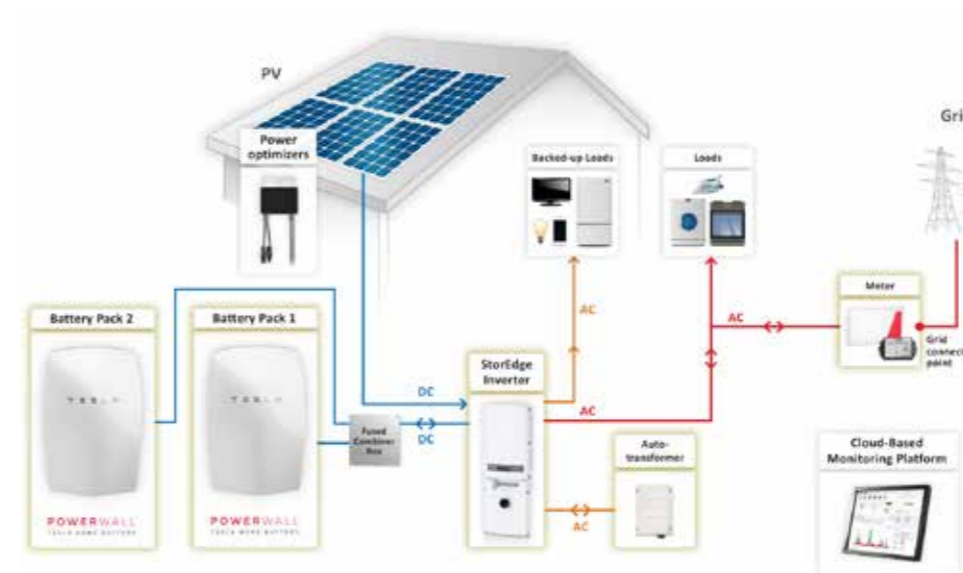
## 4 AC Coupling using a non-SolarEdge PV inverter

For sites already installed with a non-SolarEdge PV inverter, the StorEdge inverter can be connected to the AC output of the non-SolarEdge inverter. The StorEdge inverter charges the battery using the PV power produced by the non-SolarEdge inverter.



## 6 More battery capacity (kWh) & power (kW) (one inverter)

**Available: 2H 2016**  
For homes with high loads, two batteries are connected to a single StorEdge inverter providing more power. Each battery can operate at the same time. (Requires new StorEdge inverter and battery hardware).



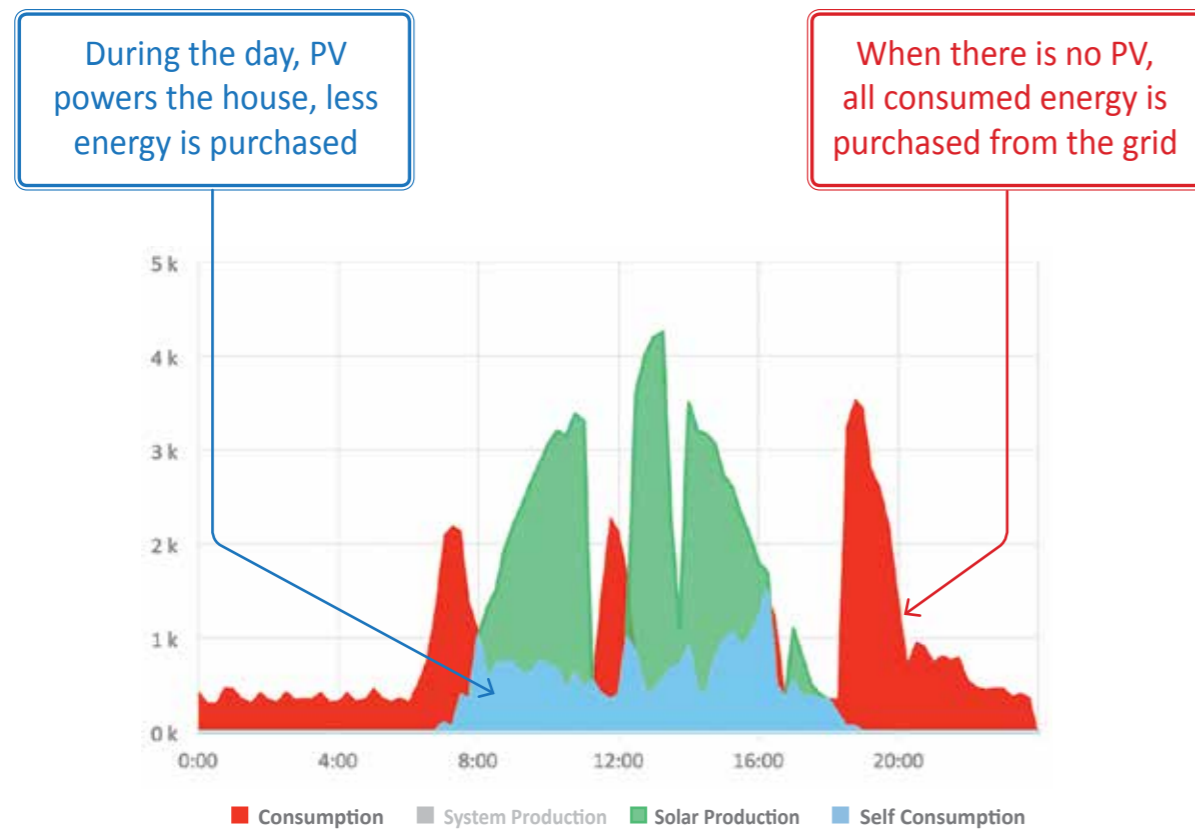
# Case Study - Increasing Self-Consumption with StorEdge

By simply adding StorEdge to its existing SolarEdge PV system, this typical household was able to more than double its self-consumption levels

## BEFORE - monitoring self-consumption:

5kW System on April 8, 2015 (before battery installation)

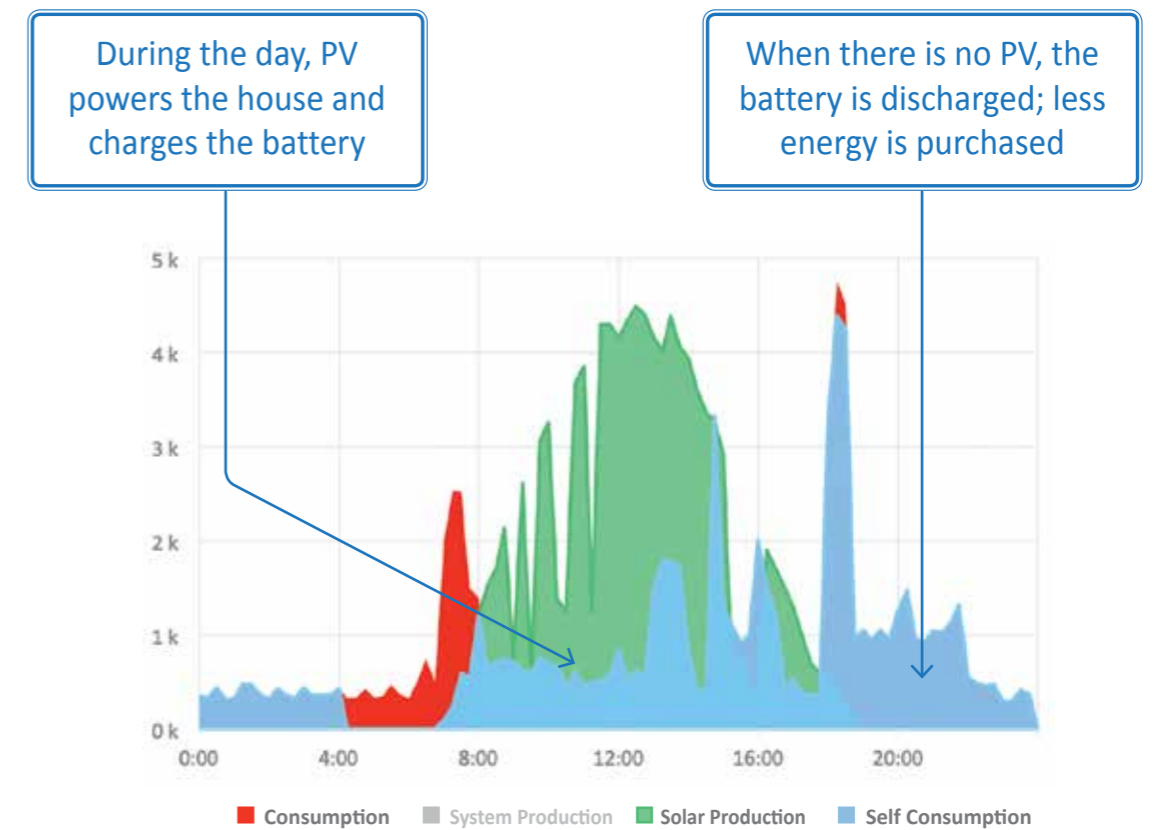
Total produced energy	Total purchased energy	Total consumed energy	Self-consumption level
21.37 kWh	13.57 kWh	20.61 kWh	7.04kWh   33%



## AFTER - increasing self-consumption:

5kW System on April 15, 2015 (after battery installation)

Total produced energy	Total purchased energy	Total consumed energy	Calculated self-consumption level
25.41 kWh	3.17 kWh	21.53 kWh	18.36kWh   72%



\*Based on a SolarEdge 5kW residential PV system



After installing StorEdge, PV self-consumption jumped from **33% to 72%**





SolarEdge invented an intelligent inverter solution that has changed the way power is harvested and managed in PV systems. Addressing a broad range of solar market segments, from residential to commercial and large scale solar, the SolarEdge DC optimized inverter solution includes PV inverters, power optimizers, and cloud-based monitoring. By connecting power optimizers to each module, the system enables superior power harvesting and module management.

SolarEdge has been shipping its DC optimized inverter solution worldwide since 2010 and is traded on the NASDAQ under the SEDG symbol.

For more information on SolarEdge:

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