StorEdge[™]





Why Storage?



- Provides backup power in case of grid disconnection
- Supports grid functionality while connected to grid
- Saves money with changing utility rates: TOU, NEM, Export
- Insulates customer from the uncertainty of future rate changes



Storage Product Needs



- Simple installation; flexible system runs many applications
- High round trip efficiency
- Low \$/kWh cost of lifetime energy
 - Low cost battery solution
 - Less parts and components
 - Long system lifetime
- Optimal kWh reserve for battery





What is StorEdge[™]?

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SolarEdge PV Solution





- Each panel is connected to a power optimizer to maximize energy harvest
- String Voltage is fixed
- SolarEdge inverter converts DC to AC
- SafeDC[™] with module-level shutdown
- Cost efficient maintenance with module-level monitoring

SolarEdge StorEdge™ Solution





- All-in-one solution uses a <u>single</u> DC optimized inverter to manage and monitor both PV generation and energy storage
- Designed with SafeDC[™] for battery shutdown
- Battery and PV monitoring
- Compatible with Tesla Powerwall

Storage Topologies





Storage Topologies – AC Coupled



solaredge

SolarEdge StorEdge™ Solution





Best System Architecture





More Energy

- Power optimizers increase rooftop energy harvest
- PV power is stored directly in the battery





Simple design & installation



- A single inverter for PV, backup and on-grid applications
- Outdoor installation allows flexibility in battery location
- SafeDC integrated into power optimizers and battery
- No high voltage or current during installation and maintenance



Minimal Added Components



Required:

Battery

Application Specific:

- Backup
 - Auto transformer
 - Backup load panel
 - Wiring of circuits
- Grid applications
 - Meter

Reduces:

- Charge controllers
- Additional inverters



Enhanced Safety



- NEC 2014 690.12 Rapid Shutdown functionality
- Low current battery operation



Full Visibility

08:00

1oply

12:00



Monitor battery status, PV production & self-consumption







What Can it Do?

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Backup Power





Backup Power



Backup Power

- Automatically provides backup power in case of grid interruption
- Powers backup loads
- Auto transformer needed



Backup Power



Selecting backup loads

- Supports backup loads (<u>not</u> the full house)
- Homeowner determines backup loads
- Separate electrical panel required
- Requires home wiring work
- Backup load examples:
 - Refrigerator, microwave, lights, TV, router
 - Few AC outlets (for device charging)
- Total consumption of backed up loads: <5kW

| Backed-up Loads | |
|-----------------|--|
| | |
| | |
| | |

Storage Applications









- Export limitations
 - Ensures no power is back-fed to grid beyond a set limit
 - Clipped excess power is stored automatically
- "Margin" metering (vs. "net" metering)
 - Utility pays less than retail for electricity exported
- Time of Use metering
 - Utility rates vary seasonally and during the day
- Peak shaving for demand charges
- **–** Etc...







Normal PV Only Operation

- PV production serves loads in the home
- Excess production pushed to grid



What if there are Export Limits?

What if you have TOU metering or "margin metering"?



StorEdge Operation

Offers option to store energy vs. push to grid /curtail





- 4:00am Nighttime; no PV production
- Low utility rate: house powered by grid





- 7:30am Morning; low PV production; increased demand
- Part peak utility rate: house powered mostly by grid





- 12:00pm Noon; High PV production; low home demand
- Part peak utility rate: house powered by PV, excess PV stored
- Enables: Zero Net export





- = 3:30pm Afternoon; Cloudy; high home demand
- Peak utility rate: house powered by PV and battery
- Enables: Zero grid draw





- 8:00pm Night; No PV production; mid home demand
- Peak utility rate: house powered by battery
- Enables: Zero grid draw



StorEdge Market Impact



- One inverter that manages home energy, provides backup & manages all energy needs
- High efficiency enables cost effective on grid applications
- Low cost system reduces \$/kWh
- Simple installation; flexible system runs many applications







Thank you

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Websites

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