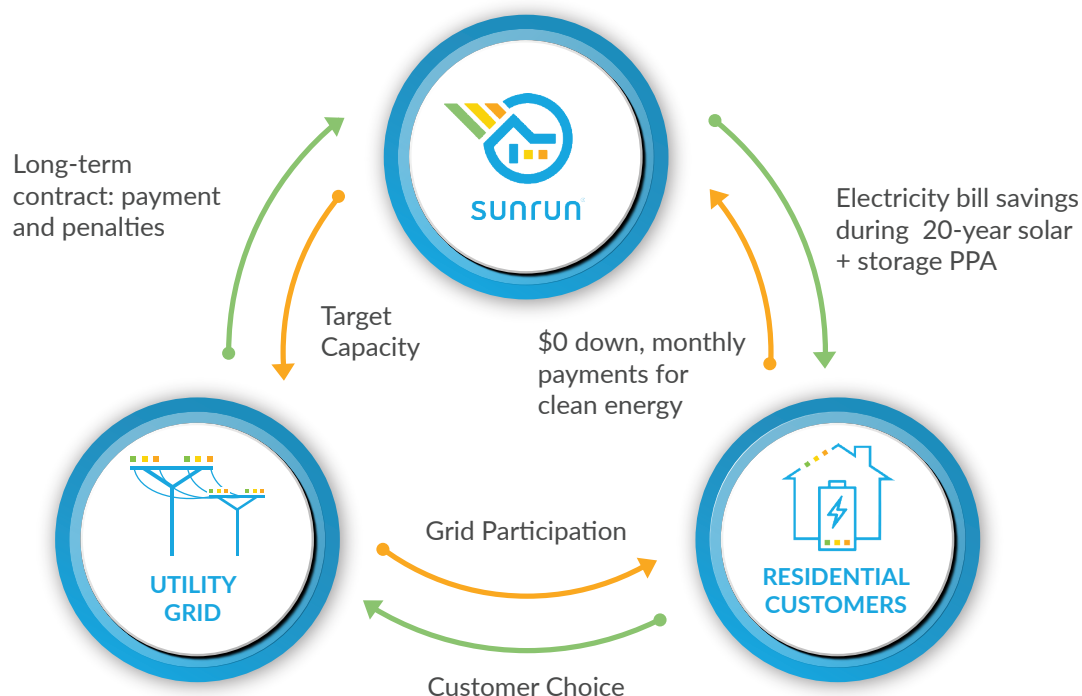


SUNRUN® BRIGHTBOX™ & GRID SERVICES

How Does Sunrun Brightbox Provide Grid Services?

Sunrun provides the flexibility and value of a resource local to the distribution grid and dispatchable via utility signal, without the cost and complexity of directly managing customer-sited assets.



What Types of Distribution Grid Services Can Sunrun Brightbox Provide?

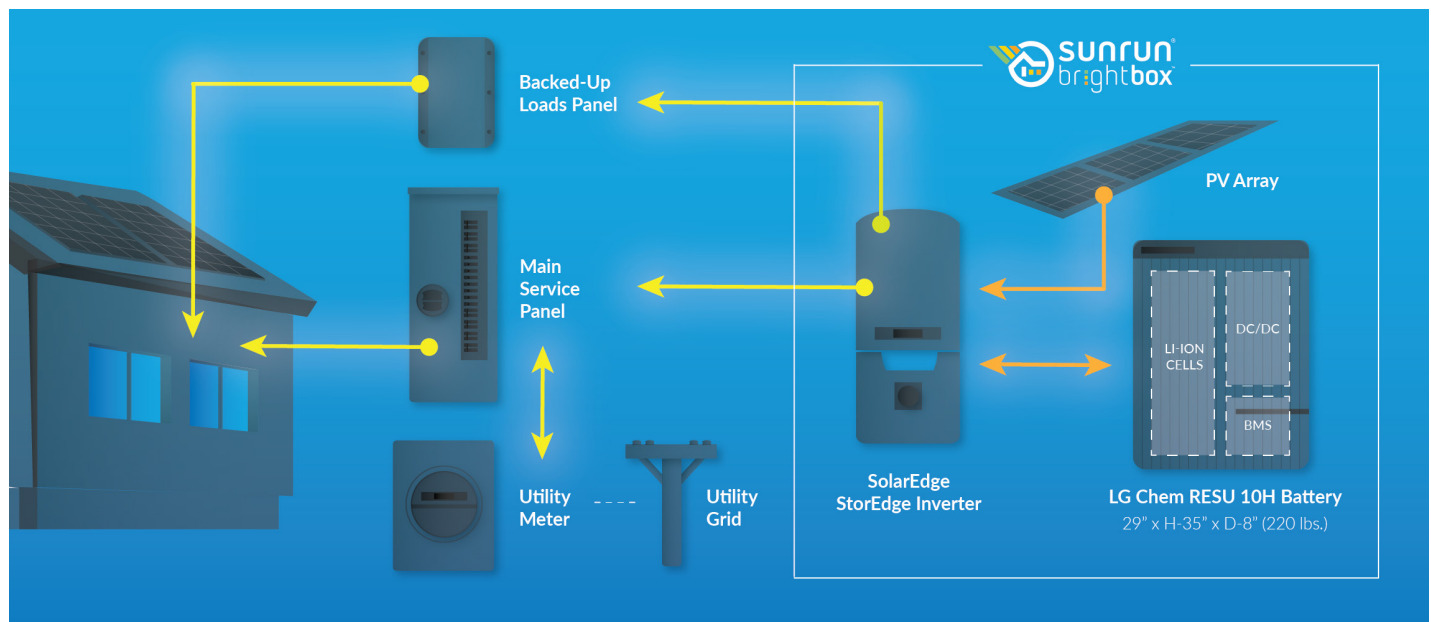
- **Localized Distribution Support** programmed for specialized load shifting
- **Versatile Demand Response** participation that avoids transmission and distribution line losses
- **Reliable Response to Price Signals** from rate design, including specialized tariffs for customers who adopt storage/EVs
- **Real-Time Data Sharing** on asset performance, customer loads, and local grid attributes monitored via Brightbox revenue-grade metering
- **Increased Renewables Hosting Capacity** to reduce risk of backfeed and enable higher renewables and EV penetration



SUNRUN® BRIGHTBOX™ & INTERCONNECTION

What is the Technology Behind Sunrun's Energy Storage Solution?

Sunrun installs and manages high performance lithium-ion battery systems. We source from top tier vendors such as LG Chem for 400 volt DC-coupled batteries and SolarEdge for inverter power electronics.



← = DC Energy Flow
← = AC Energy Flow

The battery module contains multiple lithium ion battery cells arranged and connected to a regulated DC/DC converter. Output of the battery supplies high voltage ~400Vdc power to the DC side of a hybrid solar + storage inverter (i.e. solar energy charges the battery, not AC grid energy).

What's the Value of the Battery Pack to the Homeowner?

Battery technology allows homeowners to choose when to supply stored energy to their home or to the grid. Some programming applications include:

- **Self-Consumption** of stored excess solar energy to home
- **TOU Peak Charge Management** by discharging stored excess solar energy during On-Peak periods to home or utility grid
- **Home Backup** supplies power to critical loads in the home during a grid power outage

How Does Brightbox Work with NEM & Interconnection?

The DC-coupled battery technology used by Sunrun will not charge from the utility's grid. The programming limits the system to only charge from the solar panels for NEM integrity and renewable incentive purposes. The overcurrent protection and NEC considerations for grid tied solar inverters remains consistent with this form of storage.