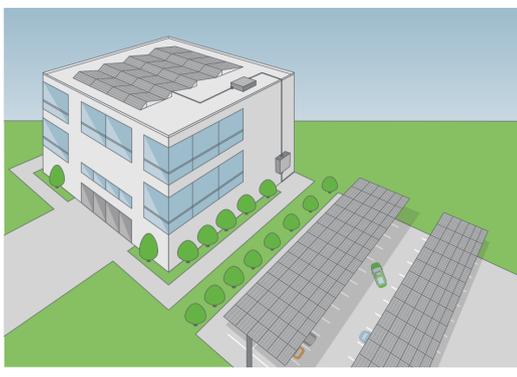


**1 Commercial solar** delivers energy to your organization when the sun shines. The clean electricity replaces what you would pay to use from the grid, saving you money.

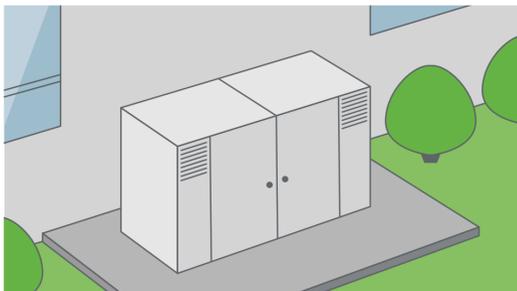
Many areas offer [net metering](#), allowing you to send excess energy back to the grid for credit (i.e. savings) on your electric bill.



**2** In many situations, **energy storage** can also provide savings—especially when paired with a commercial solar system.

In fact, installing solar and storage together is more viable than ever as a result of:

- Declining storage system costs
- Storage system performance improvements
- Utility rate structure changes that are affecting possible “solar-only” savings
- Storage-friendly policies and incentives



Energy storage enclosures look like massive high-tech refrigerators and are generally installed outside.

**3** There are **three primary ways** commercial energy storage is generally deployed—featuring one or more of the following:



**Reducing peak electricity load** and subsequently reducing [demand charges](#).

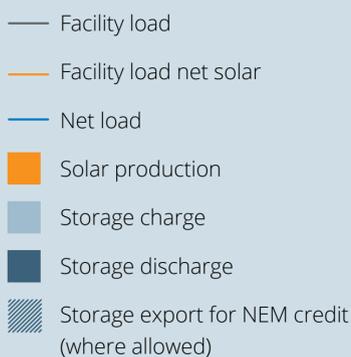


**Shifting when grid electricity is used** in order to lower energy costs (aka energy arbitrage).



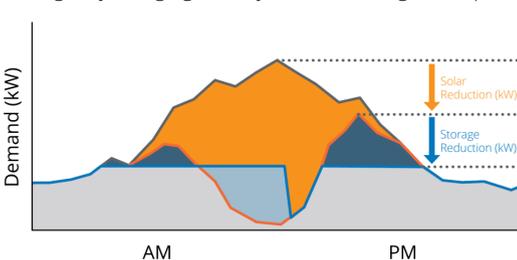
**Reducing grid “congestion”** by discharging when load is peaking for the entire electrical grid—and getting compensated by your utility.

**4** The following site load profiles illustrate **how solar and storage work together** throughout the course of a typical day.



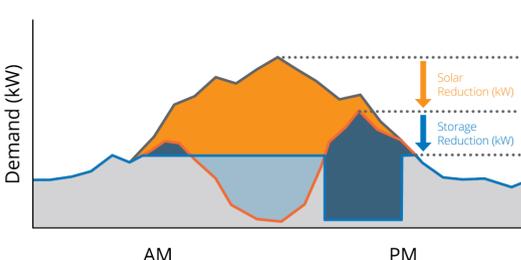
### Scenario 1: Demand-Only Tariff

The storage system discharges in the morning and late afternoon to reduce “post-solar” peak usage, while intelligently charging midday without setting a new peak.



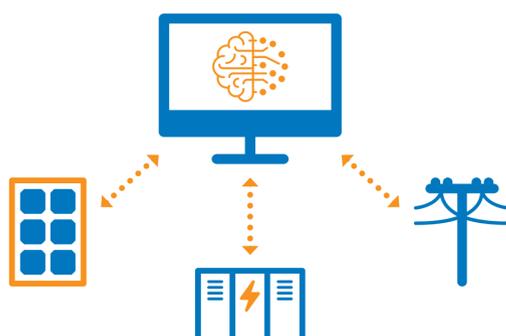
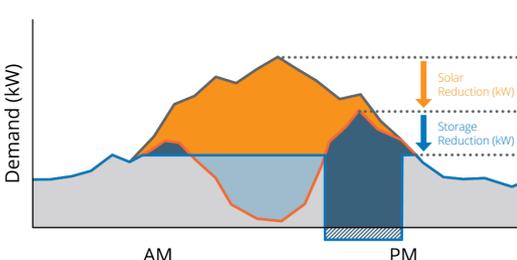
### Scenario 2: Demand and Time-of-Use Tariff (with a Larger Storage System)

In addition to reducing demand peaks, the system discharges to minimize use of grid electricity during the late afternoon “Peak” period.



### Scenario 3: Demand and Time-of-Use Tariff Where Net Metering Is Available

Similar to the installation at left, except the storage system stores enough energy to also allow export for NEM credit when rates are at their highest.



With the help of intelligent software, batteries charge when the solar system is generating electricity, then discharge at strategically calculated times.

The solar installation does the bulk of the work by providing energy that substantially reduces overall site load. The storage system works in coordination, intelligently utilizing energy reserves for maximum benefit.

## Energy Storage Terminology

### Demand Charges



Fees paid by commercial utility customers that are calculated by finding the time interval with the highest (peak) average power (in kilowatts) drawn from the grid, looking across an entire billing cycle. That number is then multiplied by the tariff's demand charge (priced in dollars per kilowatt) to determine the amount billed. When these peaks are reduced, so are demand charges.

### Energy Arbitrage



Using energy storage to shift when commercial utility customers buy electricity from the grid. The idea is to buy more electricity (and charge your storage system) when it's less expensive, and less electricity when it's more expensive (via discharging storage). And where net metering is available, to maximize the energy exported to the grid when electricity is priced highest.

### Load Profile



The breakdown of electricity usage (aka “load”) at a site into time intervals. Load profiles are essential to determine a customer's electricity cost under tariffs that incorporate Time-of-Use.

### Net Metering



Net metering (also known as net energy metering or NEM) is a billing arrangement that allows utility customers who are generating their own renewable power to sell unused energy back to their local grid at set prices. Previously applied to solar alone, energy storage systems may now also qualify—but only if the storage has been charged by a customer's solar system.

### Tariff



A pricing structure or rate plan, with associated eligibility rules and TOUs, that utilities and other energy providers offer to their customers.

### Time-of-Use (TOU)



The division of an entire year—by month, day and hour—into periods with different prices for energy and/or demand charges.

- TOUs are often broken out by season (ex: Summer and Winter) and day type (usually weekends and weekdays)
- Hours are usually divided into periods with labels like “Peak” and “Off-Peak.” Peak rates are priced the highest, Off-Peak the lowest.