DEMAND vs USAGE

What's the difference and why does it matter?

One of the most important concepts in solar design that trips a lot of people up is the difference between demand and usage. The distinction is important because oftentimes a utility charges separately for demand and usage.

In technical terms...
Demand = a measure of POWER
Usage = a measure of ENERGY

Imagine electricity usage as a hose, with the electricity being the water that runs out of the hose.

Low Demand but High Usage:
If you're a regular user of water, you turn on your hose when you need to water your plants, and the pressure coming out of the hose is low, but if you need to water your grass for a couple hours a day, you end up using quite a bit of water. This would be an example of someone with low demand but high usage. At any given point in time, you don't need a lot of water, but since you need water so often, it adds up quite quickly.

High Demand but Low Usage:
On the other hand, let's say you're a fireman who needs to put out one fire every month. When you turn on the hose, you need a lot of water all at once, but outside of that one incident, you don't need any water. This is an example of someone who has a high demand, but low usage.

In summary, usage is the total amount of electricity used in a month, and demand is the maximum amount of electricity needed at any given time during the month.

How does this relate to solar?

Solar arrays produce energy whenever the sun is out. This means if a facility is seeing their peak demand occur during the day, then the solar array can offset some of the demand and reduce the monthly peak demand charges. This is often the case for office buildings and other 9-5 businesses. However, if a facility is running constantly, the peak demand likely occurs later at night, when all the lights come on. This means that we can't do much to offset the peak demand charges. therefore, anything on the energy bill related to demand is going to stay after the adoption of solar. This can total up to, and even over, 50% of their bill, which means for large manufacturing plants, wastewater treatment plants, and other types of facilities running 3 shifts, we often can't do anything to offset up to 50% of their bill with solar alone. *Therefore, we have adopted other generation solutions, like CHP, that don't depend on the sun being out to function.*

IDENTIFY Demand & Usage with an electricity bill:

- The units of demand are kW, or kilowatts.
- The units of usage are kWh or kilowatt-hours.

These terms should be explicitly stated on the bill. This is also one of the many reasons why having both demand and usage information allows our team to developed detailed solar designs.