Energy Vs. Demand

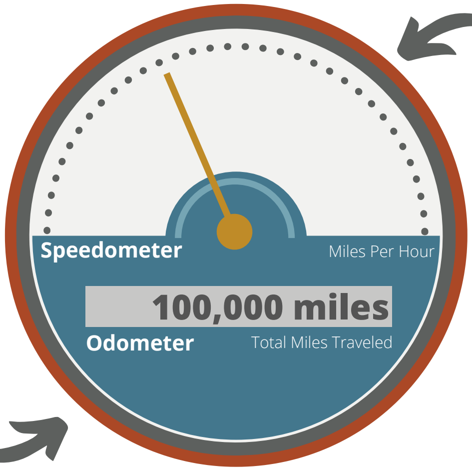
To manage electricity, one must understand energy and demand. Energy is kilowatt-hours (kWh) while demand can be measured in kilowatts (kW) or kilovolt-amperes (kVa). For simplicity, demand is addressed as kW below.

ANALOGY

A car analogy can be used to help understand the relationship of energy and demand. Think of a car's dashboard; specifically the odometer and speedometer. An odometer records the total distance traveled (i.e. energy) while a car's speed (i.e. demand) is recorded by the speedometer.

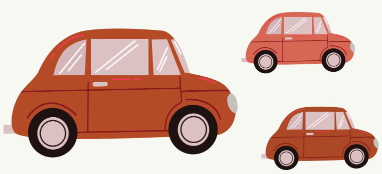
Energy (kWh)

The total distance traveled by a car over a period of time is recorded by the odometer. Instead of distance traveled, energy is the amount of electricity consumed over a period of time.



Demand (kW)

A car's speedometer records speed (i.e. how fast it is traveling at a given time). Similar to speed, demand is amount of electricity which is being used at a given time. Demand depends on how much electricity-consuming equipment a customer runs simultaneously.



If the car is moving, the odometer is turning and the speed can change moment to moment. The higher the speed, the faster the odometer turns. You glance at the speedometer while driving. Each time you look, the needle points to your current speed or actual demand. You may have gone different speeds during your trip, but when it was over, imagine the needle moving to the highest speed traveled. This highest speed would be the trip's peak or maximum demand.

REAL WORLD

Consider a customer has ten 100-watt light bulbs and all ten are turned on at the same time for two hours.

ENERGY

x 100 Watts x (2 hours) = 2,000 Watt-hours or 2 kWh

DEMAND

x 100 Watts = 1,000 Watts or 1 kW

However, if the customer assured that only 5 of the 10 lights were on at any one time during a two hour period.

x 100 Watts x (2 hours) = 1,000 Watt-hours or 1 kWh

x 100 Watts = 500 Watts or 0.5 kW

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