UNDERSTANDING DEMAND & ENERGY

Understanding your electric bill will help you manage costs and help your business become more efficient and competitive. That's great news for your bottom line!

WHAT IS DEMAND VS. ENERGY?

Electric bills for businesses typically have two primary components – demand and energy. The energy portion of the bill is the total electricity used during the billing period. The demand portion of the bill is the highest amount of electricity used at a single point in time (15-minute increments).

ENERGY → TOTAL electricity used (kWh)

DEMAND → MAXIMUM electricity used (kW)

Demand is measured in kilowatts (kW): 1 kW = 1,000 watts
Energy is measured in kilowatt-hours (kWh): 1 kW used for 1 hour = 1 kWh

WHY DO UTILITIES HAVE A DEMAND

Unlike other energy sources such as natural gas, electricity cannot be stored cost-effectively. Electricity must be generated "on demand" at the exact moment it is used. Power plants are built to provide the maximum amount of electricity demanded by customers at any one time. Likewise, transmission and distribution systems must be sized to handle the maximum flow of electricity.

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EXAMPLE: HOW DEMAND AND ENERGY WORK

There are two burger restaurants side-by-side and each uses an electric oven to bake fresh hamburger buns and an electric grill to cook up the burgers.

The owner of Restaurant A comes in early and bakes buns in the oven for one hour. Then, he turns on the grill and cooks the burgers for one hour.

DEMAND

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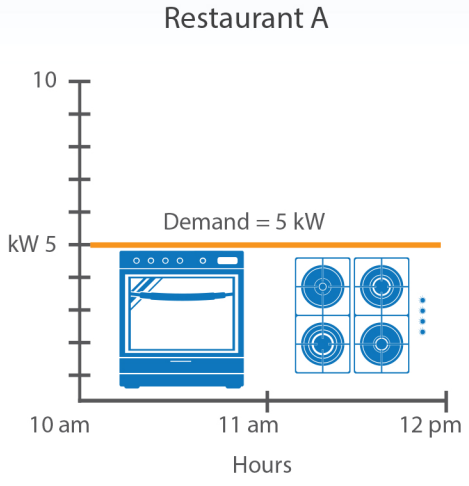
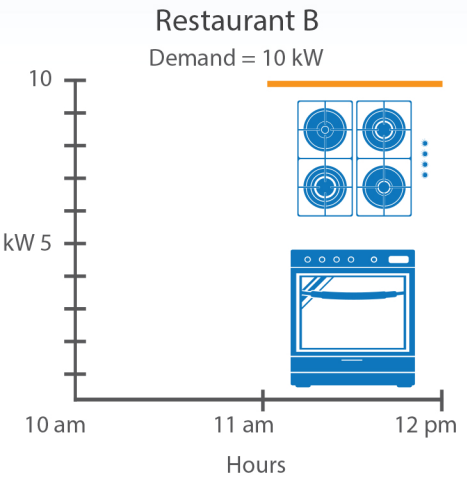
The owner of Restaurant B comes in and turns on both the oven and the grill at the same time and grills burgers while the buns are baking, using each appliance one hour.

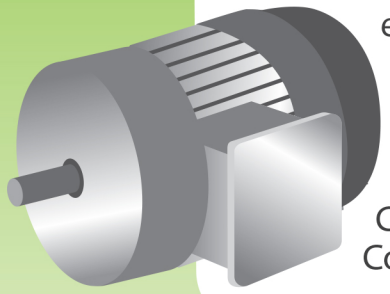




Both restaurants use the same amount of energy, cooking on each appliance for an hour. However, Restaurant B places greater demand on the system since both appliances are drawing electricity at the same time. The electric system must be sized and built to meet this higher demand; therefore, Restaurant B is a more expensive customer to serve electrically than Restaurant A, even though they use exactly the same amount of energy.

MAKE THE BEST USE OF YOUR EQUIPMENT

Energy is needed to do work, such as heat up an oven or run a motor. The more efficiently a business can use its equipment, the lower the cost of that work will be.



Let's say that two manufacturers each have an 8-kilowatt (kW) electric motor that can produce 10 widgets per hour.

Company A uses its motor 10 hours per day.
Company B uses its motor 1 hour per day.

COMPANY A's COST PER WIDGET:

Demand Cost: 8 kW demand X $15/kW = $120
Energy Cost: 8 kW X 10 hours X $.05/kWh = $4.00
Total bill = $124.00
Widgets produced = 100
Cost per widget = $1.24

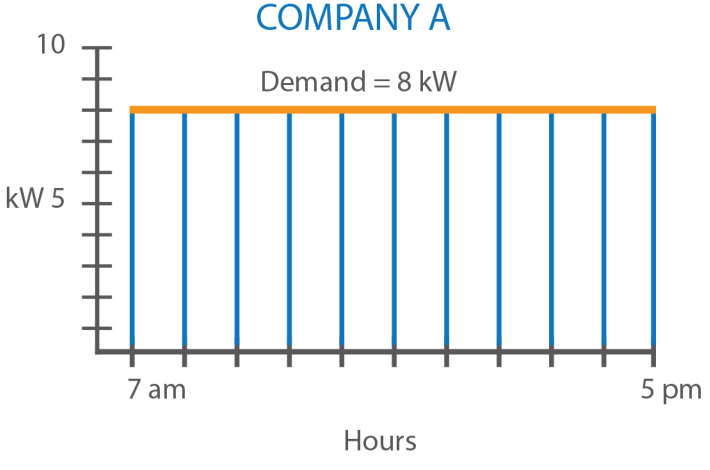
VS.

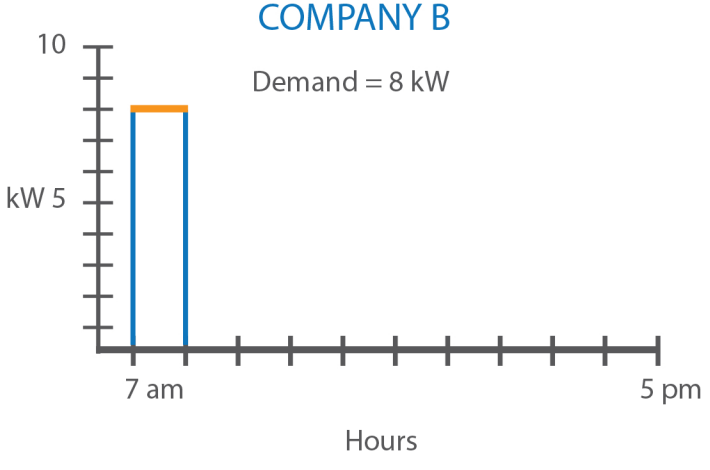
COMPANY B's COST PER WIDGET:

Demand Cost: 8 kW demand X $15/kW = $120
Energy Cost: 8 kW demand X 1 hour X $.05/kWh = $0.40
Total bill = $120.40
Widgets produced = 10
Cost per widget = $12.04

Company A produced 1,000 percent more product and had only a 3 percent increase in electrical costs. This represents efficient use by Company A of the electrical demand that the motor required.

Demand and energy rates are for illustrative purposes only.

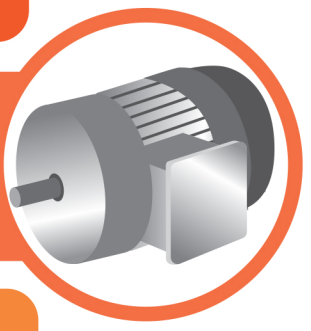




TIPS FOR MANAGING DEMAND:

- Use your electrical equipment for the maximum amount of time feasible.

- Make sure your equipment is sized correctly, not oversized, for the work it needs to do.



- Consider replacing old, inefficient equipment with new energy-efficient equipment.

- Create a schedule where the equipment with the highest demand doesn't all operate simultaneously. Think about what equipment can be run at a lower intensity without adverse effects.

- Consider monitoring your electric usage on a daily basis. Contact your local municipal utility for more information.