

Why Install a Demand Management Controller?

Energy Demand Management involves regulating the rate of energy use so energy is used in a more efficient way. Many times a higher quantity of energy is used at a specific time during the day. This is referred to as a “Peak” in energy use. If you were to graph your energy use there would be peaks and valleys throughout the day (shown in the figures to the right).

By using a demand management system, you are able to level off the peaks and fill in the valleys, thus using your energy more efficiently. A Demand Management unit acts in a similar manner to the cruise control on your vehicle. You have a set speed (rate of usage) of energy you want to use, and our controller unit controls certain loads to keep the average rate of use below your set limit. An example of loads that would be controlled might be your heating or air conditioning units.

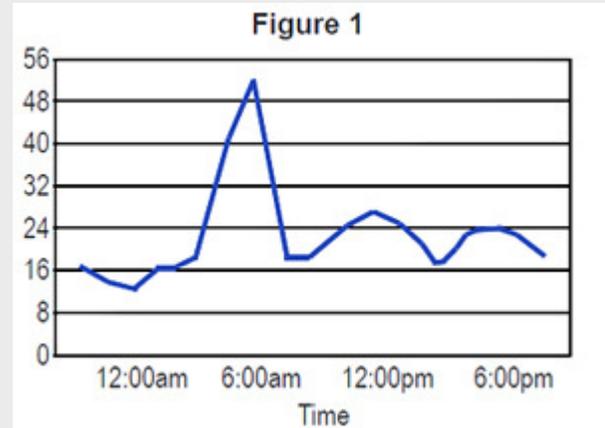


Figure 1 shows that unregulated energy use has very high peaks and low valleys.

The most beneficial reason for using a Demand Management unit is to save money on your electric bills.

Churches happen to be one of the best applications for demand management. In most cases their energy use is low but is compressed into short periods of time creating very predictable peaks which is ideal for demand management.

In the majority of church applications, the goal is to stay under a certain kW level. Most utilities have a tiered rate system for small, medium and large commercial customers. In some cases, the small commercial rate is a non-demand rate that charges a bundled kWh energy charge only. For many of these churches, the goal is to get on and stay on the small commercial rate, meaning they need to keep their demand under a certain kW threshold. For other churches, the objective is simply to reduce every kW of demand possible to limit their monthly demand charge. Normally these are larger churches that have no chance of getting on a lower rate category. Then there are unique applications we stumble upon that use a combination of strategies, such as Solar and Time-of-Use to achieve cost savings.

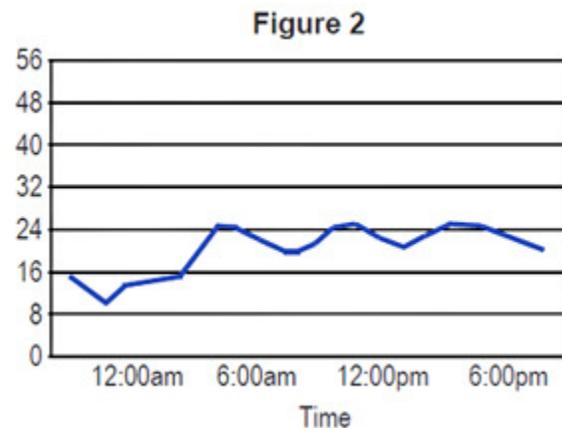


Figure 2 is more level and has a set limit of 24 so there is no demand over the limit.

What is annual peak demand?

Annual peak demand is the maximum demand required to operate your business within the last 12 months. Your Transmission and Distribution Utility (TDU) uses the higher of 80% of the annual peak demand or the current month's demand to bill the demand charges.

How is demand measured?

Demand varies by consumer and time of year. To record demand, a special meter tracks the flow of electricity to a facility over a period of time usually 15-minute intervals. The 15-minute interval with the highest demand is recorded and reflected on a monthly bill.

Can demand charges be avoided by switching providers?

Not necessarily. The TDU assesses demand charges on most business, industrial and commercial customers, and bills those charges directly to the customer's Retail Electricity Provider (REP). Whether the demand charges are explicitly stated in a customer's bill, bundled into a contracted rate, or otherwise included, depends on each REP's billing or contract details.

How to reduce your demand:

Change *when* equipment is used:

- Reduce the number of devices running at the same time
 - Stagger the start-up of your equipment, activating high-intensity devices 15 minutes apart.
2. Change *what* equipment is used:
- Upgrade to high efficiency equipment.

Demand: A Case Study

Problem: A small San Bernadino church faced an \$800 average electric bill due to high peak demand charges.

Impact: Their delivery and demand charges were 400% more than their electricity usage charges.

Solution: Cycle or stagger the start-up of high intensity devices and add a small amount of solar to zero out usage.

Result: After a few months of having demand below 14kW we moved the church to a small business rate which excludes demand and lowers the delivery charges. As a result, the churches electric bill has been reduced 95%. Their \$800 average electric bill is now \$40 per month average.