



Reducing Demand Charges

10 things every food processor needs to know
about how they pay for energy

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If you have ever looked at your facility's electricity bill, you may have noticed that it is anything but straightforward. It usually contains very large numbers next to dollar signs, but little data about where those figures actually came from. Considering that energy typically ranks as the third highest cost of operating a food processing facility, understanding how your facility is charged for energy is an essential tool for managing costs. Here are the top 10 things to know:

- 1 There are two parts of the electricity bill: energy charges and demand charges. Demand charges can make up more than half of the bill.**

'Energy charges' are based on the total amount of energy consumed each month, and are measured in kilowatt-hours. 'Demand charges,' the lesser-known part of the bill, are based on the maximum power required by the facility at a single point in time each billing cycle, and are measured in kilowatts. Demand charges often make up more than 50 percent of a typical food processing facility's electricity costs, and these rates are on the rise.
- 2 Energy rates have decreased, but demand charges are on the rise.**

Due to factors such as inexpensive natural gas and widespread adoption of renewables, the cost of energy production has actually declined or remained flat in recent years; however, the cost of delivering energy has stayed the same or increased due to aging grid infrastructure and capacity constraints. Utilities nationwide are raising their demand charges to recover the costs of maintaining their grid infrastructures, even while overall energy rates are falling. For example, PG&E's energy charges have fallen by 11 percent since 2010 and have dropped 20 percent over the last decade. Comparatively, demand charge rates have risen 30 percent in the past 3 years, and have gone up by 75 percent over the last decade.
- 3 Dollars-per-kilowatt-hour figures are misleading.**

It's useful to look for charges for kilowatts (kW) instead of kilowatt-hours (kWh). Many companies look at dollars spent per kilowatt-hour, dividing their total electricity bill charges by the amount of energy used. This is misleading because a large percentage of the bill can be based on when energy is used or how much is used at once, measured in kilowatts.
- 4 Demand charges are hard to predict.**

Most utility providers list out demand charges as a separate category from energy charges, so calculating how much you are being charged for demand is simple enough. But predicting your demand from month to month can be challenging. A single anomaly can cause your bill to swing significantly from month to month.
- 5 Measurements are taken as 15-minute averages.**

Total monthly energy consumption is analogous to a car's total monthly mileage, while demand is more like the car's peak speed, measured at 15-minute interval averages. Utilities charge more for higher-than-average short-term usage, so if you consume a lot of power over short periods, your demand charges will be much higher than if your power use is more balanced.

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6 Demand charges vary significantly by season.

Utilities have to build enough power plant capacity to supply peak energy needs, and that capacity is extremely expensive to develop and maintain. For this reason, demand charge rates are often higher during summer months, for example, when regional power consumption is high due to heavy air conditioning use. Demand charge rates also vary significantly depending on your utility provider and rate class.

7 One mistake can ruin your whole month.

Facility managers have to be diligent to avoid simultaneous loads (e.g., having the chiller turn on while the water pump is also running). One 15-minute spike can determine your demand charges for the whole month, potentially resulting in thousands of dollars in excess demand charges.

8 It's important to know WHEN your meter is read each month.

Many energy managers know how to reduce demand charges via load cycling and load shifting (keep reading to find out about an innovative new approach), but you can also avoid high demand charges by keeping your meter-reading date in mind. For example, if you have a project that uses high-load equipment, you might want to carry through on the project during a billing month when you've already incurred a high demand charge.

9 Energy-saving measures can actually cause higher bills.

Even though energy-saving measures can reduce your kilowatt-hours used, they can also have the paradoxical effect of raising your electricity bills. For example, let's say your facility waits until right before the first shift to turn on the production line equipment, then shuts off unnecessary machines during shift changes, in order to minimize total energy use. If turning the equipment on just in time causes startup spikes, the increased demand charges for these short intervals can easily wipe out the energy savings.

10 Energy efficiency won't eliminate costly peaks.

Many facilities have attempted to lower their electricity bills with energy efficiency initiatives such as LED lighting, motor or pump upgrades, or improved insulation. While these help lower overall energy consumption, they do not eliminate costly peaks. In fact, until now, there has been little to nothing that can be done to control the one part of your bill that has consistently become more expensive.



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◆ A new, zero-impact approach to lowering energy bills

Understanding your utility bill is tricky enough, but reducing peak loads and demand charges is an even more complicated, error-prone process. Fortunately, advanced energy technologies are now available that combine learning software and energy storage to automate demand charge savings for food processing facilities, while providing real-time visibility into energy use and costs. These solutions have much lower costs than traditional energy investments and require no upfront capital.

Companies like ShoEi Foods USA and Safeway have implemented advanced energy storage in order to:

- Save money by automatically trimming energy peaks with no change to operations
- Receive valuable alerts to shift energy use away from moments when costs are highest
- Accurately estimate electricity bills before they arrive
- Visualize how and when they use energy in real-time to identify hidden waste
- Assess the potential and actual impacts of energy initiatives

As the leading provider of advanced energy storage to food processors, Stem lowers monthly energy bills with no change to business operations or guest experience. Stem does more than just store and deploy – it learns your facility’s patterns to maximize savings and deliver real-time, actionable insights. Getting started is easy, with simple activation and no upfront costs.

“We told Stem what we wanted to achieve and they made it happen: Stem’s software collected the data that was needed to make a plan precise enough to hit our goal. Now we save about \$6,000 per month as a result,”

Dwight Davis
Facility & Plant Manager
ShoEi Foods USA, Inc.

To find out how your company can benefit from these new, money-saving technologies, please visit stem.com or contact us directly by calling **415 937 7836** or info@stem.com.