Reducing Demand Charges
The Top 10 Things Every Energy Manager Needs to Know
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If you’re an energy manager, you are very familiar with demand charges—the part of your commercial electricity bill that’s based on peak usage for the month. Reducing your demand charges can lower your total monthly energy bill significantly. Here are the top 10 things to know about demand charges:

1. **Demand charges can make up 50 percent of your electricity bill**
   Demand charges typically make up at least 30 percent of a commercial electricity bill and often as much as 50 percent. Demand charges depend on the load profile during any given month, along with load spikes. Some industries have “spikier” loads than others, but loads also vary within industries, depending on plant configurations, production schedules, and so on.

2. **Demand charges are hard to predict**
   Figuring out how much demand charges are adding to your electric bill can be tricky, and predicting future charges is even harder. It’s easy enough to look up the rate that applies to your tariff, but calculating demand charges just from looking at your bill has its challenges.

3. **Demand charges are rising**
   Utilities nationwide are raising their demand charges to recover the costs of maintaining their aging grid infrastructures, even while overall energy rates are falling. For example, PG&E’s demand charge rates have risen 30 percent in the past 3 years, and they’ve gone up by 75 percent compared to 10 years ago. Comparatively, overall energy charges have fallen by 11 percent since 2010 and have dropped 20 percent over the last decade.

4. **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.

5. **Demand charges vary significantly by season and by state**
   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 air conditioning usage is high. Demand charge rates also vary significantly from state-to-state and per utility.
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6 One mistake can ruin your whole month
As an energy manager, you have to be diligent to avoid simultaneous loads (e.g., having your chiller turn on while your water pump is also running). One 15-minute spike can determine your demand charges for the whole month, potentially resulting in thousands of dollars spent in excess demand charges.

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

8 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 kilowatts—not kilowatt-hours.

9 Energy efficiency doesn't address demand charges
Many companies implement energy efficiency measures to save money on reduced base-load energy usage. The problem is that boosting energy efficiency doesn’t necessarily impact demand charges, especially in those “perfect storm” situations—when multiple high loads occur simultaneously. Similarly, many companies are reducing their base loads by using alternative energy sources, like solar. Unfortunately, this doesn’t impact peak loads, especially taking into consideration that solar power is inconsistent. For example, if usage peaks on a heavily overcast day, when solar power yields are low, you're probably going to incur higher demand charges.

10 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 company pre-cools its building by running the AC during off-peak, early morning hours when electricity rates are low. If it’s a hot day and the chiller has to be deployed again in the afternoon—during the peak period—the increased demand charges can wipe out the savings.
A new, zero-impact approach to lowering energy bills

Reducing peak loads and demand charges is a complicated, error-prone process. Lowering peak loads through advanced storage and predictive analytics is proven effective in avoiding excessive demand charges. The Stem system predicts energy usage and uses on-site power storage to reduce peak loads, resulting in lower electricity bills. It all happens automatically, with no impact on operations or changes in energy usage.

Better yet, with a Stem Zero financing option, you can experience immediate savings with no upfront investment.

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.