Lee County Electric Cooperative, Inc.
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# Demand Charges

## General Rate Philosophy

Electric utility rates are designed to maintain equity among the various ratepayer classes, ensuring that no single customer is subsidized by the utility's other customers.

## Commercial Rates

The two basic types of commercial rates are the non-demand rate and the demand rate. The **non-demand rate** is much like a residential bill in that it has only an energy charge for the electricity consumed during a billing period plus a customer charge to cover the meter reading and billing costs. The energy charge is indicative of the utility's cost of producing and delivering one kilowatt-hour (kWh) of energy.

The major components of a **demand-rate** customer's bills are the energy charge and the demand charge. The energy charge is based on the amount of electricity consumed over the entire billing period. The demand charge is related to the maximum demand for electricity that a customer places on the utility's system during the billing period. The demand is measured in thousands of watts, or kilowatts (kW). The demand charge is based on the highest 15-minute interval of electric usage during the billing period.

At LCEC, the demand charges range from $11.00 to $20.20 per kW, depending on which of the demand rates is applicable (see load factor explanation below). In accordance with rate tariffs on file with the Florida Public Service Commission (FPSC), when a facility demands 20 or more kilowatts of power at its time of peak use, it becomes a demand-rate customer. If the facility does not exceed that level during the previous 12 months, it is billed at the non-demand rate.

## Principal Behind Demand Charges

Demand is measured to determine the amount of the utility's equipment that is dedicated to serving a specific customer's peak needs. Imagine a trucking company who has contracted to deliver 30 loads of dirt to a construction site. If he can deliver one load a day, he can meet the contract with one truck. If he must deliver all 30 loads within the same 15 minutes, he will need 30 trucks. The trucker will have to set his charges depending on the demand on his resources. It would be difficult for the trucker to justify making his customer who buys one load of dirt a month pay the cost of the 30 trucks he bought to meet the contract with the high peak demand for deliveries. It would be fairer for the customer with the high peak requirement to bear the burden for his need demands.

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## How to Reduce Demand Charges

Demand customers may be able to further reduce the size of their bill by reducing peak demand. The key to reducing peak demand is optimal scheduling or shifting of electrical equipment use within the facility.

The goal is to reduce the load at any single given time. Of course, some of your equipment is required to run simultaneously. For example, in a restaurant, the water heater and the dishwasher usually run at the same time. It is possible, however, to minimize their impact if dishwashing can be done in otherwise slack periods during the day, when few of the other pieces of equipment are running. Alternatively, if the restaurant has a large enough hot-water storage tank, it may be able to heat water at night for use during the day, thereby avoiding water-heater load during peak times.
Often, timers can be utilized to give you the control needed to achieve these demand reductions. However, if your electrical use is high and you have a large number of electrical loads, it may be feasible to install a computerized load-control system to coordinate and optimize the operation of your equipment.

## Demand Measurement

A conventional demand meter has two sets of dials. One measures energy use over the entire billing period. The other indicates demand and is the total of loads that were turned on during any 15-minute period. The demand dial or pointer is moved upscale by the amount of power consumed in successive 15-minute periods. The highest amount of use detected during the preceding periods is stored. The peak demand measured within the billing period is utilized to calculate the demand charge.

## Demand Ratchet Clause

Some commercial customers use most of their energy in only a few months. In other months, the use may be low, but the utility must leave its equipment in place to serve the customer's maximum load whenever it is needed. Because specific utility equipment is dedicated to serving that load, FPSC guidelines call for customers to bear the costs of service that are unique to serving their demand. For this reason, a charge is assigned to recover the investment in the underused utility equipment. In this way, the utility's other customers don't have to make up the difference in return on that investment. The mechanism for insuring recovery of investment is the demand ratchet. The rates require that the demand billed (as compared to the actual demand) for any month will not be less than 70 percent of the peak demand set by the customer during the previous 12 months.

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In addition to businesses that operate only during certain seasons, many other commercial customers find themselves affected by the demand ratchet. For instance, electric heat is a large load demand—almost three or four times more than the air conditioner. In Florida, heat is used for relatively short periods; therefore, it usually doesn't account for a significant amount of kilowatt-hour use. However, it only takes 15 minutes to set a demand peak, so using heat for a short warm-up period on that one cold day can affect your billing for the rest of the year. The key to avoiding this situation is to ensure you use only the amount of heat necessary to maintain temperature, and not enough to do an instant warm-up. In most businesses, there is enough lighting and other internal heat-producing equipment to maintain temperature without using a heater. If you must, the time to use a heater is before you actually open the building, when lighting and other loads have not yet been turned on and the likelihood of setting a demand peak is small. A programmable thermostat or timer can help achieve the control needed.

**Load Factor**

Load factor is a measure of peak demand versus total kWh energy used during the billing period. The higher the load factor, the less expensive it becomes per kWh for the utility to furnish electricity to a customer. Consider the following example. A month consists of approximately 720 hours. If a business runs a 100 kW load for a month, the use would total 72,000 kWh, and the load factor would be 100%. If a business runs the same load for half of the time, it would have used only 36,000 kWh during the month, and the load factor would be 50%. The utility is able to serve both scenarios with the same investment in distribution equipment. The only change in the utility's cost is the expense of purchasing kWh as use increases. In effect, the capital costs get spread over more kWh as load factor increases. The LCEC optional demand rate (GSD-O) is applicable when the load factor percentage exceeds 63 percent. Under the GSD-O rate, the kWh charge is lower than the general service demand rate, but the demand (kW) charge is higher. The rate is designed to encourage and reward consistent use of power as opposed to widely varying peaks and valleys in use. Businesses that operate 24 hours a day or seven days a week are most likely to benefit from this rate. Those that operate eight to ten hours a day during a five-day workweek will be better off on the general service demand (GSD) rate. Those that demand less than 20 kilowatts or use less than 5,000 kWh a month will benefit from the general service non-demand (GS) rate.