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# UNDERSTANDING LOAD FACTOR



## WHAT IS LOAD FACTOR?

Load factor is an expression of how much energy was used in a time period, versus how much energy would have been used, if the power had been left on during a period of peak demand. It is a useful indicator for describing the consumption characteristics of electricity over a period of time. Customers whose facilities are metered for demand can readily determine the load factor for any given month. Facilities billed at highest peak demand during the billing period should avoid periods of increased demand whenever possible.

## HOW TO CALCULATE LOAD FACTOR

The load factor percentage is derived by dividing the total kilowatt-hours (kWh) consumed in a designated period by the product of the maximum demand in kilowatts (kW) and the number of hours in the period. In the example below, the monthly kWh consumption is 36,000 and the peak demand is 100 kW. There were 30 days in the billing period.

$$\begin{aligned}
 \text{LOAD FACTOR} &= \frac{36,000 \text{ kWh}}{100 \text{ kW} \times 30 \text{ days} \times 24 \text{ hrs/day}} \\
 &= \frac{36,000 \text{ kWh}}{72,000 \text{ kWh}} \\
 &= 50\% \text{ load factor}
 \end{aligned}$$

This load factor indicates the monthly energy consumption of 36,000 kWh used by the customer was 50% of the total energy available (72,000 kWh) for use at the 100 kW level.

## IMPORTANCE OF LOAD FACTOR

Austin Energy must be able to meet customers' peak demand for electricity at all times. The annual load factor percentage for Austin Energy's system is calculated in the same manner as described above.

The demand rate structure automatically rewards customers for improving their load factor. Since load factor is an expression of how much energy was actually used compared to the peak demand, customers can use the same amount of electricity from one month to the next and still cause their average cost per kilowatt-hour to drop as much as 40% simply by reducing the peak demand. For instance, a 25% load factor in the summer would yield an average cost per kWh of 13.2 cents, while an 80% load factor would yield an average cost per kWh of 7.9 cents. Remember, this is comparing two months in which the customer used the same amount of electricity (kWh) with different peak demands.



For more information about understanding load factor, contact us at **512-494-9400**.



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## HOW TO IMPROVE LOAD FACTOR

Lowering the facility's peak demand is the primary step to improving load factor and will reduce the amount paid monthly for electricity.

To determine the potential for improving load factor, analyze billing records to identify the seasons during which the peak demand is the greatest. In general, the greatest demand for electricity in Austin occurs on hot days in the summer. While this implies that a large electric load is dedicated to space cooling, it is not necessarily true for every facility. It is always best to observe operations at the facility to determine what equipment may be causing the peak demand. Once the contributing equipment loads have been identified, determine what can be done to sequence or schedule events or processes in order to minimize the simultaneous operation of high wattage equipment.

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