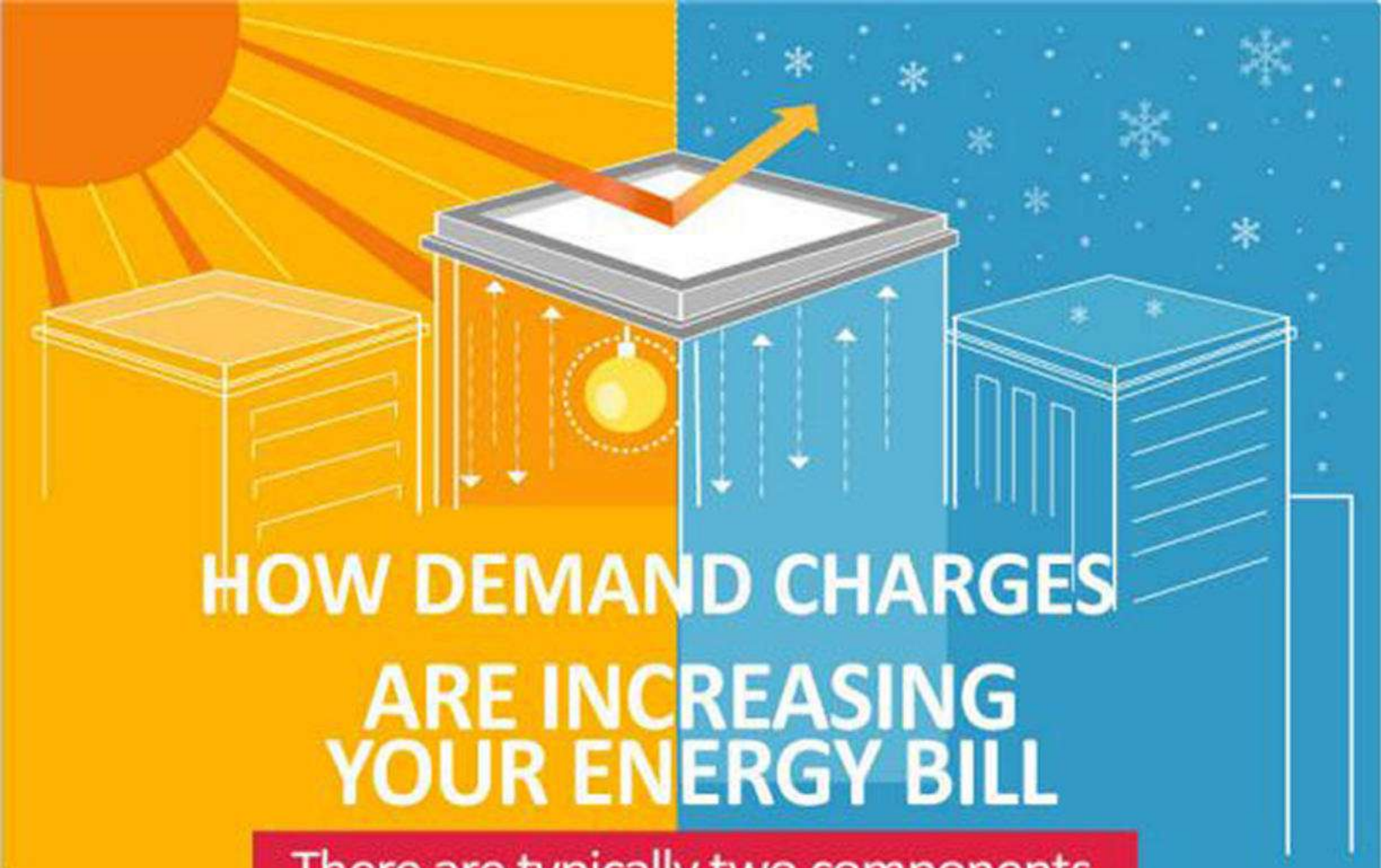
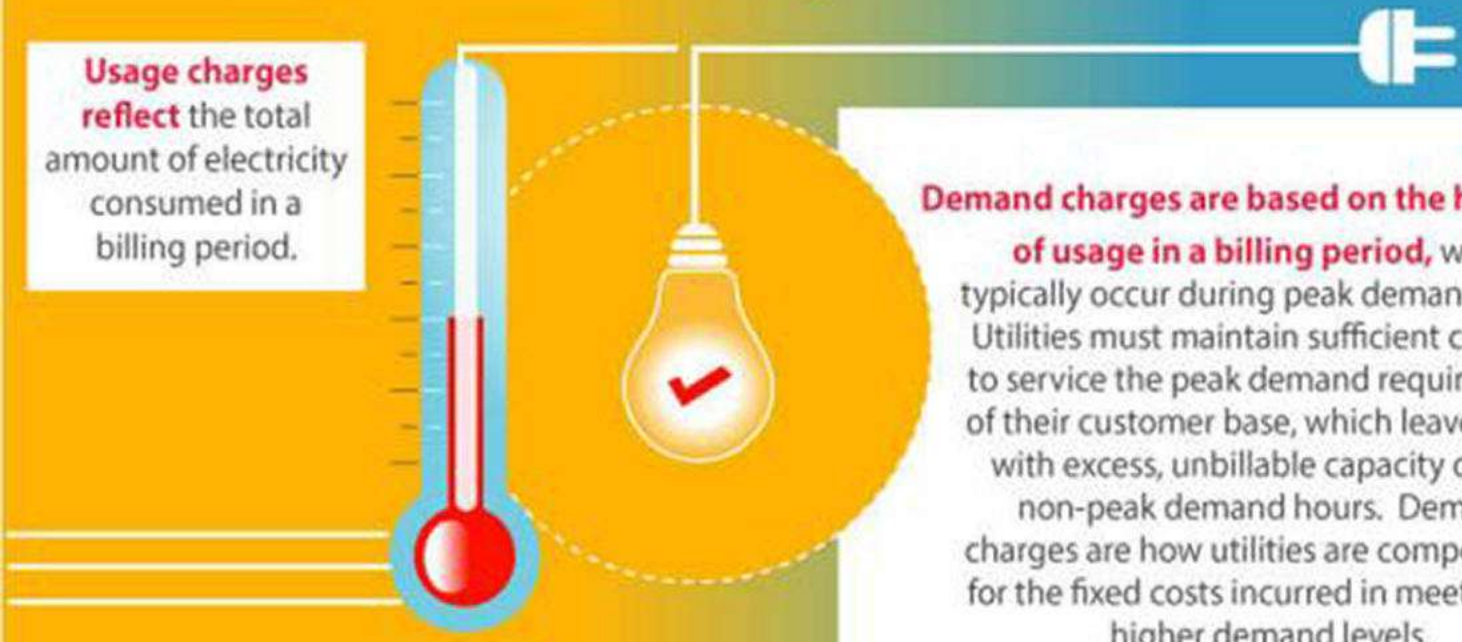


HOW DEMAND CHARGES ARE INCREASING YOUR ENERGY BILL

There are typically two components to commercial electricity bills:

Usage charges reflect the total amount of electricity consumed in a billing period.



Demand charges are based on the highest of usage in a billing period, which typically occur during peak demand hours. Utilities must maintain sufficient capacity to service the peak demand requirements of their customer base, which leaves them with excess, unbillable capacity during non-peak demand hours. Demand charges are how utilities are compensated for the fixed costs incurred in meeting the higher demand levels.

Across the United States, building owners in **both hot AND cool climates** are subject to demand charges. These charges can range from

30-70% of a total commercial user's

electric bill – that percentage is significantly higher during the summertime as a result of cooling demands.

50% or More
of the total potential savings by reducing electrical demand occur in the peak periods.

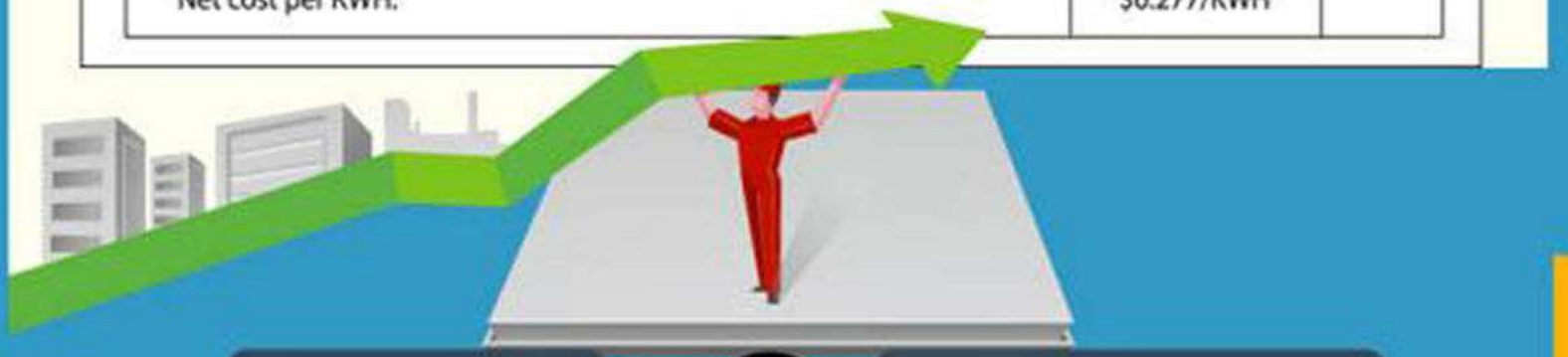
IMPACT OF PEAK ENERGY DEMAND CHARGES

The following example breaks down the demand energy charge and its impact at a Warehouse located in the Boston, MA area.

DEMAND CHARGES OFTEN DWARF BASE CHARGES

Example: Warehouse, Canton, MA, July, 2011

Total KWH used:	10,080	
Cost:	$0.073/KWH	
Total KWH (BASE) charge:	$735.18	
Demand Charges:	$2,053.22	
Total Charges:	$2.788.40	
Demand Charges:	**74% of total bill**	
Net cost per KWH:	$0.277/KWH	



BASE USE vs. PEAK DEMAND

Speed at Point in Time = Peak Demand (kw)

Peak demand measures the highest amount of power supplied at any one time within the billing period.

Base rate measures the total quantity of electricity supplied at any one time within the billing period.

Miles Driven = Base Use (kwh)

Typically, peak demand charges are based on the amount of energy consumed in a specific period of time, known as the demand interval.

Think of it in terms of a road trip in a car: The base

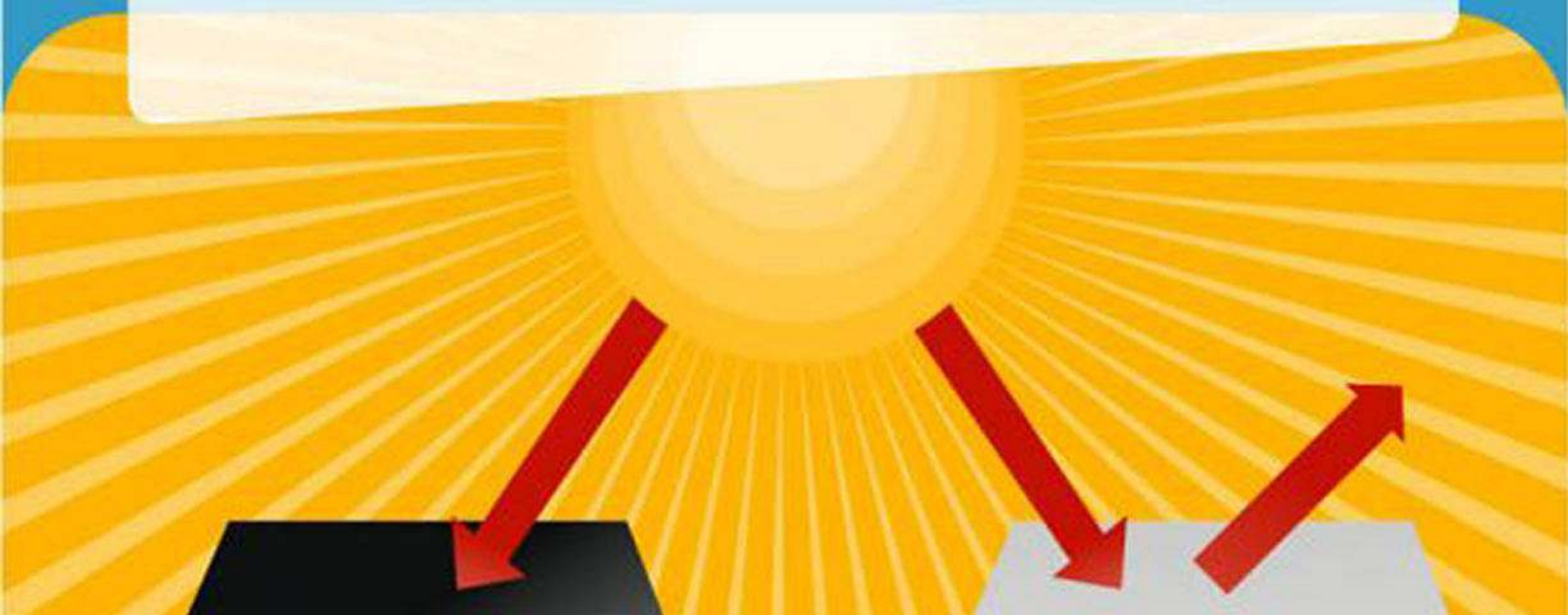
use (kWh) is the total miles traveled, while the peak demand (kW) is the top speed traveled.

HOW TO SAVE ON MONTHLY ENERGY BILL BY REDUCING PEAK ENERGY

REDUCE PEAK ENERGY DEMAND

- Lighting Improvements
- Supplemental daylight and solar
- Equipment improvements

In 2000, the U.S. Department of Energy and the Environmental Protection agency conducted a study where a large retail store **replaced a 100,000 sq. ft. black EPDM roof with a white PVC roof.** The study confirms that the roof membrane reduced average summertime air conditioning peak demand (1-4pm) by **14 percent** and the total daily air conditioning energy usage by 11 percent.



A recent study suggests that hotter cities like Phoenix and colder cities like Minneapolis are similar when it comes to potential roof-related peak demand savings.

Peak Cooling Season (6 Months +/-)

Phoenix

Minneapolis

(Source: Oak Ridge National Laboratories)

Peak Demand is not just a warm climate problem.

Oak Ridge National Laboratories examined the seasonal variation in peak air conditioning demand for a variety of different climates across North America. Their findings suggest that even though base cooling demand may be higher in hot climates compared to cooler climates, the ratio of monthly peak demand to annual peak demand is very similar across all climates.

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