



EV CHARGING 101

FOR FLEET OWNERS



THE FUTURE IS ELECTRIC.

Here's how making the switch can improve your ROI.

An increase in corporate sustainability policies and zero-emission mandates are spurring fleet owners to transition from gas-powered vehicles to electric vehicles (EV). Fleet owners will be happy to discover that the cost of owning an EV fleet is lower than maintaining a gas-powered fleet. This overview demonstrates how energy management, used in combination with a dynamic EV charging system, can optimize your operating costs and improve the return on investment (ROI) of your EV fleet.



MAXIMIZING THE ROI OF YOUR EV FLEET

Fleet operators often choose to electrify their fleets based on a ROI calculation that accounts for factors such as infrastructure, maintenance costs, and fuel consumption. In general, ROI improves as operating costs go down. Fleet operators who make the switch to EVs can expect to pay less when it comes to maintaining and fueling their vehicles. EVs don't have combustion engines, transmissions, belts, or spark plugs. Brake wear and tear is reduced due to the use of regenerative braking. And you don't have to worry about maintenance tasks like oil changes. EV fuel costs for most commercial utility customers can be broken into two parts: energy (kWh) and demand (kW). Energy in this case equals electricity which, as a fuel, can be cheaper than gasoline. Energy costs can fluctuate throughout the day and year and some utilities offer time of use rates to align with these fluctuations. Fleet owners who take advantage of these rates or choose to charge their EVs during off-peak hours can reduce their fuel costs even further.

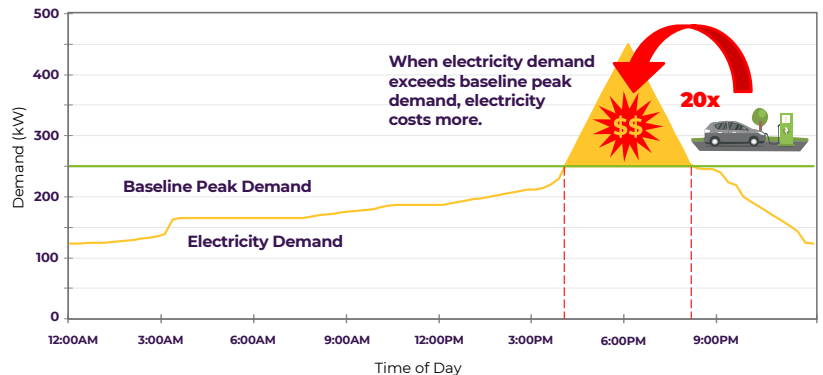
¹ Cost to charge a typical model year 2020-2022 EV with an approximate 300 mile range using average daily rates from the Energy Information Administration.

HOW EV CHARGING AFFECTS OPERATING COSTS

The other part of the fuel cost equation is demand. This is a relatively new concept for fleet operators. Demand is the real-time electric load (or demand from the electric utility). Demand varies throughout the day as EVs are plugged into and unplugged from the EV charging infrastructure. The highest demand point over the course of a month is “peak demand.” If peak demand increases when new loads are added, the electricity bill can increase substantially. Installing EV charging infrastructure can add a significant new load to one’s electric service. Imagine the impact of adding multiple EV charging spaces to your fleet operation and the effect it will have on peak demand and your electricity bill. Using a gasoline-based example, it’s comparable to receiving an additional one-time monthly charge based on the most gas you put in your vehicles on a specific day within that month.

Additional cost considerations for fleet operators involve the EV charging equipment. As owners of this equipment, fleet operators are responsible for costs that they are not used to paying, including monthly subscription fees per charge port and ongoing maintenance and warranty contracts. All these costs negatively impact ROI.

UNDERSTANDING ELECTRICITY DEMAND



OPTIMIZING OPERATING COSTS WITH EV CHARGING + ENERGY MANAGEMENT

Fleet operators can optimize operating costs AND improve ROI when electrifying their fleets by using energy management in conjunction with a flexible and dynamic EV charging system. The key lies in selecting the right technology.

Atom Power’s EV charging solution dynamically adjusts and manages EV charging by regulating vehicle charge rate, time of day, length of time, and overall energy an EV can use over the course of a given day. The system monitors real-time load and evaluates historical baseline peak demand to target EV charging rates and times where current month peak demand will not be exceeded. Fleet operators can control how quickly and when their vehicles charge and access information that indicates whether their vehicles are plugged in and charging when they need to be.

WHAT TYPE OF CHARGER DO I NEED?

It depends. If you operate a local delivery, taxi, or municipal fleet, your vehicles may sit overnight or for extended periods during the day. If that is the case, then a level 2 charger ranging from 48A (11.5 kW) to 80A (19.2 kW) will work for most applications. However, if you operate a bus service and you need to charge your vehicles in under an hour so you can get back on the road, then you will need to install DC fast chargers.

Atom Power’s EV charging solution optimizes fleet operating costs in other ways too. Equipment setup is simple – it’s just a circuit breaker in a panel and an extension cord connected to a pedestal or a wall box – and inexpensive to maintain. Monthly subscription fees per charge port are low because the energy management software is built into the electrical infrastructure and there’s a single point of contact (i.e., the panel) for communicating with the Internet, eliminating the need for individual connections at each parking spot.