

workplace charging

an employer's guide



taking responsibility

At your business, the efficient use of energy brings benefits such as lower bills, improved comfort levels for your customers and employees, and a reduced impact on the environment.

Acting together, our individual choices add up—for the benefit of our community, our environment and our energy future. That's the power of working together.

As your community energy company, we are committed to sharing our experience and energy expertise.

You can always count on us for:

- Answers to your energy questions.
- Energy efficiency information and advice.
- Help in evaluating energy-saving options.
- Assistance in finding energy-efficient products.



Getting started

Considering electric vehicle charging equipment at your company? Workplace charging offers many benefits including employee attraction and retention and support for sustainable initiatives.

This guide takes you through the evaluation, implementation and maintenance stages of a successful workplace charging program. To get started, ask for feedback and develop a plan.

Get management on board

- Form a working group that includes representatives from human resources, legal, facilities and your company sustainability team.
- Educate management about the benefits of workplace charging and your plans to evaluate employee interest, equipment options and potential costs.

Survey employees

- Learn who drives electric vehicles (EVs) and if other employees plan to purchase them. Ask about their daily commute distance



and willingness to pay for charging. Use the results to select the program and charging equipment that's best suited for your business. You may also learn how non-EV drivers feel about offering EV charging at work.

- Use the free Department of Energy's Workplace Charging Resources website, which includes a sample employee survey, at https://www1.eere.energy.gov/vehiclesandfuels/electric_vehicles/resources.html.

Evaluate your building, parking and electrical requirements

- Discuss your plans to install charging equipment with the building's property manager or your facilities manager.
- Conduct a site assessment and evaluate electrical load within your parking facilities. MGE can assist with an electrical assessment. Remember to:
 - Choose a location close to the electrical supply, if possible, to minimize conduit and trenching costs.
 - Additional electrical equipment may be required. This could include a new electrical panel and circuit breakers.
 - Consider security when choosing a location. EV connectors and cables have been stolen and vandalized.

What does it cost to charge?

Contact Madison Gas and Electric. We can provide estimated energy and demand costs for charging equipment.

- Electricity costs for charging are small in terms of typical business expenses. The examples below are based on popular EV vehicle models (cost of energy approximately \$0.095/kWh) charging at a Level 2 station.

What cars do your employees drive?

Chevrolet Volt – 10 kWh battery charging at 3.4 kW.



- Runs on gasoline and electricity; assumes the car arrives at work with the battery fully discharged.
- Fully charged in about 3 hours, with a total energy consumption of 10 kWh per day.
- Annual energy consumption approximately 2,600 kWh per year.
- Annual vehicle charging costs about \$247 per year.

Nissan Leaf – 24 kWh battery charges at 6.6 kW.



- Runs on electricity only; assumes the car arrives at work with the battery 25% charged.
- Fully charged in about 2.5 hours, with a total energy consumption of 18 kWh per day.
- Annual energy consumption approximately 4,680 kWh per year.
- Annual vehicle charging costs approximately \$445 per year.

Ford Focus – 23 kWh battery will charge at 6.6 kW.



- Runs on electricity only; assumes the car arrives at work with the battery 25% charged.
- Fully charged in about 2.5 hours, with a total energy consumption of 17 kWh per day.
- Annual energy consumption approximately 4,420 kWh per year.
- Annual vehicle charging costs approximately \$420 per year.

Other electric rate considerations

EV charging may affect demand charges. Talk to your MGE account manager about your electric rate and options for managing demand charges.

Renewable energy from wind and solar sources can be purchased through MGE's **Green Power Tomorrow (GPT)** program to power EV charging equipment. Because wind and solar energy costs more to produce than conventional fuels, there is an additional charge of \$0.0244/kWh for GPT energy.

Create a budget

- Include, at a minimum, charging equipment, installation, energy, signage and maintenance costs.
- Plan for the future. Interest in EVs may grow if workplace charging is available.
- Electric vehicles may be eligible for a federal income tax credit of up to \$7,500.
- Currently, there are no incentives in Wisconsin for EV charging installations. That may change. For information on incentives, visit the DOE's Alternative Fuel Data Center at www.afdc.energy.gov/laws.

Select charging equipment

• Equipment selection criteria include equipment cost, number of employee vehicles, fee capabilities, system access costs for "smart" charging stations, location of electrical equipment, maintenance, and type of parking facility. Depending on location, you may choose a wall-mounted station or a pedestal for surface parking.



- Level 1 (see Chart A) charging is relatively easy and inexpensive to install and maintain. It's practical for employees that park for long periods of time.

- Level 2 charging stations (see Chart A) provide faster charging. They can serve multiple employees throughout the day as long as vehicles are moved after charging. Some units are available with multiple connectors. Level 2 stations can be managed with access cards.
- Smart Level 2 stations allow station owners to collect usage data and charging fee and to notify drivers when their vehicle is charged
 - There are several Level 2 manufacturers and service providers. Visit www.pluginamerica.org/accessories or www.goelectricdrive.com.
- Fast Charging (see Chart A) gives users the ability to charge to 80% battery capacity in 30 minutes or less.

	 Level 1	 Level 2	 Fast Charging
Power Supply	120 V @ 12-20 amps	240 V @ 30-80 amps	up to 600 V (DC) or 480 V (AC) @ 100 amps
Energy Use Characteristics	1-1.5 kW/hr	3-19 kW/hr	50-100 kW/hr
EV Range Boost	3-5 miles/per hour of charging	9-57 miles/per hour of charging	60-80 miles (< 30 minutes)
Bottom Line	Widely available, low cost (\$10 to \$1,000). Ideal solution to provide EV owners with more range.	Widely available, moderate cost (\$500 to \$6,000). Many 3rd party equipment and service providers. Ideal solution to provide EV owners substantial boost in range in less time.	Limited availability, high cost (>\$15,000 + installation). This solution is not practical for most workplace charging sites.

Chart A

Sources: Department of Energy, Southern California Edison, Plug-In America.



Equipment installation checklist

- Get bids from certified electrical contractors for installation and maintenance.
- Make sure the contractor secures all the necessary permits.
- Check compliance with the American with Disabilities Act.
- Install and test equipment.
- Install signage.
- Develop a maintenance plan.

Installation budget

- Materials
- Equipment rental (trencher)
- Concrete demolition and repair
- Labor
- Charging station equipment
- Signage
- Architect fees (professional fees)

Employee policies and procedures checklist

- Determine if employees will pay a fee to charge. Fees address fairness concerns from employees who don't charge.

- Payment options:
 - Hourly fee
 - Session fee
 - Monthly or annual subscriptions



- Discuss potential tax implications of offering charging as an employee benefit.
- Determine who can use the charging station:
 - Employee only
 - Public and/or customer use
 - Fleet use
- Ensure equitable use of charging stations. Consider these issues:
 - Manage station use among multiple employees.
 - Require employees to schedule charging and move vehicle when finished.
 - Use smart phone apps to notify employees when charging is complete.
 - Set a maximum charging time per vehicle.
 - Establish hours of operation for charging stations.
 - Consider a charging ban during peak energy times.
 - Determine if charging outside business hours is allowed.
 - Install signs to communicate parking and charging rules.
 - Consider a registration/liability form to address vehicle or station damage issues and maintenance.
 - Educate all employees. MGE can help.



Additional Resources

There's more information available on workplace charging. Use these resources to learn more.

Alternative Fuels Data Center, U.S. Department of Energy
www.afdc.energy.gov

Best Practices for Workplace Charging

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www.calstart.org/Libraries/Publications/Best_Practices_for_Workplace_Charging.sflb.ashx

Charging While You Work: A guide for expanding electric vehicle infrastructure at the workplace

©December 2012, Minnesota Pollution Control Agency

www.energyinnovationcorridor.com/page/wp-content/uploads/2011/01/charging-while-you-work-guide-8.5-11.pdf

listening. learning.

MGE takes responsibility to provide information and education to serve our customers and stakeholders. We educate customers today to help inform their decision making. We educate tomorrow's stakeholders so they can help plan our energy future.

Bring MGE into the planning process early on to keep your projects running smoothly. *Working together we can make a difference.*

Call MGE and ask for a business account manager or visit our website for information about energy and more. We provide the technical, financial and educational services you need to stay competitive.

- mge.com/business
- 608-252-7222
- 1-800-245-1125

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