Madison Gas and Electric Company
P.O. Box 1231
Madison, WI 53701-1231
608-252-7000
your community energy company

Scott R. Smith
Vice President
Business and Regulatory Strategy
608-252-5609

March 15, 2022

Mr. Cru Stubley
Interim Secretary to the Commission
Public Service Commission of Wisconsin
PO Box 7854
Madison WI 53707-7854

Subject: Electric Vehicle Managed Charging Pilot Applications – Docket 3270-TE-115

Dear Mr. Stubley:

Madison Gas and Electric Company ("Company") submits to the Public Service Commission of Wisconsin ("Commission") four applications for approval of three new electric vehicle managed charging pilots and revisions to Charge@Home ("Application").

The electric vehicle (EV) market has turned the corner—more models, decreasing vehicle and battery costs, longer range, and more places to charge have encouraged more customer to drive electric in the Company's service territory. Manufacturers are investing hundreds of billions of dollars in EV development and are projected to produce hundreds of new models by 2025. EV growth projections are impressive as well. According to The Brattle Group, the number of EVs in the United States is expected to increase from 1.5 million in 2020 to 10 to 35 million by 2030.

As the public utility, the Company is the conductor of the distribution grid. The Company can optimize the use of EVs and other emerging technologies to help control costs over time, which leads to lower costs for all customers. A portfolio of EV managed charging solutions will ensure the Company is prepared for EV charging and is able to manage charging efficiently and effectively. If left unmanaged, costly distribution system upgrades and incremental generation sources are inevitable.

As described in the Application, the Company proposes an Apartment and Multifamily Managed Charging Pilot, Fleet Managed Charging Pilot, and an Electric Vehicle Managed Charging Rewards Pilot (Charge Ahead) that are designed to ensure EV charging benefits non-participating customers by allowing the Company to implement and evaluate load management strategies. In addition, the pilots help remove barriers to EV adoption by reducing up-front costs for charging infrastructure. The Company also requests moving Charge@Home from a pilot to a standard tariff offering with

proposed modifications based on pilot learnings. Program and pilot costs will be recovered through dedicated customer charges and do not rely on any cross-subsidization from non-participating customers.

Current programs like Charge@Home have allowed the Company to evaluate managed charging strategies and study the potential impact of EVs on the distribution system. For example, the Company has learned that many drivers plug in after work or at 9 p.m. when off-peak periods begin. The Company has also learned that most vehicles are fully charged in about two hours, so there is an opportunity to spread kilowatt-hours over times when more capacity is available. Through managed charging, the Company has shifted charging to off-peak times and minimized secondary peaks at 9 p.m.

While Charge@Home has been successful in helping the Company understand charging behavior, the EV market is rapidly evolving with new opportunities to charge and purchase charging infrastructure. Charging stations can be purchased when customers buy or lease an EV from a dealership or online. Some customers won't need a charging station as many automakers are offering 240-volt charging cords. The Company is not able to manage EV charging if customers are not enrolled in Charge@Home.

Recognizing this trend, the Company is proposing an Electric Vehicle Managed Charging Rewards Pilot (Charge Ahead) where a vehicle telematic platform is used to optimize charging to off-peak times. Vehicle telematics communicate directly with EVs through on-board modems. Telematics allow the Company to control charging regardless of the customer's charging preference. Initial results from a Company demonstration project were notable with the Company optimizing more than 93 percent of charging to off-peak times.

The Company's collection of managed EV charging pilots will help ensure the grid can support EV charging for the benefit of all customers.

Specifically, the Company requests that the Commission approve the following:

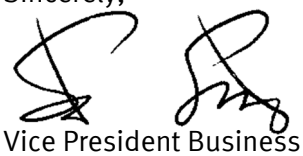
- The Electric Vehicle Managed Charging Rewards Pilot (Charge Ahead).
- The Apartment and Multifamily Managed Charging Pilot and related requests that meter-related provisions in the code and its tariffs that are inconsistent with the Application not apply to the EV charging unit's sub-meter, including waivers related to billing:
    - Wisconsin Admin. Code § PSC 113.0406(1)(a)3., 4., and 5. pertaining to information displayed on customer bills.
    - Wisconsin Admin. Code § PSC 113.0406(1)(c) and Schedule Ex.-15, Section 3.3 pertaining to marking bills based on usage measured by the EV charger, as estimated.
    - Wisconsin Admin. Code § PSC 113.0406(3) pertaining to identifying credits and original charges for meter inaccuracies, errors in billing, or misapplication of rates.
- The Fleet Managed Charging Pilot.
- The transitioning of Charge@Home from a pilot to a standard tariff and approve other requested revisions.

The balance of this filing describes key program features for the EV offerings. The Company also includes the following attachments in support of this Application:

- Attachment A: Apartment and Workplace Electric Vehicle Managed Charging Experimental Pilot Rider and draft tariff language.
- Attachment B: Fleet Electric Vehicle Charging Experimental Pilot Rider and draft tariff language.
- Attachment C: Home Electric Vehicle Charging Rider and draft tariff language.
- Attachment D: Electric Vehicle Managed Charging Rewards (Charge Ahead) Rider.

Because customer participation in the pilots is voluntary and this Application does not request an increase in rates or a reduction in service for non-participating customers, the Company does not believe a contested case proceeding or hearing is required.

Sincerely,



Vice President Business and Regulatory Strategy

dsh

Attachments

PSCW Application for Madison Gas and Electric Company's
Apartment and Workplace Electric Vehicle Managed Charging Pilot Programs

Pursuant to Wis. Stat. §§ 196.19 and 196.20, Madison Gas and Electric Company, a Wisconsin Corporation ("MGE" or "the Company"), a wholly owned subsidiary of MGE Energy, Inc., submits this request for approval of electric vehicle (EV) charging pilot programs (the "Application"). In support of the Application, the Company respectfully states the following:

Background

As described in this Application, the Company proposes an apartment and workplace charging pilot designed to ensure that EV charging benefits non-participating customers by allowing the Company to implement and evaluate load-management strategies.

The opportunity to shift charging to lower-cost periods and stagger start times to smooth load curves will help the Company prepare for an increase in the number of EVs charging on the distribution system and benefit all MGE customers by reducing the need for electrical system upgrades and new distribution and generation facilities. The Company will also test moving charging to times when low-cost renewable generation is available to help us prepare to use vehicle charging as a system resource to manage load and generation as more renewable generation is added to the utility system.

Current Charging Solution

Since 2016, the Company has been providing non-network Level 2 charging stations to apartment property owners and employers (Customers) who want to offer on-site EV charging to their residents and employees.

Customers are eligible for this program if they:

- Use the Company's electricity at their apartment property or business.
- Agree to conduct Driver surveys during the seven-year pilot program term.
- Provide electrical service to power the stations, including cables, conduits, raceways, and circuit breakers.
- Install the charging stations according to the manufacturer's specifications.

Customer Feedback

In spring 2021, the Company recently asked property owners in the apartment charging program to distribute an electronic survey to residents. The response rate was 22%, and approximately 555 residents completed the survey.

Interestingly, 87% of residents support the installation of EV charging stations even though most renters don't currently own or lease an EV, and 55% of residents are likely to consider an EV the next time they are in the market for a vehicle. We also learned that the ability to charge on-site strongly influences their decision to drive an EV. About 73% of residents strongly or somewhat agree they are more likely to consider buying or leasing an EV if they can charge at their apartment.

Survey results from employees who charge at work show similar trends. Workplace charging surveys were distributed to businesses that participate in MGE's workplace charging program. Findings show that 5% of the 640 employees own or lease an EV and 59% support their employer installing on-site charging. Approximately 51% are more likely to consider an EV if their employer offers workplace charging.

Evidently, many of the Company's customers are interested in driving EVs. Auto manufacturers are offering more model options and vehicles with longer driving ranges that will encourage even more customers to switch from gasoline to electric. Concerns over where to charge and range are minimized when customers can charge at home and work.

The City of Madison recently issued Ordinance 28.141(8)(e) - ELECTRIC VEHICLE CHARGING STATION REQUIREMENTS that requires a certain percentage of parking spaces at residential and commercial buildings are "EV Ready" or "EV Installed." While this will help grow the market, the Company is proposing we continue to offer a charging solution for Customers for the following reasons.

It's important that the Company can view and manage charging to understand how EVs will impact the grid. Early on, non-network stations were a low-cost option that met program requirements when demand for on-site charging was low. However, the Company is not able to study or control charging via non-network charging stations as they are stand-alone units not connected to an EV software network. The Company is proposing the installation of network stations for the apartment and workplace charging pilots. Network charging stations are connected to an EV software network that allows MGE to remotely manage charging sessions, view data, and establish charging fees.

- We've also learned that some Customers want residents and employees to pay for charging and are looking for a simple solution to assess charging fees. In our proposed pilot, the Company will provide network stations that operate on charging network software that can track energy use and allow property owners and businesses to get automatically reimbursed.
- The City of Madison ordinance does not require existing apartment and commercial properties to meet the new EV charging requirements, unless a parking lot is modified. MGE's pilot will make it easier for Customers who want to offer on-site charging at existing buildings.
- The pilot avoids the retail sale of electricity to utility customers by a non-utility. Wisconsin State Statutes prohibit the sale of retail electricity by non-utilities to utility customers.

Proposed Apartment and Workplace Charging Pilots
Under the Apartment and Workplace pilot, the Company will add up to 50 Company-owned and Company-maintained Level 2 network charging stations (25 for apartment buildings and 25 for businesses) at eligible Customer locations that want to offer on-site charging for Drivers. Network stations will allow MGE to manage charging and offer a payment solution. Customers who are interested in installing charging stations for car-sharing services are also eligible. Car-sharing services are a good solution at apartment buildings for residents who don't want to own or can't afford a vehicle.

Under the Apartment and Workplace Managed Charging pilot, the Company proposes Customers pay a monthly customer charge on their electric bill. Because program costs are recovered through dedicated customer charges, the program does not rely on cross-subsidization from non-participating, non-EV-owning customers. The charge varies by station configuration. Here's a summary of the daily rate options:

Charging Station Configuration Options	**Daily Rate**
Wall-mounted station without cord management	$1.22
Pedestal station without cord management	$1.35
Wall-mounted station with cord management	$1.41
Pedestal station with cord management	$1.58

A $40 annual credit is factored into the monthly fee to reflect the value the Company will receive from Drivers. The Company will benefit from the ability to manage charging and view charging patterns. In addition, the Company will gain valuable information from Customer survey results.

Customers are also responsible for installing the charging station, including the cables, conduits, raceways, circuit breakers, and related equipment needed to provide adequate power to the charging station.

MGE will repair or replace non-functioning charging stations during the seven-year term, except that damage beyond normal wear and tear, such as misuse or vandalism, will be at the Customer's expense.

The Customer can exit the program during the Initial Term upon thirty (30) days' written notice to the Company and will be responsible for unpaid capital and operation costs. If a Customer terminates service during the Initial Term, the Customer shall purchase the charging station subject to the following schedule.

EV Charging Station & Cord Management Configuration	Buy-out Amount Based on Months Enrolled in Pilot						
	1 - 12	13 - 24	25 - 36	37 - 48	49 - 60	61 - 72	73 - 84
Wall Mounted EV Charger w/ CM	$1,680	$1,420	$1,250	$1,050	$840	$620	$380
Wall Mounted EV Charger w/ No CM	$1,310	$1,100	$970	$830	$680	$520	$350
Pedestal EV Charger w/ CM	$1,960	$1,670	$1,460	$1,220	$960	$690	$410
Pedestal EV Charger w/ No CM	$1,590	$1,340	$1,180	$1,000	$800	$590	$370

Upon termination of service under this Rider by the Company or after the end of the Initial Term, the Company may choose to transfer ownership of the charging station to the Customer or to remove the charging station.

Customer Requirements

- Sign a seven-year agreement.
- Install a charging station and the electrical infrastructure to power the station.
- Allow the Company to manage the charging station by, for example, shifting charging to lower-cost periods or when renewables are available, reducing power during peak times, or staggering start times to avoid rebound peaks.
- Allow MGE to view charging patterns.
- Participate in Customer surveys and provide feedback.

Charging Fees/Payment Solution

Most Customers install charging stations on an existing service, making it impossible to separate charging energy from other building energy uses. The Company is offering a simple solution for Customers who want to get reimbursed for on-site charging. In the description below, the Customer is the property owner or employer. The Driver is the apartment resident or employee.

Here's how it works:

- The Customer signs an agreement with the Company to enroll in the pilot.
- The Company provides a Level 2 charging station.
- The Customer installs the charging station behind the utility meter. Apartment building owners are required to install charging stations in parking stalls assigned to residents, not in a common area.
- The Company sets the Driver fee based on the Customer's weighted average commercial rate. The Driver pays a charging fee plus a 7% transaction fee. The Driver creates an account using a credit card and uses an RFID card or app to initiate charging.
- The charging vendor tracks the energy used via a utility-grade meter in the charging station and collects payment from the Driver.
- The Customer is billed for the electricity measured at the utility meter according to their commercial tariff, which includes electricity consumed for EV charging.
- The Customer is reimbursed for the Driver's charging energy through the charging platform based

on blended commercial rates for each rate class. This will be a weighted average energy rate. The Customer will not be reimbursed for distribution or demand charges.

Performance Goals and Metrics Tracking and Reporting

Following are the Company's proposed apartment and workplace charging performance goals and metrics. The Company will summarize learnings and submit a detailed program report every year.

Customer Satisfaction

To measure customer satisfaction, the Company will distribute an annual electronic survey to pilot Customers and Drivers to help ensure we continue to meet Customer needs and to request regulatory approval to modify pilot requirements, as needed. The survey will collect information on several Customer and/or Driver satisfaction variables, including perceived program value, charging behavior, convenience of managed charging, and marketing campaign effectiveness. The Company will also gather information to understand Driver acceptance of managed charging events.

Based on our experience with Charge@Home, customers respond positively to managed charging with one opt-out since the program was launched in 2016. A 2020 customer survey showed approximately 54% of participants thought managed charging was convenient, while 42% said it was neither convenient nor inconvenient. The Company anticipates apartment residents may have a similar response, but there may be differences.

Customer satisfaction will also be measured by pilot enrollment and retention. The Company will document why Customers sign up for and exit the pilot. Customer feedback will inform future pilot design. The Company projects the churn rate will be lower than Charge@Home, as property owners and businesses are likely to leave in stations even if Drivers move or change employers.

Program Costs

The Company will monitor equipment costs, as well as network fees, to ensure vendor pricing is competitive and in line with market prices. The Company may request to revise Customer charges if additional functionality is available or equipment or software costs increase or decrease.

Load Management

The Company will monitor charging behavior for approximately 90 days to better understand apartment and workplace charging behavior. After we better understand charging patterns, the Company will use the network software to remotely manage Drivers' charging sessions. For example, the Company may curtail or reduce power to charging stations during peak periods, stagger start times to spread charging over off-peak periods at apartment buildings, or initiate charging when renewable energy such as solar or wind is available.

The Company will be able to view detailed information about Drivers' charging behavior via the software portal, including when, where, and how long they charge. The Company has learned that Charge@Home participants enrolled in the Company's Rg-1 rate often start charging during peak hours, likely when they get home from work. The Company could see similar behavior at apartment buildings. Information on charging patterns helps guide the Company's current and future load-management strategies to ensure charging occurs when electricity prices are low, capacity is available, or renewable sources are online.

The Company will initiate managed charging events and track results, including participation and if demand reduction or load shifting is achieved. The Company will share a summary of managed charging in the annual program report.

The Company will continue to upload detailed information about apartment and workplace charging stations in our GIS system. This allows the Company's electric system planning group to track where charging is occurring, understand EV loading on distribution circuits, and plan for the long-term impacts higher EV growth on the Company feeders. Early studies indicate there is direct capital savings if the Company can shift load away from system peak conditions with managed charging. The Company will share future findings with our planners.

In addition to load-management data, the Company will report on participant charging patterns, including data such as energy usage, number of charging sessions, session length, and average power demand.

Program Benefits

EV charging can provide benefits to all customers, not just EV drivers. Access to charging was identified as a significant barrier to EV adoption in the Investigation of Electric Vehicle Policy and Regulation (5-EI-156). Apartment charging makes it easier for Drivers living in apartments to charge at home. Workplace charging makes it easier for Drivers with longer commutes to get to and from work without having to worry about range.

The Company offers convenience by providing a Level 2 charging station with no up-front costs. Customers pay a low monthly fee for the charger over a seven-year period via their electric bill. Affordable apartment and workplace charging solutions are important to EV adoption. The pilot also provides an easy way to reimburse Customers for charging energy.

If EV charging isn't managed, there is a potential for a negative grid impact. The Company's pilots will allow us to manage charging and better understand customers' charging patterns and preferences.

There are many grid benefits from the growth of electric transportation, including increased load factor, improved system efficiency, and downward pressure on electric rates. EV charging that occurs when the grid has available capacity improves grid efficiency, potentially lowering the average costs to serve all customers.

Eligibility Criteria

- Commercial electric Customers enrolled in Cg-2, Cg-3, Cg-4, Cg-5, Cg-6, and Sp-3 with no past-due bills.
- Customers must install charging stations in dedicated parking stalls.
- Customers agree to allow the Company to view charging data and manage charging sessions.
- Property must have enough space for locating and maintaining the charging equipment.

Marketing and Education

Most light-duty vehicle drivers will charge at home or at work, making the Company an energy and fuel provider. The Company helps customers understand the cost to "fuel" their vehicles and promotes the pilot to make charging easy and convenient.

In addition, the Company's outreach and education programs provide customers with information on the benefits of EVs and help dispel misinformation. The Company frequently communicates with customers and offers tools to help with decision-making, including an EV website, an online cost comparison tool, and a fleet analysis for business customers.

The Company will employ a variety of low-cost communication methods, including customer newsletters, email campaigns, social media, web content, and events to inform customers on charging pilots and the benefits of driving electric. The Company has already established relationships with

apartment developers, and they look to the Company for guidance on EV charging. In addition, the Company has been educating Customers on workplace charging through our account management staff for several years. Account managers will be informed on the pilot parameters and requirements so they can educate business customers.

The Company launched an EV website in 2019 (LovEV) that delivers information on Company programs and resources, including apartment and workplace charging. The Company provides tools, information, and support to Customers that want to install charging stations for residents and employees.

Customer education has been identified as a key strategy to aid transportation electrification. The Company will continue to launch extensive and cost-effective education and marketing campaigns. The goals are to ensure customers understand the benefits of driving electric and are aware of programs like these two pilots that offer customer value and allow the Company to manage charging.

Interoperability
The Company has selected a charging station manufacturer and charging network software provider that are Open Charge Point Protocol (OCPP) compliant. Open standards offer multiple hardware and software choices for Customers.

Waiver Request
Pursuant to Wis. Admin. Code PSC § 113.01(2), the Company hereby requests that the Commission grant a waiver from certain meter-related rule subparts that are inconsistent with the Company's proposal, including some subparts outlined in Wis. Admin. Code PSC §§ 113.0406, 113.0407, 113.08, and 113.09 and in the Company's tariff for the implementation of the Apartment and Workplace Charging Pilot. The Company proposes not to define charging equipment as "metering equipment" for purposes of this pilot and the above-cited rules and tariff and instead that the equipment be governed by the specific provisions in the Company's proposed tariff and Customer agreement. The Company believes this request is reasonable given the interest in using the charging station's submeter technology to enhance Customer experience and lower Customer participation costs.

Specifically, the Company requests that meter-related provisions in the code and its tariffs that are inconsistent with its proposal not apply to the EV charging unit's submeter, including waivers related to billing:

- Wis. Admin. Code § PSC 113.0406(1)(a)3., 4., and 5. pertaining to information displayed on customer bills.
- Wis. Admin. Code § PSC 113.0406(1)(c) and Schedule Ex.-15, Section 3.3, pertaining to marking bills based on usage measured by the EV charger, as estimated.
- Wis. Admin. Code § PSC 113.0406(3) pertaining to identifying credits and original charges for meter inaccuracies, errors in billing, or misapplication of rates.

The Company will include language in the Customer Service Agreement and tariff sheets informing Customers what will happen in the event of a submeter error in tracking EV charging usage.

Accounting Treatment
The purchase of the EV charging equipment that will be used for the Apartment and Workplace Charing Pilot will be capitalized as an electric distribution asset to FERC Account 101, Plant in Service in Plant Account 371, Installations on Customers' Premises. In its next rate filing, the Company will request that the capitalized costs be allowed in rate base and that the Company receive a return on investment.

The Company is not requesting a deferral in this Application for revenue requirement impacts of the EV Service Programs. The Company anticipates the revenues generated by this pilot to provide sufficient revenue requirement recovery. Any revenue requirement adjustments to cost recovery will be addressed in the next rate case.

Apartment and Workplace Electric Vehicle Managed Charging Experimental Pilot Rider

AVAILABILITY

Service under this voluntary rider is available to commercial customers (Customer) on Rate Schedules Cg-2, Cg-3, Cg-4, Cg-5, Cg-6, or Sp-3 who contracts for a charging station(s) for a period of seven (7) years and allows their employee/tenant (User) to charge a plug-in electric vehicle (EV) at their workplace/apartment building. Apartment building Customers must install charging stations in a dedicated spot used by one User so Company can manage charging.

Customers agree to allow MGE (Company) to manage vehicle charging and view User charging patterns. For example, the Company may reduce power to the EV charger during peak periods, shift EV charging to lower-cost periods, stagger EV charging start times to reduce rebound peaks, or initiate EV charging sessions when renewables are available. Users may opt-out of individual managed charging events if they need to charge their vehicle immediately.

Managed charging benefits to the Company, Customer, and Users may include, but are not limited to:

- Better understanding of how EVs will impact the distribution system and thereby help minimize electric infrastructure upgrades;
- Ability to reduce Company, Customer, and User system and peak demand requirements;
- Ability to shift energy consumption from peak to off-peak periods to reduce Company demand requirements and avoid high peak energy costs; and
- Provide a positive User experience.

The Company will spend ninety (90) days evaluating driver charging behavior before we implement charging strategies.

Participation in this pilot program will be limited to a maximum of 25 Users annually. The Company is implementing this rider as an experimental pilot and reserves the right to discontinue this rider program at any time.

RATE

All the provisions of the applicable Cg-2, Cg-3, Cg-4, Cg-5, Cg-6, or Sp-3 rate schedules will apply with the exception that customers served on this rider will have an additional charge based on the EV charger (hereafter referred to as the "Charging Station") the Customer selects. Rates are based on whether the Customer chooses a cord management system. The rates will not change over time. Rates will continue until the Customer or Company terminates service.

Rate options for Charging Station Configurations:

- $1.41/Day for Wall-Mounted Charging Station with Cord Management;
- $1.22/Day for Wall-Mounted Charging Station without Cord Management;
- $1.58/Day for Pedestal Charging Station with Cord Management; or
- $1.35/Day for Pedestal Charging Station without Cord Management.

CONDITIONS OF DELIVERY

1. The Customer shall, at the Customer's sole cost and expense, (a) install the Charging Station, and (b) install, own, operate, and maintain the cables, conduits, raceways, circuit breakers, and related equipment needed to provide adequate power to the Charging Station from the Customer's electrical panel (the "Electrical Facilities").

Apartment and Workplace Electric Vehicle Managed Charging Experimental Pilot Rider

CONDITIONS OF DELIVERY (continued)

2. The Company has the right to inspect and verify the Electrical Facilities that supply power to the Charging Station. The Company has the right to use the Customer's Electrical Facilities to power the Charging Station. The Company has the right to reasonable access over the property where the Charging Station is installed to access the Charging Station and perform any of the Company's obligations under this Rider.

3. The Company has general responsibility for maintaining and servicing the Charging Station. However, any damage beyond normal wear and tear including, but not limited to, misuse or vandalism shall be at the Customer's expense.

4. The Customer shall promptly report any damage to the Charging Station or functional issues with the Charging Station to the Company. The Customer shall not permit any activities on the property where the Charging Station is installed that have the potential to damage or adversely impact the Charging Station.

5. The Company will not be liable for any damages arising out of use of the Charging Station. The Customer shall indemnify, defend, and hold harmless the Company and its employees, officers, directors, agents, insurers, and contractors (collectively, "Indemnified Parties") from and against any and all claims, demands, actions, suits, damages, liabilities, losses, settlements, judgments, costs, and expenses (including reasonable attorneys' fees and costs), whether or not involving a third-party claim, arising from or in any way related to the Charging Station, whether or not caused by the sole negligence of any Indemnified Party. This indemnification shall survive (a) termination or expiration of this Rider and (b) transfer of ownership of the property on which the Charging Station is installed.

6. Participation in the program is for a seven- (7) year term ("Initial Term"). Upon completion of the Initial Term, service under this Rider will continue until thirty (30) days after written notice of termination provided by either party to the other party.

7. The Company may terminate service under this Rider during the Initial Term, at the Company's discretion, upon thirty (30) days' written notice to the Customer. The Customer may terminate service under this Rider during the Initial Term, upon thirty (30) days' written notice to the Company, by purchasing the Charging Station subject to the following schedule:

EV Charging Station and Cord Management Configuration	Buy-Out Amount Based on Months Enrolled in Pilot						
	1-12	13-24	25-36	37-48	49-60	61-72	73-84
Wall-Mounted EV Charging w/ CM	$1,680	$1,420	$1,250	$1,050	$840	$620	$380
Wall-Mounted EV Charger w/o CM	$1,310	$1,100	$ 970	$ 830	$680	$520	$350
Pedestal EV Charger w/ CM	$1,960	$1,670	$1,460	$1,220	$960	$690	$410
Pedestal EV Charger w/o CM	$1,590	$1,340	$1,180	$1,000	$800	$590	$370

8. Upon termination of service under this Rider by the Customer or after the end of the Initial Term, the Company may choose to transfer ownership of the Charging Station to the Customer or to remove the Charging Station.

Apartment and Workplace Electric Vehicle Managed Charging Experimental Pilot Rider

9. The availability of service may be limited at the discretion of the Company. For example, service may be refused if a customer's charging activities are not good candidates for this research or based on bill payment and collection history.

10. Due to the fact this service is optional and increases utility bills, the Company may limit customer participation in the program based on bill payment and collection history.

11. Customers' vehicle charging sessions will be subject to management by the company.

12. Service under this rate will be furnished only in accordance with the Electric Service Rules and Regulations of the Company.

USER BILLING

The Company recognizes the Customer may not be willing to provide its User(s) access to an EV Charging Station with no ability to share energy costs with its User(s). The Company also recognizes the Customer is restricted from selling energy to a User for EV charging or any other purpose. To overcome these barriers, the Company is offering the Customer a voluntary payment solution whereby a Customer may request reimbursement from the User for EV charging energy costs.

Should the Customer instruct the Company to recover the cost of EV charging energy from the User, the Company will use a customer interface platform (Platform) to provide billing/reimbursement services. The User's EV Charging sessions will be measured by the Charging Station's sub-meter to measure User energy consumption. The Platform will charge the User and reimburse the Customer at the Cg-4 base energy commercial rate ($0.06043 per kWh in 2022). The Platform will calculate User amounts due and Customer reimbursements. The Platform will bill the User's banking account for energy usage and deposit this amount to the Customer's banking account. Billing adjustments will not be made to either the Customer or User in the event of sub-meter errors in tracking EV charging usage.

PSCW Application for Madison Gas and Electric Company's
Electric Vehicle Managed Fleet Charging Pilot

Background

The availability of electric pickups, vans, and larger trucks is encouraging more business customers to consider electric vehicles (EVs). With more fleets considering EVs, Madison Gas and Electric Company ("MGE" or "the Company") needs to find ways to effectively manage vehicle charging to ensure all customers benefit from better system utilization that will lower costs for all customers.

As described in this Application, the Company proposes a fleet charging pilot. The Company will provide details on how the pilot will help ensure that EV charging benefits non-participating customers by allowing the Company to implement and evaluate load-management strategies. The opportunity to shift charging to lower-cost periods and stagger start times to smooth load curves will help the Company prepare for an increase in the number of EVs charging on the distribution system and will benefit all MGE customers by reducing the need for electrical system upgrades and new distribution and generation facilities. The Company will also test moving charging to times when renewable generation is available to help us prepare to use vehicle charging as a system resource to manage load and generation as more renewable generation is added to the utility system.

Customer Feedback

In 2020, the Company conducted a study to learn more about business customers' fleet operations. The results showed that many business customers are in a good position to add EVs. Here's what we learned:

- Pickup trucks were the most common company vehicle. Several automakers, including Ford and Tesla, have announced electric pickup models that will be available starting in 2022.
- Over half of respondents reported 81% to 100% of their fleet vehicles park on company property overnight, making it easier for vehicles to charge during off-peak times.
- Nearly 60% of respondents reported more than 80% of their vehicles travel fewer than 250 miles a day. Many auto manufacturers offer models that travel more than 250 miles on a single charge.
- Lower fuel costs and lower emissions were the top two reasons for investigating EVs.
- Up-front costs were the top concern regarding an EV purchase.
- The most cost-effective and practical approach for most fleets is on-site charging.

Proposed Fleet Charging Pilot

The Company is requesting the Commission review and approve an Electric Vehicle Fleet Charging Pilot that is designed to manage the charging of fleet vehicles in a manner to reduce the impact fleet charging may have on the electrical system. Under the Fleet Charging Pilot, up to 15 Level 2 network Company-owned and Company-maintained charging stations would be added per year at customer locations to charge business vehicles. Network stations will allow the Company to obtain energy use and manage charging when appropriate. The pilot is also available to customers who need charging stations for public car-sharing services.

Under the fleet pilot, the Company proposes customers pay a monthly customer charge on their electric bill. Because program costs are recovered through dedicated customer charges, the program does not rely on cross-subsidization from non-participating, non-EV-owning customers. The charge varies by station configuration. Here's a summary of the daily rate options:

Charging Station Configuration Options	Daily Rate
Wall-mounted station without cord management	$1.28
Pedestal station without cord management	$1.78
Wall-mounted station with cord management	$1.87
Pedestal station with cord management	$2.10

The charge is intended to recover charging station costs, network fees, maintenance, and in some cases the cord management system. A credit of $40 per year is built into the monthly fee for allowing the Company to manage charging. Customers are also responsible for installing the charging station including the cables, conduits, raceways, circuit breakers, and related equipment needed to provide adequate power to the charging station.

MGE will repair or replace non-functioning charging stations during the seven-year term, except for damage beyond normal wear and tear, such as misuse or vandalism, will be at the customers' expense.

The customer can exit the program during the Initial Term upon thirty (30) days' written notice to the Company and will be responsible for unpaid capital and operation costs. If the customer terminates service during the Initial Term, the customer shall purchase the charging station subject to the following schedule:

EV Charging Station & Cord Management Configuration	Buy-out Amount Based on Months Enrolled in Pilot						
	1 - 12	13 - 24	25 - 36	37 - 48	49 - 60	61 - 72	73 - 84
Wall Mounted EV Charger w/ CM	$1,680	$1,430	$1,260	$1,060	$840	$610	$360
Wall Mounted EV Charger w/ No CM	$2,720	$2,330	$2,020	$1,670	$1,290	$890	$450
Pedestal EV Charger w/ CM	$2,570	$2,200	$1,910	$1,580	$1,230	$850	$440
Pedestal EV Charger w/ No CM	$3,130	$2,700	$2,330	$1,920	$1,470	$1,000	$490

Upon termination of service under this rider by the Company or after the end of the Initial Term, the Company may choose to transfer ownership of the charging station to the customer or to remove the charging station.

Customer Requirements

- Allow the Company to manage charging station by, for example, shifting charging to lower-cost periods or when renewables are available, reducing power during peak times, or staggering start times to avoid rebound peaks. The Company understands that some business customers may need to charge during the day and will work with them to identify managed charging scenarios that will not disrupt operations.
- Participate in customer surveys and provide feedback.
- Allow the Company to view charging patterns.
- Pay a monthly charge based on charging station configuration and enter into a seven-year agreement.
- Install charging station(s) and electrical infrastructure to power the station.

Performance Goals and Metrics

Following are the Company's proposed fleet charging performance goals and metrics. The Company will summarize learnings and submit a detailed program report every year.

Charging Patterns and Load Management
The Company will monitor charging for approximately 90 days to better understand charging behavior. After the 90 days, the Company may use the network software to remotely manage charging sessions. For example, the Company may curtail or reduce power to charging stations during peak periods, initiate charging when low-cost renewables are available, or stagger start times to spread charging over off-peak periods. The Company will ensure managed charging protocols are not disruptive and business customers have fully charged vehicles when needed.

The Company will be able to view detailed information about drivers' charging behavior via the network software, including when, where, and how long they charge. Information on charging patterns helps guide the Company's current and future load-management strategies to ensure charging occurs when electricity prices are low, capacity is available, or renewable sources are online.

The Company will initiate managed charging events and track results including participation and if demand reduction or load shifting is achieved. The Company will share a summary of managed charging in the annual program report.

The Company will continue to upload detailed information about fleet charging stations in our GIS system. This allows the Company's electric system planning group to track where charging is occurring, understand EV loading on distribution circuits, and plan for the long-term impacts higher EV growth has on the Company feeders. Early studies indicate there is direct capital savings if the Company can shift load away from system peak conditions with managed charging. The Company will share future findings from our distribution planning group.

In addition to load management data, the Company will report on participant charging patterns, including energy usage, number of charging sessions, session length, and average power demand.

Customer Satisfaction
To measure customer satisfaction, the Company will distribute an annual electronic survey to participating business customers to help ensure we continue to meet customer needs and identify modifications to pilot requirements, as needed. The survey will collect information on several customer satisfaction variables, including perceived program value, charging behavior, convenience of managed charging, and marketing campaign effectiveness. The Company will also gather information to understand customer acceptance of managed charging events.

Customer satisfaction will also be measured by pilot enrollment and retention. The Company will document why customers sign up for and exit the pilot and use customer feedback to inform future pilot design. The Company projects the churn rate will be lower than Charge@Home, as business customers are less likely to move their fleet operations. Charge@Home has a retention rate higher than 95%.

Program Costs
The Company will monitor equipment costs, as well as network fees, to ensure vendor pricing is competitive and in line with market prices. The Company may request to revise customer charges if additional functionality is available, tax credits become available for EV charging infrastructure, or equipment or software costs increase or decrease.

Program Benefits
If EV charging isn't managed, there is a potential for negative grid impacts. The EV Fleet Charging Pilot will allow the Company to manage charging and better understand customers' charging patterns and preferences. Business customers will also be able to view their charging information so they learn how to schedule charging to meet their businesses needs and manage fuel costs.

There are many grid benefits from the growth of electric transportation, including increased load factor, improved utilization of the grid, and downward pressure on electric rates. EV charging that occurs when the grid has available capacity improves grid efficiency, potentially lowering the average costs to serve all customers.

Network charging stations will allow the Company to study charging and identify managed charging solutions that help reduce the impact of EVs on the grid while ensuring fleets have vehicles charged and ready when needed.

The Company wants to be at the forefront as business customers transition to electric transportation so we can prepare for this new load. The Company also wants to engage customers early in the vehicle procurement cycle so fleet operators understand costs, rate options, and electrical requirements and can take advantage of the Company's fleet tools and resources.

The Company's pilot will offer convenience and lower up-front costs. Companies like UPS are asking utilities to help them offset charging infrastructure costs and will select sites for EV deployment based on utility programs, rates, and grant opportunities. The Company's pilot will allow business customers to pay a low monthly fee on their electric bill for the charger over a seven-year period. Affordable charging solutions are important to EV adoption with the higher up-front costs business customers face.

Eligibility Criteria
- Commercial electric customers enrolled in Cg-2, Cg-3, Cg-4, Cg-5, Cg-6, and Sp-3 rates with no past-due bills.
- Business customers agree to allow the Company to view charging data and manage charging sessions.
- Property must have enough space for locating and maintaining the charging equipment.

Marketing and Education
The Company's outreach and education programs provide customers with information on the benefits of EVs and help dispel misinformation. The Company frequently communicates with business customers and offers tools to help with decision-making, including an EV website and EV Fleet Analysis.

The Company will employ a variety of low-cost communication methods, including customer newsletters, email campaigns, social media, web content, and events to make business customers aware of the EV Fleet Charging Pilot and the benefits of driving electric. The Company has been educating business customers about charging costs and programs through our account management team for several years. Account managers will be informed on the pilot parameters and requirements so they can communicate with business customers and assist with enrollment.

The Company launched an EV website in 2019 (LovEV) that delivers information on the Company's programs and resources for fleet electrification. The Company provides tools, information, and support to business customers who want to install charging stations for fleet vehicles. The Company will add information on the EV Fleet Charging Pilot. Customers can also find information on the EV Fleet Analysis,

a list of available medium- and heavy-duty EVs, an Edison Electric Institute guide for working with utilities, and articles and videos that feature business customers who have successfully transitioned from gasoline or diesel to electric.

Customer education has been identified as a key strategy to aid transportation electrification. The Company will continue to launch extensive and cost-effective education and marketing campaigns. The goal is to ensure customers understand the benefits of driving electric and are aware of programs like the Electric Vehicle Fleet Charging Pilot that offer customer value and allow the Company to manage charging.

Interoperability
The Company has selected a charging station manufacturer that is Open Charge Point Protocol (OCPP) compliant. Open standards offer multiple hardware and software choices for customers.

Accounting Treatment
The purchase of the EV charging equipment that will be used for the EV Fleet Charging Pilot will be capitalized as an electric distribution asset to FERC Account 101, Plant in Service in Plant Account 371, Installations on Customers' Premises. In its next rate filing, the Company will request that the capitalized costs be allowed in rate base and that the Company receive a return on investment.

The Company is not requesting a deferral in this Application for revenue requirement impacts of the EV Service Programs. The Company does not anticipate the revenue requirement impact in 2022 to be substantial. The Company will update cost recovery differentials in its next rate case.

Fleet Electric Vehicle Charging Experimental Pilot Rider

AVAILABILITY

Service under this voluntary rider is available to any commercial customer (Customer) on Rate Schedules Cg-2, Cg-3, Cg-4, Cg-5, Cg-6, or Sp-3 who contracts for an electric vehicle (EV) charging station for seven (7) years.

Participating Customers will allow the Company to optimize EV charging and view charging data so the Company can analyze energy use, vehicle charging patterns, and reactions to managed charging. The Customer will also allow the Company to remotely manage their vehicle charging sessions during periods of high demand, high energy cost, when renewables are available and/or for testing purposes. Users may opt-out of individual managed charging events if they need to charge their vehicle immediately. The Company will monitor charging for ninety (90) days before implementing manage charging strategies to ensure business operations are not interrupted.

The Company is implementing this rider as an experimental pilot and reserves the right to discontinue this rider program at any time. Until service is terminated, the program rate detailed in the following section will continue.

Participation on this pilot program will be limited to a maximum of 15 EV charging stations.

RATE

All the provisions of the applicable Cg-2, Cg-3, Cg-4, Cg-5, Cg-6, or Sp-3 rate schedules will apply with the exception that Customers served on this rider will have an additional charge based on the charger selected. Rates are based on whether the Customer chooses a cord management system.

Customer rate options for Fleet charging stations ($ per Day):

- $1.87 Wall Mount Charging Station with Cord Management
- $1.28 Wall Mount Charging Station without Cord Management
- $2.10 Pedestal Mount Charging Station with Cord Management
- $1.78 Pedestal Mount Charging Station without Cord Management

CONDITIONS OF DELIVERY

1. The Customer shall, at the Customer's sole cost and expense, (a) install the Charging Station, and (b) install, own, operate, and maintain the cables, conduits, raceways, circuit breakers, and related equipment needed to provide adequate power to the Charging Station from the Customer's electrical panel (the "Electrical Facilities").

2. The Company has the right to inspect and verify the Electrical Facilities that supply power to the Charging Station. The Company has the right to use the Customer's Electrical Facilities to power the Charging Station. The Company has the right to reasonable access over the property where the Charging Station is installed to access the Charging Station and perform any of the Company's obligations under this Rider.

3. The Company has general responsibility for maintaining and servicing the charging station. However, any damage beyond normal wear and tear including, but not limited to, misuse or vandalism shall be at the Customer's expense.

4. The Customer shall promptly report any damage to the Charging Station or functional issues with the Charging Station to the Company. The Customer shall not permit any activities on the property where the Charging Station is installed that have the potential to damage or adversely impact the Charging Station.

Fleet Electric Vehicle Charging Experimental Pilot Rider

CONDITIONS OF DELIVERY (continued)

5. The Company will not be liable for any damages arising out of use of the charging station. The Customer shall indemnify, defend, and hold harmless the Company and its employees, officers, directors, agents, insurers, and contractors (collectively, "Indemnified Parties") from and against any and all claims, demands, actions, suits, damages, liabilities, losses, settlements, judgments, costs, and expenses (including reasonable attorneys' fees and costs), whether or not involving a third-party claim, arising from or in any way related to the Charging Station, whether or not caused by the sole negligence of any Indemnified Party. This indemnification shall survive (a) termination or expiration of this Rider and (b) transfer of ownership of the property on which the Charging Station is installed.

6. Participation in the program is for a seven- (7) year term ("Initial Term"). Upon completion of the Initial Term, service under this Rider will automatically renew for successive one- (1) year terms ("Renewal Term"), unless MGE or Customer provide written notice to the other at least ninety (90) days before the expiration of the Initial Term or any Renewal Term of a desire to terminate service.

7. The Company may terminate service under this Rider during the Initial Term, at the Company's discretion, upon thirty (30) days' written notice to the Customer. The Customer may terminate service under this Rider during the Initial Term upon thirty (30) days' written notice to the Company. If Customer terminates service under this Rider during the Initial Term, Customer shall purchase the Charging Station subject to the following schedule:

EV Charging Station and Cord Management Configuration	Buy-Out Amount Based on Months Enrolled in Pilot						
	1-12	13-24	25-36	37-48	49-60	61-72	73-84
Wall-Mounted EV Charging w/ CM	$1,680	$1,430	$1,260	$1,060	$ 840	$ 610	$360
Wall-Mounted EV Charger w/o CM	$2,720	$2,330	$2,020	$1,670	$1,290	$ 890	$450
Pedestal EV Charger w/ CM	$2,570	$2,200	$1,910	$1,580	$1,230	$ 850	$440
Pedestal EV Charger w/o CM	$3,130	$2,700	$2,330	$1,920	$1,470	$1,000	$490

8. Upon termination of service under this Rider by the Company or after the end of the Initial Term, the Company may choose to transfer ownership of the Charging Station to the Customer or to remove the Charging Station.

9. Customer agrees to any transfer of ownership of the Charging Station from Company to Customer described in Sections 7 and 8 herein.

10. The availability of service may be limited at the discretion of the Company. For example, service may be refused if a Customer's charging activities are not good candidates for this research or based on bill payment and collection histories.

11. Customers' vehicle charging sessions may be subject to interruption and power reduction.

12. Service under this rate will be furnished only in accordance with the Electric Service Rules and Regulations of the Company.

Electric Vehicle Managed Charging Rewards Pilot (Charge Ahead)

Background

Managed charging will help ensure that electric vehicle (EV) charging benefits non-participating customers by allowing Madison Gas and Electric Company ("MGE" or "the Company") to implement and evaluate load-management strategies. The opportunity to shift charging to lower-cost periods and stagger start times to smooth load curves will help the Company prepare for an increase in the number of EVs charging on the distribution system and will benefit all MGE customers by reducing the need for electrical system upgrades and new distribution and generation facilities. The Company can also test moving charging to times when low-cost renewable generation is available to help us prepare to use vehicle charging as a system resource to manage load and generation as more renewable generation is added to the utility system.

MGE researches and monitors the EV market to identify new technologies and trends. MGE has been ahead of the curve by uncovering and evaluating solutions for easier, faster, and more cost-effective charging. The Charge@Home program has been very successful, with about 150 customers currently enrolled. However, research shows that customers have more options for buying and installing charging stations or may no longer need a charging station at all to charge at Level 2 (240 volts).

Automakers are offering charging solutions. For example, customers can now charge with a 240-volt cord instead of installing a charging station, reducing their up-front costs as they transition to electric. The cords come with the vehicle or can be purchased from the automakers. In addition, customers can purchase charging stations when they buy or lease an EV. Some automakers, like Chevrolet, will also coordinate station installation with a local electrician. Customers, particularly those with plug-in hybrid electric vehicles, can charge at Level 1, which does not require a charging station. While there is still strong interest in Charge@Home, MGE realizes we need to find alternatives so we can continue to work with our customers to manage charging activity.

One solution is using vehicle telematic network software. Telematic software communicates with on-board vehicle modems, giving MGE access to remotely control charging.

Vehicle Telematics Demonstration Project

In March 2020, MGE launched a vehicle telematics demonstration project called Charge Ahead. Vehicle telematic software allows MGE to view and manage charging without requiring customers to install a charging station or a second electric meter, which saves the customer money.

Charge Ahead Project Goals

The goal of Charge Ahead was to test the technology and evaluate customer response. Vehicle telematics allow insight into the state of charge of the battery, which allows the Company to ensure a more positive charging experience. Customers provide a need-by time and enable smart charging, and the software optimizes charging. Customers can "boost" the charge using the customer application to opt out of a managed charging event if they need their vehicle charged earlier than usual. MGE believes a "set-it-and-forget-it" approach will be appealing to customers, particularly as we transition from early adopters to mainstream EV owners.

Another project goal was to evaluate customer response to a monthly reward for positive charging behavior in lieu of a lower kilowatt-hour (kWh) charge or bill credit. A monthly reward may help motivate customers to charge off-peak, similar to a time-of-use or EV rate, without requiring the customer to move other loads to off-peak or pay for a second meter.

Customer Selection and Assignment
MGE recruited 17 electric customers who own Tesla EVs. Tesla drivers were selected because Tesla has an open application programming interface (API), a software interface, and approximately 40% of registered EVs in MGE's service territory are Teslas.

The Company asked customers how they were charging at home. Five were using a 240-volt charging cord, two were charging at Level 1, and the rest had installed Level 2 charging stations, mostly Tesla models.

Customers were assigned to one of three charging groups. Group description and results are described below:

- Group One: Optimize charging to off-peak times for customers enrolled in the Rg-1 rate. Customers received a monthly $5 PayPal deposit if at least 80% of their charging occurred during off-peak times.
    - Results: An average of 93% of charging loads were shifted to off-peak hours.
- Group Two: Customers earned one point if they did not plug in during a demand respond event or allowed MGE to curtail charging from 4 to 7 p.m. One point was equal to one dollar with no more than five events per month. Customers could accumulate five points to redeem a $5 PayPal deposit.
    - Results: Approximately 92% of charging loads were curtailed or avoided during managed charging events.
- Group Three: Customers already enrolled in MGE's Shift & Save (time-of-use) rate benefited from energy savings by charging during off-peak periods.
    - Results: An average of 95% of charging loads were optimized to off-peak hours.

MGE was able to successfully optimize charging to off-peak times and reduce charging from 4 to 7 p.m. during the six-month pilot.

MGE also learned that only about 2.7% of charging was boosted and 21% of charging happened away from home. This data matches national research that shows about 80% of charging happens at home. The Company did not receive any customer complaints or requests to be removed from the project, and all customers accepted the monthly PayPal deposits with no issues or complaints.

Proposed Electric Vehicle Rewards Pilot
MGE is requesting the Commission review and approve an Electric Vehicle Rewards Pilot (Charge Ahead) that will test using vehicle telematics to optimize charging to off-peak times or charging when low-cost renewable energy is available. Customers will be rewarded with quarterly PayPal or Venmo deposits. The two-year pilot will evaluate the technology and customer behavior with up to 200 residential electric customers.

MGE will expand the Charge Ahead project to include Charge@Home participants and customers who drive EVs manufactured by Tesla, Volkswagen, Chevrolet, BMW, Jaguar, Land Rover, Ford, Audi, and other manufacturers as they become available. The software can integrate with ChargePoint charging stations and on-board modems via an API so MGE can manage and view charging. Drivers will be able to provide their "need-by time," view their charging behavior, track rewards, and opt out of managed charging via a customer application.

Pilot Details and Customer Benefits
Access to charging was identified as a significant barrier to EV adoption in the Investigation of Electric Vehicle Policy and Regulation (5-EI-156). Since about 80% of charging happens at home and the market is transitioning to lower-cost charging options, it's important to consider and evaluate Charge@Home alternatives.

The Charge Ahead pilot will leverage existing ChargePoint stations installed under the Charge@Home program or vehicle telematics. Customers will not be required to install a second meter or submeter or to have their entire electric service on a time-of-use rate. In addition, the pilot will help MGE evaluate a "set-it-and-forget-it" solution for home EV charging and learn if an off-bill incentive (PayPal or Venmo deposit) delivers similar or superior results to a bill credit or lower per-kWh rate pricing.

Customers will be assigned to one of two groups:

Group One: MGE will optimize charging to off-peak times for customers enrolled in the Rg-1 Residential Service Rate. Customers will earn PayPal or Venmo deposits if 80% of their monthly charging is shifted to off-peak hours. MGE will provide an $8 reward from June through August. A $4 reward will be provided from September through May. MGE will distribute rewards quarterly.

Group Two: MGE will optimize charging to off-peak times for customers enrolled in the Rg-2 Residential Optional Time-of-Use Rate. Customers will benefit from a lower kWh rate.

Customers will be able to manage their rewards via the app, as well track EV electricity consumption and costs at home and on the go.

Customer Requirements
- Residential electric customers who own or lease a compatible vehicle (Tesla, Volkswagen, Chevrolet, BMW, Jaguar, Land Rover, and other manufacturers as they become available) with no past-due bills.
- Residential customers enrolled in Charge@Home (Home Electric Vehicle Charging Experimental Pilot Rider, Rate Schedule EV-1) with no past-due bills.
- Participate in customer surveys and provide feedback.
- Allow MGE to optimize charging to off-peak hours (see group descriptions above). In the future, MGE may also test shifting charging to high-capacity periods or when renewables are available.
- Allow MGE to view charging patterns.

Performance Goals and Metrics
Following are MGE's proposed Charge Ahead performance goals and metrics. MGE will summarize learnings and submit a detailed program report every year.

Charging Patterns and Load Management
MGE will use the vehicle telematic network software to remotely manage drivers' charging sessions to off-peak hours. In addition, the network software automatically staggers start times to optimize charging overnight. This prevents rebound peaks at the start of our off-peak rate period.

MGE will be able to view detailed information about drivers' charging behavior via the network software, including when, where, and how long customers charge and if they "boost" out of managed charging. Information on charging patterns helps guide MGE's current and future load-management strategies to ensure charging occurs when electricity prices are low, capacity is available, or renewable sources are online.

MGE will continue to upload detailed information about home charging activity in our GIS system. This allows MGE's electric system planning group to track where charging is occurring, understand EV loading on distribution circuits, and plan for the long-term impacts of higher EV growth on MGE feeders. Early studies indicate there are direct capital savings if MGE can shift load away from system peak conditions with managed charging. MGE will share future findings from our distribution planning group.

In addition to load management data, MGE will report on participant charging patterns, including data such as energy usage, number of charging sessions, session length, and average power demand.

Program Benefits For All Electric Customers

EV charging can provide benefits to all customers, not just EV drivers, when charging occurs at times when the demand for electricity is low. More efficient use of the distribution grid may lower costs for all customers and reduce the need for expensive infrastructure upgrades.

If EV charging isn't managed, there is a potential for a negative grid impact. Charge Ahead will allow MGE to engage more customers so we can study charging patterns and manage charging with a larger customer group.

There are many grid benefits from the growth of electric transportation, including increased load factor, improved utilization of the grid, and downward pressure on electric rates. EV charging that occurs when the grid has available capacity improves grid efficiency, potentially lowering the average costs to serve all customers.

Customer Satisfaction

To measure customer satisfaction, MGE will distribute an annual electronic survey to pilot participants to help ensure we continue to meet customer needs and to request to modify pilot requirements as needed. The survey will collect information on several customer satisfaction variables, including perceived program value, convenience of set-it-and-forget-it approach, acceptance of managed charging via telematics, and marketing campaign effectiveness. MGE will also gather information to understand customer acceptance of a rewards program that provides PayPal or Venmo deposits.

Based on our experience with Charge@Home, customers respond positively to managed charging with one opt-out since the program was launched in 2016. A 2020 customer survey showed approximately 54% of participants thought managed charging was convenient, while 42% said it was neither convenient nor inconvenient. MGE anticipates customers may find the Charge Ahead pilot even more convenient and reliable because they are able to enter their need-by time.

Customer satisfaction will also be measured by pilot enrollment and retention. MGE will document why customers sign up for and exit the pilot and use customer feedback to inform future pilot design.

Program Costs

MGE will monitor equipment costs, as well as network fees, to ensure vendor pricing is competitive and in line with market prices. MGE may request to revise customer charges if additional functionality is available or software costs increase or decrease.

Marketing and Education

MGE's outreach and education programs provide customers with information on the benefits of EVs and help dispel misinformation. Most light-duty vehicle drivers will charge at home or at work, making MGE an energy and fuel provider. MGE helps customers understand the cost to "fuel" their vehicles and promotes resources, programs, and pilots to make charging easy and convenient.

A targeted and cost-effective marketing campaign will be implemented to promote the Charge Ahead pilot to the following groups:

- Current and future Charge@Home participants
- EV Owner Group members who are MGE residential electric customers

Historically, both these groups have high response rates to emails and surveys. MGE may also employ a variety of low-cost communication methods, including email campaigns, social media posts, shared content with EV driver forums, web content, and events to inform customers on the Charge Ahead pilot.

When MGE recruited for the Charge Ahead demonstration project, we had an extremely high response rate from one Facebook post and a follow-up email. We also shared the post in a Tesla forum that generated a lot of interest.

MGE launched an EV website in 2019 (LovEV) that delivers information on MGE programs and resources, including information on home charging. MGE provides tools and information and supports residential customers who are considering or own an EV. MGE will add a description of the Charge Ahead pilot to the website, along with an enrollment link.

Customer education has been identified as a key strategy to aid transportation electrification. MGE will continue to launch extensive and cost-effective education and marketing campaigns. The goal is to ensure customers understand the benefits of driving electric and are aware of pilots like Charge Ahead that offer customer value and allow MGE to manage charging.

Interoperability
Charge Ahead addresses interoperability by using a network software that can manage charging through APIs with vehicle telematic systems and multiple charging station brands.

Electric Vehicle Managed Charging Rewards (Charge Ahead) Rider

AVAILABILITY

Service under this voluntary rider (Charge Ahead) is available to residential customers on Rate Schedules Rg-1, Rg-2, or Rg-7.

Eligible customers include Charge@Home participants and customers who drive EVs manufactured by Tesla, Volkswagen, Chevrolet, BMW, Jaguar, Land Rover, and other manufacturers as they become available. The software can integrate with ChargePoint charging stations and on-board modems via an API so MGE can manage and view charging. Drivers will be able to provide their "need-by-time," view their charging behavior, track rewards, and opt out of managed charging via a customer application. (Automakers who partner with the software vendor). Customers will allow the Company to remotely control vehicle charging sessions during periods of high demand, high energy cost, when renewables are available and/or for testing purposes.

Drivers will be able to provide a "need-by-time," view their charging behavior, track rewards, and opt out of managed charging via a customer mobile phone application.

RATE

All the provisions of the applicable Rg-1, Rg-2, or Rg-7 rate schedules will apply to customers who elect to join Charge Ahead. Charge Ahead customers will be assigned to one of two groups:

> Group One: MGE will optimize charging to off-peak times for customers enrolled in the Rg-1 Residential Service Rate. Customer will earn PayPal deposits if eighty (80) percent of their monthly charging is shifted to off-peak hours. MGE will provide an $8 reward June through August. A $4 reward will be provided September through May. MGE will distribute rewards quarterly.
>
> Group Two: MGE will optimize charging to off-peak times for customers enrolled in Rg-2 Residential Optional Time-of-Use Rate. Customers will benefit from a lower kWh rate.

Customers will be rewarded with quarterly PayPal or Venmo deposits. The two- (2) year pilot will evaluate the technology, driver behavior, and customer satisfaction for up to 200 residential electric customers.

CONDITIONS OF DELIVERY

1. Customers are either (1) enrolled in Charge@Home (Home Electric Vehicle Charging Experimental Pilot Rider - Rate Schedule EV-1) or (2) own or lease an EV with compatible vehicle telematics.

2. To receive the reward for managed charging, customers must:
   a. Allow the Company to manage vehicle charging sessions including interruption and/or power reduction.
      i. Customers will allow MGE to optimize charging to off-peak hours. (See group descriptions above.)
      ii. MGE may also test shifting charging to high-capacity periods or when renewables are available.
   b. Customers will participate in customer surveys and provide feedback.

3. Customers must provide interconnect connectivity.

4. Customers must have an active PayPal or Venmo account.

5. Customers must install the MGE designated EV interface app on an Apple iOS or Android cell phone.

6. Service under this rate will be furnished only in accordance with the Electric Service Rules and Regulations of the Company.

PSCW Application to Modify Charge@Home Managed Charging Program and Transition to Official Tariff

Pursuant to Wis. Stat. §§ 196.19 and 196.20, Madison Gas and Electric Company, a Wisconsin Corporation ("MGE" or "the Company"), a wholly owned subsidiary of MGE Energy, Inc., submits this request for approval to modify the Charge@Home program and transition it to an official tariff (the "Application"). In support of the Application, the Company respectfully states the following:

Background

The Company recognized the importance of a home charging solution to electric vehicle (EV) adoption, since approximately 80% of charging happens when vehicles are parked at home. Especially important was finding a convenient solution that would allow MGE to manage charging while ensuring customers have a positive transportation experience and that all customers benefit from lower costs over time. Level 2 charging allows drivers to get a full charge faster than charging at Level 1, making it easier to shift charging to off-peak periods while ensuring drivers have a fully charged vehicle when needed. The transition from Level 1 to Level 2 charging is imperative as it ensures utilities have ample opportunity to manage charging, which can help lower costs for all customers and reduce grid stress.

In Docket 3270-UR-120, the Company proposed and received approval for an experimental pilot rider to evaluate customer interest in a packaged approach to installing and operating Level 2 networked charging stations at 30 customer homes. The Company also planned to test hardware and software capable of remotely monitoring, measuring, and controlling home charging sessions and to analyze customers' charging activities and reactions to managed charging.

The rider applies to customers on the Rg-1, Rg-2, Rg-2A, and Rg-7 tariffs who want to charge their EVs at home. Because of customer demand, the Company requested and received approval to expand the program to 100 customers in 2017 and to 200 customers in 2020. Approximately 150 customers are currently enrolled in Charge@Home.

Current Program Description

The Company installs, owns, and maintains Level 2 ChargePoint network home charging stations, along with the circuit from the electrical panel to the station, through our Charge@Home program. If required, customers must pay for any electrical service upgrades needed to power the station. The Company's investment in charging equipment and electrical infrastructure is treated as capital.

Customers agree, at a minimum, to:

- Participate in customer surveys and provide feedback.
- Allow the Company to manage their charging station by shifting charging times or reducing power.
- Allow the Company to view charging patterns via the ChargePoint software platform.
- Pay $0.75 per day and enter into a five-year agreement.

The Charge@Home pilot helps ensure that EV charging benefits non-participating customers by allowing the Company to implement and evaluate load-management strategies. The opportunity to shift charging to lower-cost periods and stagger start times to smooth load curves will help the Company prepare for an increase in the number of EVs charging on the distribution system and will benefit all MGE customers by reducing the need for electrical system upgrades and new distribution and generation facilities. The Company will also test moving charging to times when renewable generation is available to help us prepare to use vehicle charging as a system resource to manage load and generation as more renewable generation is added to the utility system.

Program Evaluation
The Company distributed an electronic survey to 72 Charge@Home customers in January 2020, with a response rate of 36%, and 100% of participants indicated they were "extremely" or "somewhat satisfied" with the program.

In addition to high customer satisfaction scores, 70% of respondents are described as promoters. Promoters are described as loyal and enthusiastic customers who can fuel growth through positive word of mouth. In fact, 10% of participants said they heard about the program from a friend, neighbor, or family member.

Other key findings:
- About 97% of customers agreed their charging station was installed in a timely manner.
- Approximately 90% of customers surveyed agreed that Charge@Home is a good value.
- When asked why they signed up for the program, 67% said it was a good value, 67% liked that the Company coordinated the installation, and 56% valued no up-front costs.

The Company also asked participants where they charge. Similar to national data, approximately 89% of charging happens at home, with work being the second most common place to charge.

Proposed Charge@Home Revisions
The Company is requesting the Commission review and approve improvements to the Charge@Home program. The Company is also requesting to increase the participation limit from 200 customers to 500 customers. There are currently about 150 customers enrolled in the pilot. The Company will still own and maintain Level 2 ChargePoint network charging stations in customer homes. However, we are recommending modifications to the program term, customer monthly payment, and customer costs to remove or purchase the charging station. The Company will continue to manage participants' charging sessions.

Under the new program, the Company proposes customers pay a monthly customer charge of approximately $20 ($0.66000 per day) for ten years. The charge is intended to recover charging station costs, installation, network fees, maintenance, and other operating costs. Because program costs are recovered through dedicated customer charges, the program does not rely on cross-subsidization from non-participating, non-EV-owning customers.

MGE will repair or replace non-functioning charging stations during the seven-year term, except that damage beyond normal wear and tear, such as misuse or vandalism, will be at the customers' expense.

The customer can exit the program during the Initial Term upon thirty (30) days' written notice to the Company and will be responsible for unpaid capital and operation costs. If the customer terminates service during the Initial Term, the customer shall purchase the charging station subject to the following schedule. Detailed cost information can be found in the tariff.

	Buy-out Payment by Months Enrolled									
Months Enrolled Prior to Exit:	**1 - 12**	**13 - 24**	**25 - 36**	**37 - 48**	**49 - 60**	**61 - 72**	**73 - 84**	**85 - 96**	**97 - 108**	**109 - 120**
Buy-out Amount:	**$1,440**	**$1,340**	**$1,230**	**$1,110**	**$980**	**$840**	**$690**	**$530**	**$360**	**$180**

Upon termination of service under this Rider by the Company or after the end of the Initial Term, the Company may choose to transfer ownership of the charging station to the customer or to remove the charging station.

If a customer moves within the Company's electric service territory and would like to participate in Charge@Home, the customer will have to reapply to the program.

Performance Goals and Metrics
Following are the Company's proposed Charge@Home performance goals and metrics. The Company will summarize learnings and submit a detailed program report every year.

Customer Satisfaction
To measure customer satisfaction, the Company will distribute an annual electronic survey to program participants to help ensure we continue to meet customer needs and make modifications if required. The survey will collect information on several customer satisfaction variables, including installation times, perceived program value, charging behavior, convenience of managed charging, and marketing campaign effectiveness. The Company will also gather information to understand customer acceptance of managed charging events. Through the charging platform, the Company can generate reports that tell us if a participant opts out of an event.

Customers are notified 24 hours before a charging event. Since program inception, customer response has been positive with one opt-out. When customers were asked about the convenience of the Company managing their charging station, approximately 54% indicated it was convenient, while 42% said it was neither convenient nor inconvenient.

Customer satisfaction will also be measured by program retention. The Company will document why customers exit the program and use customer feedback to inform future program design.

Program Costs
The Company will monitor equipment and installation costs, as well as license fees, to ensure vendor pricing is competitive and in line with market prices. The Company may request to revise customer charges if additional functionality is available or program costs increase.

Load Management
The Company uses the ChargePoint platform to remotely manage participants' charging sessions. Through the ChargePoint platform, the Company has successfully shifted charging to lower-cost times, reduced power to charging stations during peak periods, or staggered charging start times to avoid rebound peaks.

The Company can view detailed information about customers' charging behavior via the ChargePoint software portal, including when, where, and how long participants charge. As an example, the Company has learned that customers enrolled in the Company's Rg-1 standard residential rate often start charging during peak hours, likely when they get home from work. Data also shows us that most customers enrolled in the time-of-use (TOU) rate initiate charging when the off-peak period begins, which could create rebound peaks and stress distribution transformers without managed charging. This data guides the Company's current and future load-management strategies to ensure charging occurs when capacity is available or renewable sources are online to keep costs low for all customers.

The Company will continue to initiate managed charging events and track results, including participation and if demand reduction or load shifting is achieved. The Company will share a summary of managed charging in the annual program report.

The Company also uploads detailed information on home charging stations in our GIS system. This allows the Company's electric system planning group to track where charging is occurring, understand EV loading on distribution circuits, and plan for the long-term impacts of higher EV growth on the Company feeders. Early studies indicate there is direct capital savings if the Company can shift load

away from system peak conditions with managed charging. The Company will share future findings from our distribution planning group.

In addition to load management data, the Company will report on participant charging patterns, including data such as energy usage, number of charging sessions, session length, and average power demand.

Program Benefits
EV charging can provide benefits to all customers, not just EV drivers. Access to charging was identified as a significant barrier to EV adoption in the Investigation of Electric Vehicle Policy and Regulation (5-EI-156). Charge@Home makes it easier for customers to charge at home. The Company offers convenience by coordinating the installation of a ChargePoint Level 2 charging station with a local electrician with no up-front costs. Customers pay a low monthly fee for the charging station and 240-volt circuit over a ten-year period via their electric bill. An affordable home charging solution is important to EV adoption.

If EV charging isn't managed, there is a potential for a negative grid impact. The Company's Charge@Home program allows us to manage charging and better understand customers' charging patterns and preferences. It also allows EV drivers to schedule charging to take advantage of TOU rates.

There are many grid benefits from the growth of electric transportation, including increased load factor, improved utilization of the grid, and downward pressure on electric rates. EV charging that occurs when the grid has available capacity improves grid efficiency, potentially lowering the average costs to serve all customers.

Eligibility Criteria
In order to participate in Charge@Home, participants must:

- Be a residential electric customer enrolled in Rg-1, Rg-2, Rg-2A, or Rg-7 rates with no past-due bills.
- Own and live in a single-family home which is defined as a detached single-family home, townhome, row house, or duplex.
- Own or lease a plug-in EV.
- Provide Wi-Fi service at the site.
- Have sufficient space for locating and maintaining the charging equipment.

Marketing and Education
Most light-duty vehicle drivers will charge at home, making the Company an energy and fuel provider. The Company helps customers understand the cost to "fuel" their vehicles and promotes programs like Charge@Home to make home charging easy and convenient.

In addition, the Company's outreach and education programs provide customers with information on the benefits of EVs and help dispel misinformation. The Company frequently communicates with customers and offers tools to help with decision-making, including an EV website, online cost comparison tool, and a fleet analysis for business customers.

The Company employs a variety of communication methods, including paid advertising and low-cost channels such as newsletters, email campaigns, social media, dealership education, web content, and events to inform customers about Charge@Home and the benefits of driving electric.

Here are some examples:

Outreach Methods

- **Dealerships** - Educated and enthusiastic dealerships are key to the EV customer journey. To help encourage dealerships to connect with potential EV owners, the Company recently launched an MGE Dealership Network that makes it easier for customers to take the next step to vehicle ownership. The program also encourages dealerships to provide timely responses to customers' questions by providing leads at no cost to the dealership. To participate, sales team members must view a training video on the Company EV programs, including Charge@Home, and agree to share program information (brochures and business cards) with customers. In the second quarter of 2021, 13% of participants said they heard about the program from a dealership.

- **Web content** - The Company launched an EV website in 2019 (LovEV) and an online feature called EV Rider. EV Rider provides easy-to-understand information on EVs, charging, maintenance, battery life, and other timely EV topics. The LovEV website helps customers who are considering an EV get up-to-date and accurate information about available models, driving ranges, costs, emissions, and charging opportunities. Both LovEV and EV Rider deliver information on Company programs and resources, including Charge@Home. Customers interested in owning an EV will need to know where to charge; how much it costs to charge, and how far they can drive on a single charge. The Company provides tools, information, and support to potential EV drivers.

- **Online resources** - The Company recently launched a tool called Explore My EV that allows customers to compare EVs and better understand the total cost of ownership. Explore My EV takes into consideration many factors, such as daily commute, electricity costs, up-front vehicle costs, maintenance costs, and financial incentives, to create an easy-to-understand financial comparison. The tool helps customers select models that suit their lifestyle with a vehicle comparison feature. After customers complete a comparison, they are presented with information on the Company's programs and services and can initiate enrollment in Charge@Home.

Customer education has been identified as a key strategy to transportation electrification. The Company will continue our extensive and cost-effective education and marketing campaign. The goal is to ensure customers understand the benefits of EV charging and are aware of programs like Charge@Home that offer customer value and allow the Company to manage charging.

Interoperability

Interoperability is less of a concern with home charging since drivers pay for charging via their utility bill. Because MGE owns the charging station and manages charging through the ChargePoint platform, a single platform and station is the most efficient approach. The ChargePoint stations are very reliable and allow customers to schedule charging via their phone. Since the pilot launched, we have not received any complaints about the station or requests to replace the unit with a different make or model.

Accounting Treatment

Costs incurred to purchase and install the EV charging equipment will be capitalized as an electric distribution asset to FERC Account 101, Plant in Service in Plant Account 371, Installations on Customers' Premises. In its next rate filing, the Company will request that revenues and costs of the program be included in utility revenue requirements. No deferral is requested as the program revenues should be sufficient to cover the costs of the program over the ten-year term.

Home Electric Vehicle Charging Rider

AVAILABILITY

Service under this voluntary rider is available to residential customers on Rate Schedules Rg-1, Rg-2, or Rg-7 who contract for service for an initial period of ten (10) years and charge their plug-in electric vehicles (EVs) at home.

Customers who choose to participate agree to work with the Company to optimize EV charging activities and provide EV charging data such that the Company may analyze energy use, vehicle charging patterns, and reactions to any vehicle charging load management activities. The Customer will also allow the Company to remotely control their vehicle charging sessions during periods of high demand, high energy cost when renewables are available and/or for testing purposes. Users may opt-out of individual managed charging events should they need to charge their vehicle immediately.

Until service is terminated as provided in the agreement between the Company and the Customer, the program rate detailed in the following section will continue.

RATE

All the provisions of the applicable Rg-1, Rg-2, or Rg-7 rate schedules will apply with the exception that customers served on this rider will have an additional charge of $0.66000 per day for the use of MGE-owned electric vehicle charging equipment installed at their home.

CONDITIONS OF DELIVERY

1. Customers using MGE-owned EV charging equipment under this rider must enter into an agreement with the Company.

2. Customers' vehicle charging sessions will be subject to interruption and power reduction. The Company will interrupt/reduce power to test this functionality and its benefit to the power system.

3. Due to the fact this service is optional and increases utility bills, the Company may limit customer participation in the program based on bill payment and collection histories.

4. An independent contractor authorized by the Company will install one (1) level 2 charging station 240-volt SAE J-1772 Charging Dock for use in charging plug-in EVs (hereinafter "Charging Station Dock"). The contractor will also provide labor and material necessary to extend a branch electric circuit from the main electric service panel to provide electricity service to the Charging Station Dock.

5. The Company will have access to its Charging Station Dock that the Company owns and has installed at customer's residence. The Company has general responsibility for maintaining and servicing the Charging Station Dock. However, customer will be liable to the Company for any damage to the Charging Station Dock caused by including, without limitation, customer's removal, transfer, tampering with, misuse or abuse of the Charging Station Dock; vandalism or an act of God.

6. The Company will have the right to inspect the Charging Station Dock and the customer's electric service should customer notify the Company that the Charging Station Dock is not working, and customer will make the customer's premise available to the Company or the Company's contractors for such purposes.

7. The Company will not be liable for any damages sustained by the customer's use of the Charging Dock.

Home Electric Vehicle Charging Rider

CONDITIONS OF DELIVERY (continued)

8. The Customer may terminate service under this Rider during the Initial Term upon thirty (30) days' written notice to the Company, subject to purchasing the Charging Station Dock. The following table provides the buy-out due from Customer based on the number of monthly payments the Customer has made since enrolling:

Buy-Out Payment by Months Enrolled										
Months Enrolled Prior to Exit	1-12	13-24	25-36	37-48	49-60	61-72	73-84	85-96	97-108	109-120
Buy-Out Amount	$1,440	$1,340	$1,230	$1,110	$980	$840	$690	$530	$360	$180

9. Service under this rate will be furnished only in accordance with the Electric Service Rules and Regulations of the Company.