APPENDIX A

Public Service Commission of Wisconsin
Office of Energy Innovation
Energy Innovation Grant Program
Application Cover Page

Wisconsin Office of Energy Innovation

SECTION I - Provide information summarizing the project proposal.		
☐ **Area of Interest 1:** K-12 School Districts	☐ **Area of Interest 2:** Manufacturers	■ **Area of Interest 3** Municipalities and Tribes
Grant Request ($):	**Match Amount ($):** (if applicable)	**Project Total ($):**
$129,300	$10,000	$139,300
Choose one of the two options below for Planning Projects:		
☐ Facility Audit, Fleet Audit, or Feasibility Study	☐ Comprehensive Energy Plan	
Choose all of the applicable options below for Implementation Projects:		
☐ Building Energy Efficiency ■ Renewable Energy ■ Transportation ▣ Training, Operations (cannot be standalone) ☐ Other		
Project Title:		
Brief Project Description: (2000 character limit)	The City of Madison requests $129,300 in Energy Innovation Grant funds to cover the incremental costs of purchasing 20 full plug-in electric vehicles (EVs) to replace municipal fleet sedans aging out of service. Madison Gas & Electric (MGE), a partner to this application, will contribute $10,000 to cover the cost of Level 2 chargers to fuel the City EVs. The outcomes of this purchase will be: 1.) Savings of $174,000 in fuel costs over the 10-year EV service life 2.) Savings of $130,000 in maintenance costs over the 10-year EV service life 3.) Transition of Madison's fleet to renewable fuels advanced 4.) Acceleration of community-wide EV market penetration and readiness by: *Providing example to other fleet operators *Providing example to business and residents *Contributing to area charging infrastructure *Training fleet technicians and automotive students in EV maintenance 5.) Transition from gasoline to clean fuel with zero emissions 6.) Improvement in air quality 7.) Compliance with Madison City Council goals of transitioning to 100% renewable energy.	

SECTION II - Provide information for your organization, signatory, and primary contact for the project.				
Applicant Type:	■ City	☐ Village	☐ Town	☐ County
☐ Tribe		☐ Manufacturer	☐ K-12 School District	

Name (on W-9):	City of Madison
Address (on W-9):	210 Martin Luther King Jr. Blvd.
Remit to Address (check payable to): **note:** Additional paperwork may be requested to set up this address in the state payment system.	City of Madison Treasurer, Room 108 210 Martin Luther King Jr. Blvd, Madison, WI 53703
DUNS Number or CAGE Code:	076147909
NAICS Code:	

Authorized Representative/Signatory (Person authorized to submit applications and sign contracts)		**Primary Contact** (if different from Authorized Representative)	
Name:	Paul R. Soglin	**Name:**	Mahanth Joishy
Title:	Mayor	**Title:**	Fleet Service Manager
Phone:	608-266-4611	**Phone:**	(608) 246-4546
E-mail:	mayor@cityofmadison.com	**E-mail:**	mjoishy@cityofmadison.com
Signature of the Authorized Representative			

Public Service Commission of Wisconsin
Office of Energy Innovation
Energy Innovation Grant Program

Electrification of City Fleet

Proposal Submitted by
City of Madison
July 27, 2018

3.2 Grant Application Narrative Requirements

3.2.1 Eligibility.

The City of Madison is a municipal government duly incorporated in 1856 in the State of Wisconsin. The City has extensive experience administering federal and state grants and has the staff expertise required to plan, implement, and evaluate technical projects such as the energy upgrades described in this proposal. The City is capable of complying with the requirements of the requested OEI funding.

3.2.2 Description.

Project Summary: The City of Madison requests $129,300 in Energy Innovation funds to cover the incremental costs of purchasing 20 full plug-in electric vehicles (EVs) to replace municipal fleet sedans aging out of service. Madison Gas & Electric (MGE), a partner to this application, has committed to contributing $10,000 towards charging infrastructure to be used by the City EVs. In addition to its financial contribution, MGE will provide ongoing technical assistance to the project. *(Please see attached partnership letter.)*

Energy Goals: This request to OEI is responsive to the Madison Common Council's March 2017 Resolution establishing 100% renewable energy as a goal for all City operations. The City Fleet Service, which manages a diverse fleet of 1700 municipal vehicles, is charged with pursuing this goal as practical technologies emerge and as funding allows. Fleet staff continuously analyzes the options for converting the fleet to renewables. At present, sedan-sized EVs are rapidly entering the market and becoming a reliable, cost-effective alternative. Annually within the City fleet, over 40 sedan-class vehicles age out of service, providing opportunity, *if funding allows*, to transition a significant ratio of this class of Fleet vehicles to EVs.

Savings to Taxpayers: Fleet Services has analyzed the cost-benefit of purchasing 20 Chevrolet Bolts over the next two fiscal years and determined that the incremental upfront cost of EV purchase is more than recovered by savings in fuel and maintenance costs over the life of the vehicle. By switching to a less expensive fuel, the City will save

taxpayers $174,000 over the 10-year service life of the EVs. The total value of savings through reduced maintenance costs will be another $130,000 over 10 years. The total savings over 10 years is projected to be $304,000. The annualized savings over the 10-year service life of the EVs is $30,400. The $129,300 upfront additional cost of the 20 EVs will be recovered in 4.24 years.

EV Value to Educational Programs: Madison Fleet Service provides shop tours and classroom demonstrations to Madison College and Madison high school automotive classes. In 2018, we created four part time apprenticeship positions for high school students who are being trained and mentored by Fleet Technicians. The City's EVs will become an important part of this educational partnership and will expose students to the future of the automotive industry.

Additional Benefits:

Energy Savings: The transition to renewable fuels for 20 sedans will save 90,900 gallons of gasoline over the 10-year service life of the vehicles.

Improved Air Quality: The transition to renewable fuels for 20 sedans will save 1200 tons of greenhouse gas emissions over the 10-year service life of the vehicles. The transition to cleaner fuels, which this project promotes will be of particular benefit to those Madison neighborhoods where the incidence of asthma is 14%, exceeding the statewide average of 10%.

Innovation/Modernization: This bulk purchase will enable the City to establish an EV program that will advance the electrification of the City fleet. In so doing, we will also help advance the community's transition to electric vehicles by:

- Contributing to the local charging infrastructure.
- Training Fleet Service mechanics in EV maintenance.
- Exposing automotive students at the high school and community college level to EVs
- Sharing best practices with other public, private, and non-profit fleets across the region and state.

We believe this purchase will contribute to the community transition to EVs and help the area catch up to US regions where the market penetration of EVs is more advanced.

3.2.2.1 Phases:

The EVs will be purchased in two phases of 10 cars each, appropriating funds from the 2019 and 2020 Capital Budgets. Costs will be incurred by 12/31/2019. Each phase will draw down $64,650 from the Energy Innovation Grant. The Budget below breaks the project into two phases.

3.2.3 Budget.

Fleet Service staff has extensively researched the cost, reliability, and practicality of the entry-level EVs available on the market. Staff recommends the Chevrolet Bolt as the best sedan for City purposes.

The Bolt: The Bolt, made in Michigan, is widely considered by automotive engineers to be an effective and reliable entry-level electric car. The Bolt is highly rated by government buyers, including the New York City Fleet, which currently operates approximately 1,500 EVs. Among numerous awards, the Bolt was named the 2017 Motor Trend Car of the Year. Each Bolt has a base cost of $32,465 according to the Wisconsin State DOA contract, which the City uses as a procurement mechanism. As shown below, this represents an approximately $6,465 premium per vehicle above gasoline sedans with roughly similar features such as the Ford Taurus or Chevrolet Impala.

Level 2 Chargers: An essential part of this project is the charging infrastructure. MGE has proposed to pay $10,000 towards the cost of Level 2 charging stations, located, as needed, within various City facility parking areas. We have included this investment in the project chart below and in the Match section.

Gas Car Base Price	Bolt Base Price	Incremental Difference	Total Unis	Total Vehicle Budget	Total cost of L2 chargers	Total Project Budget
$26,000	$32,465	$6,465	20	$129,300	$10,000	$139,300

Two Phases: We propose to purchase the 20 EVs in two bulk purchases, drawing equal amounts on the Energy Innovation grant as shown in the proposed project budget below.

	Total Bolt Purchase Budget				
	Bolt Base Price	Total Units	City General Obligation Borrowing	Energy Innovation Grant	Total EV Cost
FY 19	$32,465	10	$260,000	$64,650	$324,650
FY 20	$32,465	10	$260,000	$64,650	$324,650
Tot. Project			$520,000	$129,300	$649,300

3.2.4 Match.

MGE has agreed to furnish and install Level 2 EV charging stations at no cost for exclusive use by the City of Madison if the Energy Innovation Grant is awarded and the EV purchases are completed using grant funds. These charging stations will be installed at various City owned facilities where the EVs will be located. Eventually, the charging

stations will be shared by multiple EVs. The total value of the match is $10,000. *(Please see MGE's Letter of partnership, attached.)*

	Grant Request	*Match*	*Total*
Phase One	$64,650	$5,000	$69,650
Phase Two	$64,650	$5,000	$69,650
Total	$129,300	$10,000	$139,300

It should also be noted that the base cost of the 20 EVs, minus the EV increment, is $520,000, an amount that will be provided through City of Madison's General Obligation borrowing.

3.2.5 Energy Innovation Grant Impact on Project.

Need for OEI Funds: The City of Madison is facing a challenging budget period, and Madison Mayor Soglin has directed City managers to prepare 6-year Capital Improvement Plans showing no increase in borrowing and no new projects. The proposed 2019 and 2020 Fleet Capital Budgets for vehicles and equipment have been frozen at 2018 levels, despite expected inflation, unexpected price increases due to international steel and aluminum tariffs, and the Council's sustainability goals described above. Our 2019 and 2020 Budget assumes continued purchase of gasoline-fueled sedans.

Without the requested OEI funding, the City will be unable to purchase EVs, which cost $6,465 more than comparable gasoline-fueled vehicles. If awarded, the Energy Innovation funds will enable the City to accelerate conversion of the municipal fleet to renewable fuels. The bulk purchase of 20 EVs will result in one of the largest full plug-in EV fleets, if not the largest, in Wisconsin.

Meanwhile, gasoline, diesel, and biodiesel prices have pushed upward for most of 2018, causing a significant negative impact on the Fleet Service operating budget. So far in 2018, Fleet's fuel costs have already increased by $266,941 for diesel and $68,884 for gasoline over 2017 levels. The grant would reduce the City's dependence on the fluctuating fossil fuel market and offset some of its budget implications.

3.3 Merit Review Criteria.

3.3.1 Eligibility Determination and Ability to Achieve the Objectives.

Eligibility: The City of Madison is a municipal government duly incorporated in 1856 in the State of Wisconsin. The City has extensive experience administering federal and state grants. City staff has the expertise to plan, implement, and evaluate technical projects such as the energy upgrades described in this proposal. The City has the technical and financial management capacity to comply with the State's requirements of its grantees.

Ability to Meet Objectives: Madison Fleet Service is charged with the purchase, maintenance, and planning for a diverse fleet of 1,700 vehicles ranging from light duty sedans to heavy duty Fire Department apparatus, sanitary sewer Vactors, and recycling trucks. Fleet Service is staffed by 43 employees, including transportation managers capable of analyzing the cost-benefit of a wide range of municipal vehicles and skilled mechanics trained in keeping both general and specialized vehicles in good repair. Fleet Service Superintendent, Mahanth Joishy, has 17 years of fleet operations experience. *(Please attached resume.)* Additional support and technical assistance to the project has been committed by MGE. *(Please see MGE's letter of partnership.)*

Recent Exposure to EVs: *With the assistance of an outside grant*, in early 2018, the City completed purchase of three Chevrolet Bolts. In preparing for the purchase, Fleet staff and City agencies performed due diligence in analyzing and comparing the cost-benefit and practicality of entry-level EVs and chose to purchase the Bolts. We have confidence that the Bolts, which have been in our possession for 3 months will meet the needs of City agencies who will use them, and that Fleet's technicians can keep them operating efficiently for their expected 10-year service life.

3.3.2 Energy Savings.

The energy savings for this project result from the reduction in gallons of gasoline burned, coupled with resulting reduction in emissions. The table below provides a direct comparison between (20) new Chevrolet Bolt EVs and (20) new gas powered Chevrolet Impalas. Both are assumed to operate for 10 years and 100,000 miles of all-city driving.

	MPG per vehicle	Gallons Gasoline per Vehicle Annual	Gallons Gasoline 20 vehicles X 10 years	Tons GHG Emissions per Vehicle Annual*	Tons GHG Emissions 20 Vehicles X 10 years
2018 Chevy Impala	22 City MPG	454.545	90,909	6 tons	1200
2018 Chevy Bolt	128 City MPGe	0	0	0	0
Project Savings	106 MPG/e		90,909		1200

*Tailpipe Emissions

Source: USEPA Office of Energy Efficiency & Renewable Energy
https://www.fueleconomy.gov/feg/findacar.shtml

These savings do not account for additional "upstream" emissions of either fuel source.

3.3.3 Operational and Maintenance Savings.

The operational and maintenance savings for this project result from the technical differences between EVs and gasoline vehicles. EVs have fewer moving parts. There are no internal combustion engines, pistons, spark plugs, fan belts, fuel filters, or cylinder heads. There is less brake wear due to regenerative braking. There are no oil changes requiring careful handling and disposal. There are fewer components to inspect or replace during preventive maintenance and other repairs.

The Maintenance Schedule of the Bolt, published by Chevrolet, shows that the only routine maintenance required is tire rotation, cabin air filter replacement, and brake fluid replacement. *(Please see Bolt Maintenance Schedule; Roadshow Internet Blog, both attached.)*

Fleet Service staff expect the EV purchase to result in a decrease in vehicle down time, a decrease in labor time due to fewer inspections, and lower repair costs.

Fleet Service maintenance records show that Impalas in our fleet cost about $0.13 per mile for inspections and repairs. A very conservative estimate would place the annual maintenance and inspection cost of a Bolt at half that of an Impala, or $0.065 per mile based on the reduced parts and labor costs. These savings could be higher. The chart below shows the expected savings in maintenance costs over the life of the car:

	Maintenance cost/mile	Miles of Service	Total Maintenance Costs	Total Maintenance X 20 vehicles
Impala	$0.13	100,000	13,000	260,000
Bolt	$0.065	100,000	6,500	130,000
Total Savings				$130,000

3.3.4 Payback Calculation and Methodology.

Cost savings attained by switching to EVs will result from reduced cost of fuel usage and decrease in maintenance costs.

Fuel savings: The cost associated with plugging EVs into the power grid for electricity is about (10) cents per kilowatt-hour (kWh), a rate we have used to calculate savings over a 10 year/100,000 mile service life of each car. Gasoline prices are unpredictable, and Fleet Service purchases fuel from a contract that fluctuates with the Oil Price Information Service (OPIS) rack prices. For the purpose of this application, we have used the current rate of $2.70/gallon. As the chart below shows, at the present cost of gasoline and

electricity, the difference in fueling cost will be approximately $174,000 between 20 Impalas and 20 Bolts.

Maintenance Savings: A challenge with comparing the Chevrolet Bolt to the Chevrolet Impala on maintenance indicators is the lack of user data for Bolts from the real world. Bolts have only been in service for several model years, and are not yet produced at the same volumes as equivalent gasoline vehicles. Our Fleet technicians estimate conservatively that the annual maintenance and inspection cost of a Bolt will be half that of an Impala. Based on the maintenance records kept by Fleet Service, Impalas cost about $0.13 per mile for inspections and repair, and half that is $0.065. The maintenance cost for (20) Impalas for (100,000) miles would be ($260,000). Very conservatively, the City would save about ($130,000) on maintenance with the EVs.

	Fuel Cost per Mile	# Miles	# Units	Total Fuel Cost	Maint. Cost per mile	# Miles	# units	Total Maint. Costs	Total savings
Chevrolet Impala	$.12	100,000	20	$240,000	$.13	100,000	20	$260,000	
Chevrolet Bolt	$.03	100,000	20	$66,000	$.065	100,000	20	$130,000	$304,000
Total Savings				$174,000				$130,000	

Payback Calculations: The combined fuel and maintenance savings over the life of the vehicles is $304,000. The annualized savings are $30,400. The simple payback on the $129,000 investment would be complete in 4.24 years.

3.3.5 Existing Energy Planning Efforts.

This grant will serve as a bridge to the future as Madison's Mayor and Common Council have begun drafting legislation mandating the City must purchase electric vehicles and other types of alternative fuel vehicles exclusively beginning in 2020 or 2021, wherever operationally feasible. The EV purchase over the next two years will start Madison on this path toward a fleet powered entirely by renewable fuels.

This proposal also responds to Madison's Sustainability Plan, adopted in 2011, which calls for the City to pursue a renewable energy strategy for its building and transportation operations. In the years since adoption of this plan, Fleet staff has extensively researched the availability, cost, reliability, maintenance and infrastructure needs of emerging technologies for the wide range of vehicle types in our municipal fleet. At this point in the rapidly changing transportation industry, there is no single solution for our diverse needs, and we remain open to examining emerging opportunities. Some City programs have been successfully initiated in 2018. These include:

- (3) EVs already purchased prior to this application using grant funds to partially cover the incremental costs;
- Implementation of B11 biodiesel for the heavy-duty fleet of trucks and equipment, which will result in 1 million less pounds of CO2 emissions in the first year alone.
- Compressed Natural Gas (CNG) trucking options are being investigated for multiple agencies to be purchased in the next few years.
- (7) Gas-electric hybrid cars have been purchased for the Police Department and other departments.
- (2) Ambulances with anti-idling technology have been purchased for the Fire Department.
- A new Fleet Service central repair shop, currently being designed, is scheduled to open in 2020, with over 20% of the building's power to be derived from a solar panel array.
- Madison Common Council passed a 2017 ordinance to limit idling to (5) consecutive minutes for all non-emergency purposes.
- Fleet Service is also a part of a multi-agency task force working to implement GPS and telematics on mobile assets, which will save fuel by identifying and eliminating unnecessary routes, idling, speeding, and other behaviors to save fuel and costs.

3.3.6 Financial Leverage and Impact.

If funded, the Energy Innovation project would help initiate the electrification of the City fleet, which would have several important impacts:

- **Full plug-in EVs reduce the need for gasoline,** an expensive fuel mostly sourced from long distances and subject to unpredictable price fluctuations. Under this plan, the City will retire one gasoline-powered vehicle for each EV purchased. Replacing gasoline vehicles with EVs will help stabilize the Fleet budget and result in **significant cost savings** to taxpayers over their expected 10-year useful life cycle.

- **EVs require less maintenance,** resulting in less vehicle down time and additional cost savings to taxpayers over their expected 10-year useful life cycle.

- **EVs do not require engine oil**, a fossil fuel derived byproduct that generates waste after oil changes. It must be safely handled and collected at extra cost and effort.

- **The projected cost savings** to City of Madison taxpayers are $174,000 in fuel cost savings and $130,000 in reduced maintenance costs. When annualized, the total $304,000 in fuel and maintenance savings equals $30,400 in reduced costs to taxpayers.

- The City EV fleet would **become the largest EV fleet** operating in Wisconsin using current projections. The City would lead by example and promote EV use among other fleet operators.

- The Madison area and Wisconsin statewide lag behind other areas of the nation in transition to electrification of transportation. This bulk purchase of vehicles **will promote the community's transition** to electric vehicle use and advance modernization of the transportation industry.

3.3.7 Rural, Urban, or Underrepresented Areas of the State.

The most direct beneficiaries of this EV purchase will be the Madison community. As the Municipal fleet transitions to electric, and as the local market responds to demand for EVs, Madison's air quality will improve. **EVs are zero-emission**. They emit no carbon dioxide, carbon monoxide, nitrogen oxide, sulfur dioxide, or other harmful particulate matter.

Improved local air quality through reduction of vehicle emissions will help reduce incidence of asthma, which affects 10-14% of the Madison population, higher than state (10%) and national (7.4%) averages. According to a study conducted by the Department of Public Health Madison/Dane County, de-identified clinical data from over 260,000 pediatric and adult patients in Dane County, show that 16% of the youth population of four low-income areas of Madison is affected by asthma.
https://www.publichealthmdc.com/documents/GeospatialPatternsPHINEX2016.pdf

3.3.8 Education

Madison Fleet Service purchases and maintains the largest and most diverse set of vehicles in the entire region, including police cars, ambulances, heavy-duty haulers, and specialized water and sewer vehicles. Our fleet and fleet technicians have become a valuable resource to Madison high school and Madison College automotive classes. We regularly provide shop tours to classes and share vehicles for classroom maintenance demonstrations.

This year, Fleet Service intensified this partnership to sponsor four high school students working as apprentices in the repair garage side by side with full-time Fleet Technicians on automotive inspections and repairs. This program is providing hands-on, specialized technical learning for the students while they are receiving competitive pay and school credit.

The EVs, which represent the future of transportation, will contribute to this teaching partnership. Because market penetration by EVs has been slow in the Midwest, exposure to EV maintenance by Fleet staff, as well as automotive instructors has been limited. As Fleet Service staff are trained in operation and maintenance of EVs, this training will be passed on to the student apprentices and automotive classes.

As illustrated by the fact that many City Fleet staff are graduates of these automotive programs, these partnerships are an important way introduce future technicians to the

next generation of vehicles. *(Please see attached letters of support from MMSD and Madison College.)*

3.3.9 Innovation.

Transitioning the City fleet to electric vehicles presents challenges that this grant proposal will help Fleet to overcome:

Incorporating EVs into municipal and other fleets requires some effort and expertise. Due to the limited range of the vehicles, they generally need to stay within shorter distance routes before their next charge. Routes and usage patterns need to be planned accordingly.

Reliance on EV chargers poses additional challenges. Chargers must be located in facilities where the EVs will be parked, and these locations must have direct access to adequate, existing electric infrastructure. There is also a cost associated with the new charging stations, and the City is partnering with MGE to address the rollout of charging stations through a grant matching program.

Transition of the City fleet to EVs also presents opportunities that this grant will make available to the community:

We believe that it is appropriate for the City to play the role of early adopter of technology when it is practical to do so, and the Bolt is an excellent, practical addition to our fleet. The Bolt represents cutting-edge advances for the entire global auto industry with its range of 238 miles per charge, its excellent performance, safety features, and favorable maintenance schedules and costs.

By transitioning our sedan class of vehicles to EV, the City will provide an example to other public agencies and to the private commercial and residential market of the practicality of the new technology. Automakers have advanced battery technology and EV options successfully in the last few years. Similarly, battery charger technology has steadily advanced in tandem with the vehicles themselves. Innovative options such as tracking kWh through cellular and WIFI networking, touch screens, multiple prong charging, and solar charging are becoming available.

To promote market momentum toward EVs, Fleet Service will continue to work closely with a working group of fleet managers from the public, private, and non-profit sectors from around Wisconsin. Part of the ongoing agenda for this working group of fleet managers, including from Dane County, State of Wisconsin, UW-Madison, MGE, Alliant Energy, and others will be to explore strategies for vehicle electrification throughout the region. Madison will share its experience with EVs with this group.

In the next few years, we expect that EV purchase prices will approach close to even with the equivalent gasoline vehicles. Through a bulk purchase of EVs, the City of Madison can help to accelerate that trend. In the meantime, there is a significant incremental cost

difference that the State's grant program can help to overcome. In the process, City of Madison and the Office of Energy Innovation will be able to partner on making Madison's EV program a model for other public, private, and non-profit fleets across the state, the Midwest, and beyond.

3.3.10. Energy Resiliency.

This proposed project helps prepare the City to recover more quickly in case of severe market fluctuations, disaster, and power outage.

The project advances electrification of the City fleet. Moving away from reliance on petroleum-based fuels helps the City avoid the fluctuation and risks of a market subject to political and economic instability. It is incumbent on government to transition away from a fuel source that is destined to become less reliable and more costly in the future.

The transition to EVs also helps set the stage for use of photovoltaic charging as a complement to utility-installed charging stations. Increasingly, as funding allows, City buildings are being outfitted with solar panels. The new auto repair garage, due to come online in 2020 is planned to be outfitted with solar panels. The grant funded EVs will be able to plug into chargers powered by these solar powered facilities. Solar power is resilient, as it can continue generating and charging even during rolling power grid blackouts or flooding, which cause gas stations to fail.

ATTACHMENTS:

1.) Letter of Partnership: Jeffrey M. Keebler, President & CEO, Madison Gas & Electric

2.) Curriculum Vitae: Mahanth, S. Joishy, Superintendent, City of Madison Fleet Service

3.) Chevrolet Bolt Maintenance Schedule

4.) Internet Blog: Tim Stevens, Roadshow Staff, "Chevy Bolt EV needs basically zero maintenance for first 150K miles."

5.) Letter of Support: Jenifer Cheatham, Superintendent,
Madison Metropolitan School District

6.) Letter of Support: Dr. Denise Reimer,
Dean, School of Applied Science, Engineering & Technology
Madison College

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

Jeffrey M. Keebler
President and Chief Executive Officer
608-252-7147

July 26, 2018

Kristy Nieto
Deputy Administrator
Division of Business and Program Management
Wisconsin Public Service Commission
4822 Madison Yards Way
P.O. Box 7854
Madison, WI 53705-7854

Subject: City of Madison – Fleet Services Submission to Office of Energy Innovation Grant Program

Dear Ms. Nieto:

Madison Gas and Electric (MGE), headquartered in Madison, Wis., is pleased to partner with the City of Madison – Fleet Services in pursuit of its Office of Energy Innovation Grant. As part of an ongoing collaboration around energy, MGE and City officials previously identified electrification of transportation as a priority. This grant will allow the City to move forward with replacing municipal vehicles with electric vehicles.

MGE is committed to providing the following in support of Fleet Services' grant application:

- $10,000 towards charging infrastructure;
- Continued in-kind support and expertise to address technological issues and facilitate cost effective and efficient use of energy.

Shared Goal of Reduced Carbon Dioxide Emissions

MGE is committed to working with the City of Madison and other community stakeholders to advance new, cleaner energy technologies to reduce our community's collective environmental impact. MGE already has reduced its carbon emissions 20% since 2005. Under our Energy 2030 framework, working with customers, we're targeting a 40% reduction in carbon emissions by 2030 from 2005 levels. The City also has set sustainability and clean energy goals.

Deployment of zero emission vehicles will play an important role in our combined efforts to reduce carbon emissions. MGE and the City have a history of working together to achieve shared goals. Among the projects MGE and the City have partnered on include technology demonstration projects for energy education and also carbon reduction efforts. We look forward to working together further to build upon our progress and bring this clean energy technology to our community for the benefit of all.

Thank you in advance for your consideration of this project.

Sincerely,

Jeffrey M. Keebler,
President & CEO

sll

Mahanth S. Joishy

(646) 545-9388 * mahanth@gmail.com * 202 N Hamilton St, Apt 605, Madison, WI 53703

EDUCATION

Georgetown University, Washington, D.C. – Bachelor of Science in Foreign Service, May 2001
Queens College, New York City –Master of Arts in Urban Affairs, May 2009
Languages: Fluent in English, Konkani; Working knowledge of Spanish, Hindi, Kannada

PROFESSIONAL EXPERIENCE

City of Madison Fleet Service, Madison, WI July 2017 – Present
Superintendent

- Manage equipment purchasing, auto repair, auction, data management systems, fuel services, customer service, and all related functions and policies for City of Madison vehicles and equipment
- Supervise department of 43 technical employees, four repair shops, and $18 million annual budget
- Lead sustainability initiatives by implementing hybrid vehicles, electric vehicles, biofuels, solar power generation for facilities, GPS hardware and software, and smart city integration
- Liaison with Madison Metropolitan School District for high school apprentices and interns, vehicle and shop equipment donations for educational purposes, and automotive vocational curriculum development
- Launched an area Fleet Manager Group to coordinate City, County, State, UW, and private fleet operations

NYC Department of Citywide Administrative Services, New York, NY November 2012 to July 2017
Director of Fleet Safety

- Oversaw safety training, collision tracking, and new vehicle technology for 30,000 vehicles and 80,000 drivers
- Served as DCAS liaison to the Vision Zero Task Force for traffic safety, US DOT Volpe Center, and NYC Emergency Management
- Managed high school automotive internship program in partnership with NYC Department of Education
- Conducted outreach to private fleets and vehicle safety companies, and organize public fleet safety forums
- Coordinated high-level planning and response operations for major citywide emergencies including terrorist attacks, blizzards, power blackouts, and hurricanes

City of New York, Parks & Recreation, New York, NY
Deputy Director – Citywide Operations June 2005 to December 2011
Analyst – Citywide Operations July 2001 to June 2005

- Reported to the Assistant Commissioner of Citywide Operations in a technical division of 80+ staff
- Oversaw team projects including performance measurement, vehicle safety, vehicle repair, agency wide awards programs, emergency management, waste management and recycling, and sign production
- Recruited, trained, and managed 250 volunteers in the newly launched Parks Greeter Corps
- Researched and promoted sustainable products and technology for park operations
- Prepared operating budgets for new developments including Fresh Kills Park and Riverside South Park
- Assisted production of first-ever Field Operations Book and other training materials for field staff

U.S. Dept. of Commerce, Washington, D.C. June to September 1999
Research Associate - International Trade Administration, E-Commerce Task Force

- Researched international trade issues, including the U.S.- E.U. policy developments in online privacy
- Monitored Executive and Congressional policy actions related to cyber security
- Studied Internet developments in Asian countries and assisted agency's foreign delegation
- Wrote U.S. position papers and talking points for Undersecretary of International Trade

Embassy of India, Washington, D.C. June to September 1998
Assistant to the Economic Minister

- Assisted strategy development in response to U.S. punitive sanctions following India's 1998 nuclear tests
- Monitored U.S. – India macroeconomic relations using media sources and official documents
- Maintained comprehensive database of 1,000 U.S. companies investing over $7 billion in India

Mahanth S. Joishy

(646) 545-9388 * mahanth@gmail.com * 202 N Hamilton St., Apt 605, Madison, WI 53703

EXTRACURRICULAR ACTIVITIES

Foreign Policy Digest - Regional Editor- South Asia Section — April 2010 to December 2011

- Oversee the South Asia section for internationally recognized web journal on foreign affairs
- Manage the author selection and article editing process
- Conduct interviews and write articles for South Asia and Features sections

City of New York, Parks & Recreation – Cricket Team Co-Captain — May 2007 to September 2010

- Co-founded the first-ever cricket team at a New York City agency in this fast-growing sport
- Represent Parks as batsman in the Mayor's Cup tournament and exhibition 20/20 matches

Georgetown Voice – Writer — September 1997 to May 1999

- Wrote over 30 articles for News and Leisure sections of weekly university newsmagazine
- Attended Editorial Board meetings to select submissions and help direct production

Georgetown Journal of International Affairs – Section Editor — September 1998 to September 2000

- Helped co-found a new, premier scholarly international affairs journal from scratch
- Solicited articles and interviews from leading scholars and practitioners in the field
- Selected and edited submissions as part of the Editorial Board
- Researched issues in global politics for Symposium topics appearing on each cover

Georgetown South Asian Society – President — September 1999 to May 2000

- Collected over $13,000 in revenue through sales and corporate sponsorship
- Organized catered dinner/ dance for 200 people and cultural show for 700 audience members
- Participated on national competitive dance team and performed before 5,000 audience members
- Stewarded S.A.S. to runner-up for Organization of the Year award among 150 campus student groups

Georgetown University Alumni Annual Fund – Telemarketer — September 1997 to May 1999

- Raised over $45,000 for academics, athletics, and campus life through direct solicitation of alumni
- Won awards for giving rate, dollar amount raised, and volume of donations received

Cleveland *Plain Dealer* - Writer & Correspondent — January 1996 to June 1997

- Wrote several dozen articles, reviews, interviews, and editorials for Youth section of Ohio's largest-circulation daily newspaper
- Responded to editor's "tip sheets" on current events and issues facing high school students

PROFESSIONAL AWARDS AND CERTIFICATIONS

- New York City Parks Employee of the Month, March 2003
- New York City Parks Beyond the Call Award, 2006, 2007 for emergency response work
- New York City Parks Best Special Event, Mayor's Cup Cricket Tournament, 2007
- New York City Parks Best Special Event, National Wheelchair Softball Tournament at Mets CitiField, 2010
- New York City Mayor's Customer Service Award, 2010
- Federal Laboratory Commission (FLC) National Technology Transfer Award, 2016
- Madison Metropolitan School District Certificate of Appreciation, 2018
- Certified in U.S. FEMA Incident Command System (ICS) 100, 200, 300, 400, 700, 800
- Certified in Threat Awareness Identification and Response, Incident Response to Terrorist Bombings
- NY State Certified Defensive Driving Instructor

Maintenance Schedule
for your 2017 Chevrolet Bolt EV

Certified Service	7,500 miles	15,000 miles	22,500 miles	30,000 miles	37,500 miles	45,000 miles	52,500 miles	60,000 miles	67,500 miles	75,000 miles	82,500 miles	90,000 miles	97,500 miles	105,000 miles	112,500 miles	120,000 miles	127,500 miles	135,000 miles	142,500 miles	150,000 miles
Rotate tires, if recommended for the vehicle, and perform Required Services.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Replace passenger compartment air filter (or 2 years, whichever comes first).			✓			✓			✓			✓			✓			✓		
Drain and fill vehicle coolant circuits.																				✓

Additional Maintenance / Care for your 2017 Chevrolet Bolt EV

Alignment

- Alignment is critical for ensuring that you get the maximum wear and performance of your tires.
- Signs that your alignment may need to be adjusted include your vehicle being pulled one way or the other as you drive or unusual tire wear.

Batteries

- The battery supplies energy to the vehicle to start the engine.
- Break downs or failure to start your vehicle can be avoided with having a great battery with full cranking power. Because of additional electrical accessories such as, on board computers and navigation systems, Reserve Capacity (RC) is an important factor as well.

Brakes

- Stopping power is crucial to a safe and successful driving experience. And when you need to stop, you don't want to second guess if your brakes are working properly.
- Signs of brake wear include chirping, grinding or squealing noise or difficultly stopping the vehicle.

Fluids

- To maintain optimum performance of your vehicle, it's important that your vehicle maintain adequate and proper fluid levels.

Hoses

- It's important that you regularly inspect hoses such as, heater and radiator hoses and ensure that they are in good working condition.
- Signs of wear include hoses that are worn, cracked, soft or blistered.

Lights

- When there's limited visibility, you want to make sure your head lights are bright and work properly.

Multi-Point Vehicle Inspection

- Protect yourself and your investment with a multi-point vehicle inspection.
- Your dealer can examine critical systems and inform you when they may need attention. They also check for visual conditions of many components.
- This inspection includes an examination of your tires, brakes, belts, hoses, lights, fluids and more.

Tires

- Your tires are what keeps your vehicle moving, so we want to ensure yours are properly aligned, balanced and in top shape. It is recommended that you rotate your tires every 7,500 miles or 12,000 kilometers.
- Signs to know when it's time to replace your tire include: You can see three or more of the tread wear indicators around the tire; Cord or fabric is showing through the rubber; The tread or sidewall is cracked or cut or your tire has a bulge or split.

Windshields

- Make sure to have the best view of the road. For safety, appearance and optimum performance, it's important that your windshield is clean and clear of scratches and cracks.
- Signs of wear include scratches, cracks, wind noise or water leaks.

Wiper Blades

- Make sure you have a clear view through your windshield with wiper blades that are in good condition.
- Signs of wear include streaking, skipping across the windshield, or worn or split rubber.

Certified Service

Chevy Bolt EV needs basically zero maintenance for first 150K miles

And even after that you won't need to do much to keep this $30,000 EV running like a top.

- Tim Stevens

December 9, 2016 11:30 AM PST

Electric cars have a lot of advantages. They're incredibly quiet, have a lot of torque and run on electricity that's so cheap compared to gasoline that it might as well be free. But EVs have other advantages too, and something that's often overlooked is how little maintenance they require.

Chevy's Bolt EV is coming to market right now, the company's low-cost, battery-electric hatchback that'll do well over 200 miles on a charge. In a test earlier this year along the California coast, I covered more than 240 miles without topping up, in a car that could cost you less than $30,000.

Maintenance Schedule Additional Required Services	12 000 km/7,500 mi	24 000 km/15,000 mi	36 000 km/22,500 mi	48 000 km/30,000 mi	60 000 km/37,500 mi	72 000 km/45,000 mi	84 000 km/52,500 mi	96 000 km/60,000 mi	108 000 km/67,500 mi	120 000 km/75,000 mi	132 000 km/82,500 mi	144 000 km/90,000 mi	156 000 km/97,500 mi	168 000 km/105,000 mi	180 000 km/112,500 mi	192 000 km/120,000 mi	204 000 km/127,500 mi	216 000 km/135,000 mi	228 000 km/142,500 mi	240 000 km/150,000 mi
Rotate tires and perform Required Services.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Replace passenger compartment air filter. (1)			✓			✓			✓			✓			✓			✓		
Drain and fill vehicle coolant circuits. (2)																				✓
Replace brake fluid. (3)																				

Just rotate those tires and you're in good shape for the first 150,000 miles.

As these cars are now starting to arrive into the waiting hands of consumers, we thought you might be curious to know what kind of maintenance schedule you're getting yourself into. But as the graphic above shows, you don't have much to worry about.

Tires will need rotating every 7,500 miles, the cabin air filter replaced every 22,500 miles (you can buy these online for less than $15) and the vehicle coolant flushed every 150,000 miles. And...yeah, that's it.

Chevrolet does recommend replacing the brake fluid every five years, and that you take it through the car wash every six months or so, but that's all. It doesn't get much simpler than that.

MADISON METROPOLITAN SCHOOL DISTRICT

545 West Dayton St. ■ Madison, Wisconsin 53703-1967 ▼ www.mmsd.org

Jennifer Cheatham, Ed.D., *Superintendent of Schools*

July 17, 2018

Kristy Nieto
Deputy Administrator
Division of Business and Program Management
Wisconsin Public Service Commission
4822 Madison Yards Way
PO Box 7854
Madison, WI 53705-7854

Dear Ms. Nieto,

I am writing on behalf of the Madison Metropolitan School District (MMSD) in support of the City of Madison Fleet grant application to the Public Service Commission Office of Energy Innovation for the purchase of 20 electric vehicles. MMSD strongly supports this grant application and its focus on education in an area of cutting-edge automotive technology critical for our students to learn, and will be for the foreseeable future. The positive environmental impact of reducing carbon emissions is also important for our community's health and the success of our students.

Currently four MMSD high schools- Memorial, East, West, and La Follette have vocational education programs in automotive technology. These high schools and others partner with Madison Fleet already on educational initiatives. Students from these schools are working as apprentices with full-time City automotive staff to inspect and repair municipal police cars, ambulances, garbage trucks, and other types of vehicles. These unique hands-on internships are paid and provide school credit. MMSD is accepting donations of used vehicles and shop equipment for classroom training purposes from Madison Fleet. Managers and staff from Madison Fleet have also hosted tours for high school students of City repair facilities, and brought equipment such as fire trucks and police cars to automotive classrooms for instruction. A number of high school automotive graduates have ended up joining the Madison Fleet workforce full-time.

The addition of electric vehicles by the City of Madison would be used for training the high school apprentices, and other high school automotive students for years to come. Madison Fleet has agreed to coordinate with the automotive high schools to demonstrate electric cars and electric chargers each semester at schools and City garages. Currently, our students are not exposed to electric vehicle and charger repair or operations as part of the curriculum.

Vehicle technology is changing rapidly, and the partnership with Madison Fleet on education is helping our students and teachers grow. Electric vehicles may soon be ubiquitous, but there are few in the Madison area. We look forward to working with OEI and Madison Fleet to implement new electric vehicle training while simultaneously promoting environmental sustainability for the next generation.

Sincerely,

Jennifer Cheatham
Superintendent

MADISON
AREA | TECHNICAL
COLLEGE

July 25, 2018

Kristy Nieto
Deputy Administrator
Division of Business and Program Management
Wisconsin Public Service Commission
4822 Madison Yards Way
PO Box 7854
Madison, WI 53705-7854

Dear Ms. Nieto,

Madison Area Technical College (Madison College) is a community college that offers educational opportunities to a wide variety of students with varying educational needs for more than 100 years, including in the area of automotive technician and mechanic. City of Madison Fleet Service and Madison College have a long-standing collaborative relationship. Madison College is the major feeder of our Transportation graduates for City of Madison for Fleet Technicians. Madison College strongly supports the City of Madison Fleet Service grant application to the Public Service Commission Office of Energy Innovation for the purchase of 20 electric vehicles.

It is absolutely essential for our Automotive Technology students to have access to current vehicles in order to master the competencies needed to be successful in industry. This collaborative partnership with the City of Madison allows our students to be able to assess, diagnose, trouble-shoot and maintain Electric Vehicles. Our students need to be able to fully understand safety procedures and equipment and to identify components and design configuration of electric vehicles. Having access to real world vehicles enhances our students learning experiences through the collaboration with the City of Madison. We applaud the planned electric vehicle purchase by City of Madison with anticipated assistance from the Wisconsin Office of Energy Innovation grant program. Electric vehicles are an emerging phenomenon, with different types of batteries, wiring, parts, and components that require separate and focused training.

Providing high quality instruction to our students during a time of rapid technological change and finite resources is challenging. Electric vehicles are an important part of sustainable mobility. By collaborating with City of Madison, our students will gain a knowledge base regarding Electric Vehicles, which will enhance our students' ability to compete and be successful in Automotive Technician field. We thank you for your consideration and look forward to moving forward on this collaborative partnership with your support.

Sincerely,

Dr. Denise Reimer
Dean of the School of Applied Science, Engineering & Technology