

Edwin J. Hughes

222 West Washington Avenue, Suite 900
P.O. Box 1784
Madison, WI 53701-1784
ehughes@staffordlaw.com
608.259.2658

September 28, 2015

VIA ELECTRONIC FILING

Ms. Sandra J. Paske
Public Service Commission of Wisconsin
610 North Whitney Way
P.O. Box 7854
Madison, WI 53707-7854

Re: Application of Madison Gas and Electric Company to Implement a Community
Solar Pilot Project
PSCW Docket No. 3270-TE-101

Dear Ms. Paske:

Enclosed please find for filing Application of Madison Gas and Electric Company to Implement a Community Solar Pilot Project, MGE's proposed Community Solar Service Rider Pilot 1 (Schedules Cs-1), and supporting exhibits.

With this Application, MGE proposes to implement an innovative community solar pilot project that is responsive to the preferences of its customers and that will provide interested MGE customers with a long-term opportunity to obtain up to half of their electricity needs from solar power. Unlike other community solar pilot programs recently authorized by the Commission, participation in MGE's proposed pilot will be available to customers with a relatively modest up-front investment.

Since customer participation in the proposed project is voluntary and there will be no increase in rates or reduction in service for non-participating customers, MGE does not believe a contested case proceeding is required.

Madison Office

222 West Washington Avenue
P.O. Box 1784
Madison, Wisconsin
53701-1784
608.256.0226
888.655.4752
Fax 608.259.2600
www.staffordlaw.com

Milwaukee Office

1200 North Mayfair Road
Suite 430
Milwaukee, Wisconsin
53226-3282
414.982.2850
888.655.4752
Fax 414.982.2889
www.staffordlaw.com

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All correspondence concerning this filing should be sent to the following:

Edwin J. Hughes
Brian Kleinmaier
Stafford Rosenbaum LLP
222 West Washington Avenue, Suite 900
P.O. Box 1784
Madison, Wisconsin 53701-1784
ehughes@staffordlaw.com

Donald D. Peterson
Madison Gas and Electric Company
133 South Blair Street
P.O. Box 1231
Madison, Wisconsin 53701-1231
dpeterson@mge.com

Thank you.

Very truly yours,

/s/Edwin J. Hughes

Edwin J. Hughes

EJH:lsh
Enclosure

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

Application of Madison Gas and Electric
Company for Approval to Implement
a Community Solar Pilot Project

Docket 3270-TE-101

To the Public Service Commission of Wisconsin:

Madison Gas and Electric Company (“MGE”) submits this Application pursuant to Wis. Stats. §§ 196.19 and 196.20 to implement a community solar project that will provide interested MGE customers with a long-term opportunity to obtain up to half of their electricity needs from solar photo-voltaic (“PV”) generation with a relatively modest up-front investment.

In 2015, MGE undertook research to learn more about its customers’ interests in community solar programs. The results demonstrated that MGE customers are favorably inclined toward a community solar pilot project. MGE has designed its project to be responsive to its customers’ preferences as they were revealed through the research.

Under the terms of the proposed pilot project (“Project”), MGE will arrange to construct a 500 kW solar PV installation on the roof of the City of Middleton’s Municipal Operations Center at 4330 Parmenter Street. MGE will then own and operate the facility.

MGE’s residential electric customers will be offered the opportunity to enter into an agreement by which they become entitled to a pro-rata share of the electricity generated at the Middleton facility (up to 50% of their annual electricity usage) for 25 years. Participation will be available in 250 watt (quarter-kW) increments up to a maximum of 3 kW. Participating customers will be required to pay a non-refundable Community Solar Participation Fee calculated on the basis of \$47.25 per quarter-kW share subscribed. The participants will then become entitled to the pro-rata electric generation from their share of the project, for which they will pay a locked-in electricity service charge of \$0.12/kWh for the life of the project.

The Middleton solar facility will feature smart inverters. In recognition of the system-wide benefits the smart inverters will provide to MGE, the Company proposes that half the cost of the inverters be allocated to the utility and the other half to Project participants. Except for a small portion allocated to MGE’s shareholders, the remaining costs of the Project will be borne by Project participants. These costs will be recovered through the Community Solar Participation Fee that Program participants will pay as well as through the locked-in kWh electricity service charge assessed for solar generation over the life of the project. The locked-in kWh charge has been calculated on a levelized basis to recover the capital costs as well as the modest ongoing O&M and administrative costs that will be incurred over the 25-year life of the Project.

This is a pilot program intended to test the accuracy of the Company’s market research and the viability of the Project’s structure and design. The Company intends to learn from the results of

the Project so that its subsequent solar offerings are sustainable, responsive to customer needs, and valuable to a wider range of the Company's electric customers.

Since customer participation in the proposed project is voluntary and there will be no increase in rates or reduction in service for non-participating customers, MGE does not believe a contested case proceeding or hearing is required.

A. Description and Design of the Project

MGE has entered into an innovative arrangement with the City of Middleton to foster the growth of solar generation in the City. Middleton is making available the rooftop of its Municipal Operations Center to host the Community Solar installation at no cost. MGE will also partner with the City on a 100 kW solar installation on the roof of the Middleton Police Department Building.¹

The 500 kW of the Community Solar Project will produce an estimated 648,000 kilowatt-hours per year. The specific equipment that will be incorporated into the Community Solar installation has not been finally determined, but the equipment is likely to include the following components or others of comparable quality:

PV modules like the Canadian-made Heliene 72P polycrystalline modules rated at 305 Watts/module, with an efficiency of 17.5%. They have a 25 year linear performance guarantee. http://www.heliene.ca/Userfiles/File/SpecSheets/Heliene72P_Final.pdf

A racking system like that made by Ecolibrium (Solar EcoFoot2). These are manufactured in Ohio and provide a very fast, low part count, modular racking system. http://www.ecolibriumsolar.com/wp-content/uploads/2014/07/EcoFoot2_datasheet.pdf

Project inverters like the Schneider's Conext CL-NA 25 model. This North American inverter is "smart" in that it can be programmed to automatically adjust its power factor in relation to power produced or line voltage. Other smart grid features such as the ability to ride out voltage sags, power up in a staggered manner after an outage, etc. can be easily programmed as they become available. http://cdn.solar.schneider-electric.com/wp-content/uploads/2015/06/conext-cl-na-18-25-datasheet_eng_web.pdf

The smart inverters will enable MGE to:

- Better understand the operational challenges of two-way flows of energy;

¹ MGE will own the second installation and will deliver the electricity generated from the installation to the grid. Construction costs will be minimized by capitalizing on the joint efficiencies available from then near-simultaneous installations of the two nearby projects. MGE's ownership of the Police Department project (and addition of the value of the project to its ratebase) will enable the Company to take advantage of the 30% federal Investment Tax Credit as well as the accelerated (MACRS) tax depreciation. At the end of seven years, Middleton will have the option to purchase the Project for the greater of its net book value or fair market value. MGE will retain 50% ownership of the project's smart inverters.

- Provide ancillary services to the grid such as VAR support and voltage regulation;
- Receive real-time generation data from the solar facility;
- Control the power entering the grid in the event of a grid emergency or during system restoration.

MGE is working with an experienced local solar installer, H&H Solar, to procure and install the Community Solar array. The project will benefit from competitive pricing on the PV modules, racking system, smart inverters, and installation (in part as a result of the favorable features of the Municipal Operations Center roof). MGE expects the all-in capital costs of the Community Solar installation to be below \$2/watt of installed AC capacity, as shown on Exhibit A.

B. Program Availability and Eligibility

Participation in MGE's Community Solar program will be available on a first-come, first-served basis to Rg-1 customers (renters and homeowners) who directly receive an MGE bill and who do not have solar panels installed on their residence. MGE may limit participation based on bill payment and collection history.

The Project capacity is expected to be 500 kW. This size project is likely to serve about 250 customers, based on an average subscription of 2 kW.

Participants must enter into an agreement to purchase the electricity produced by a specified portion of the Project and pay the applicable upfront Community Solar Participation Fee.

C. Program Subscription

As specified in the proposed Community Solar Service Rider Pilot-1 (Schedule Cs-1) submitted with this Application, Participants will subscribe to purchase the electricity generated from a portion of the 500 kW Project. Individual subscriptions will be measured in quarter kW. Each participant's subscription level will be limited to the lesser of 3 kW or the number of quarter kW that can be expected to generate 50% of their estimated total annual electricity use. Participants will be allocated their pro-rata portion of the PV output of the Project on a monthly basis, up to a maximum of the All kWh of electricity used by the customer that billing period.

For example, an eligible customer using an average of 4,000 kWh annually may elect to purchase the energy production of up to 1.5 kW of the project's capacity, an estimated 1,890 kWh of solar energy annually. The upfront Community Solar Participation Fee would be \$283.50.

MGE reserves the right to cancel and terminate the Community Solar project if more than 20% of the capacity of the program remains unsubscribed as of October 31, 2016.

D. Terms of Participation

Participants will be allocated their pro-rata portion of the output of the Community Solar Project, and pay the locked-in per-kWh electricity service charge for that output, for the life of the

program—25 years from the date project is put in service. They will also pay a reduced transmission service charge for the output. The output of the Community Solar Project allocated to each participant will displace an equal amount of electricity use on the participant's monthly bill. The remainder of the participant's monthly energy use will be billed at the standard Rg-1 electricity service and transmission service rates.

In order to receive this locked-in rate, participants must first pay an up-front, non-refundable Community Solar Participation Fee of \$47.25 per quarter kW share subscribed.

E. Participants Moving Within the Service Area

Participants may continue participating in the Project if they move to another address within MGE's electric service area. Should their annual energy use be less at their new dwelling, their original share of the solar energy production will be adjusted down in quarter-kW increments if necessary to maintain their solar energy proportion at no more than 50% of their annual energy use. (No portion of the Community Solar Participation Fee will be refunded.)

F. Ending Participation in the Project

Participants who move outside of MGE's service area will not be able to remain in the Project. Participants within MGE's service area may discontinue participation at any time. In any event, however, the Community Solar Participation Fee paid by the participant is non-refundable and non-transferable.

If a participant leaves the Project for any reason within the first three years after the project is on-line, their portion of the Project will be made available to the waiting list of MGE residential customers wishing to participate. Within this time period, any newly-subscribed participants must pay the applicable Community Solar Participation Fee.

If any portion of the Project becomes unsubscribed, the electricity generated from the Project associated with that unsubscribed portion will serve to reduce the amount of energy MGE purchases from the MISO market. The resulting cost savings will be accounted for through the Fuel Rules reconciliation process.

G. Renewable Energy Credits

All renewable energy credits ("RECs") associated with the electricity generated by the Project that is allocated to Program participants will be retired annually on the participants' behalf in accordance with the Midwest Renewable Energy Tracking System. Treatment of RECs will be subject to review if changing market conditions significantly enhance the value of RECs to the participants.

H. Participants and Shareholders Will Pay for the Program

Non-Participating MGE ratepayers will share half the cost of the installation's smart inverters, in recognition of the system-wide benefits the smart inverters will provide to the Company. All

other capital, O&M and administrative costs of the project will be borne by program participants or MGE shareholders, as shown on Exhibit B (Schedules 1 and 2).

The Company's revenue requirement for the Project consists of the initial capital costs of the installation as well as the O&M and administrative costs to be incurred over the Project's 25-year life. Annual O&M and administrative costs are conservatively estimated at \$13/kW. Project costs include a smart inverter replacement in year 12. These costs are to be recovered from participants through the up-front Community Solar Participation Fee and the locked-in kWh electricity service charge, which has been calculated on a levelized basis.

This levelized \$0.12/kWh electricity service charge was derived by first determining the net present value of the revenue requirement associated with the Project on a life-cycle basis, less the projected Community Solar Participation Fee revenues. The resulting amount was then divided by the kWh of electricity projected to be generated by the Project over the same period, to yield the per-kWh electricity service charge.

The electricity service charge is based on capital and administrative costs that will be incurred prior to the start of the Project as well as on a reasonable estimate of future O&M and administrative costs. No part of the charge is based on MGE's avoided costs or other future exogenous factors. Under these circumstances, there is minimal risk that changing cost trends in later years could raise cross-subsidy concerns about the locked-in electricity service charge.

Participants will also be billed a reduced transmission service charge of \$0.008/kWh for the PV production they are allocated, which reflects the value the Project provides the Company in reducing the peak demand upon which the transmission charges the Company must pay are based. Unlike the electricity service charge, the transmission service charge will not be locked-in for the 25-year life of the project and will be reviewed in subsequent rate cases to ensure a continuing 50% credit for the PV production from the Project.

A projected funding gap of \$85,000 in the total project cost will be borne by MGE's shareholders. This will effectively reduce the return on equity on the Project assets to a level below currently authorized levels. Despite this, the Company considers it reasonable for its shareholders to make this investment in light of the valuable insights this pilot Program will provide that will help shape the Company's subsequent Community Solar offerings.

Initially, the electricity service charge Project participants will pay will be higher than the electricity service charge under the Rg-1 tariff. Assuming a continuation in the trend of rising electricity costs, participants should realize a savings in subsequent years. It is likely to take approximately ten years for Project participants to begin to realize net savings and approximately 17 years for participants to recognize a financial payback.

If participants withdraw from the Project after its first three years, their portion of the PV output of the Project will be redirected toward satisfying the electricity demand of the Company's other rate payers. Exhibit C shows that this is likely to be beneficial for rate payers.

I. Project Benefits

As the Commission is aware, Community Solar projects hold great promise for expanding the number of electric customers able to share in the current benefits and future promise that solar PV generation provides. Pilot projects like the one MGE proposes enable the Commission and sponsoring utilities to expand their understanding of how to structure community solar projects to best unlock the customer value they offer.

MGE's pilot Project will also demonstrate the value of the grid in the delivery of PV to the Company's customers. The National Renewable Energy Lab estimates that only about 25% of residential roofs are fully suited for solar installations. This Project will expand the number of customers that can take advantage of the benefits of PV.

The pilot Project MGE proposes, informed by its research on its customers' preferences, differs from the pilots recently authorized by the Commission in the following significant ways:

- Customers will be able to participate in the Project with a relatively modest upfront payment of a Community Solar Participation Fee.
- The Community Solar Participation Fee is non-refundable and project participation is non-transferable.
- Participants will pay an electricity service charge and reduced transmission service charge for their pro-rata share of the electric output of the Project.
- The electricity service charge will be locked-in for the 25-year life of the Project, enabling participants to calculate their likely payback period and future benefits, based on their assumptions regarding future electricity pricing trends.
- MGE will retain ownership of the solar installation.

The innovative components of MGE's pilot Project will ensure that the results of the Project will contribute to the Commission's understanding of how best to structure community solar projects to maximize customer benefits while avoiding cross-subsidies. MGE is willing to report annually to the Commission on the results of the Project in whatever form and detail the Commission would find most useful.

CONCLUSION

WHEREFORE, MGE respectfully requests that the Commission approve MGE’s Community Solar Project as described in this Application and also approve MGE’s proposed Community Solar Service Rider Pilot – 1 (Schedule Cs-1).

Dated at Madison, Wisconsin, this 28th day of September, 2015.

STAFFORD ROSENBAUM LLP

/s/ Edwin J. Hughes

By _____
Edwin J. Hughes
Bryan Kleinmaier
Attorneys for Applicant,
Madison Gas and Electric Company

2 West Washington Avenue, Suite 900
P.O. Box 1784
Madison, Wisconsin 53701-1784
608.256.0226



Community Solar Service Rider Pilot 1

AVAILABILITY

Available to customers served under the Residential Service Rg-1 rate schedule who do not have a renewable energy generation source located at or directly connected to their service location who want to designate up to the lesser of 50% of their average annual energy usage or 3 kW of production to come from the Middleton Community Solar Project located on the City of Middleton's Municipal Operations Center rooftop.

The Company may also further limit individual subscription levels based on specific monthly usage variations and will work with interested customers to select an appropriate quarter kW subscription level. Participation is limited to single meter, single location customers.

Service on this CS-1 rate schedule will be available on a first-come, first-served basis to customers who execute a service agreement. Approximately 500 kW of total service is available in this project.

This tariff pertains to the community solar portion of the customer's energy use. Service will be provided based on the customer's subscribed quarter kW share of the project. Customers will receive a percent of the energy produced by the project based on the percentage share their individual subscription represents of ongoing production volume.

RATE

Community Solar Participation Fee..... \$47.25 per quarter kW share subscribed

All provisions of the applicable Rg-1 rate schedule will apply with the exception of the following modification: The solar energy supplied under this rider pursuant to the customer's subscribed share of the project will replace an equal amount of kWh for which the customer would otherwise be billed the Rg-1 electricity service charge. The solar energy will be billed in accordance with the following rates:

Transmission Service: Cs-1 kWh, per kWh..... 0.800¢
Cs-1 Electricity Service: Cs-1 kWh, per kWh..... 12.000¢ (see Special Terms and Provisions No. 6)

All energy purchased under this rider is exempt from fuel cost surcharges and credits.

PAYMENT

Payment is due not later than the due date shown on the bill. Any Company billing charges unpaid after the due date will be subject to a late payment charge as described in the Company's electric service rules under Late Payment Charge.

SPECIAL TERMS AND PROVISIONS

1. Customers must execute a Cs-1 service agreement to subscribe to service on this rider.
2. Service on this rate schedule will commence with the first regular meter reading following approval of the customer's service agreement by the Company and after the Middleton Community Solar Project goes into service. Service will terminate 25 years later.



Community Solar Service Rider Pilot 1

SPECIAL TERMS AND PROVISIONS (continued)

3. Any customer choosing to be served on this rate schedule thereby waives all rights to any billing adjustments arising from a claim that the bill for the customer's service would be cheaper on any alternative rate schedule for any period of time, including any rights under Wis. Admin. Code § PSC 113.0406(4), Reg. January 2004, No. 577.
4. Prior to or coincidental with service commencing, the customer must pay the one-time, nonrefundable Community Solar Participation Fee.
5. Service hereunder is provided through one meter to one end-use customer. Service provided hereunder may not be redistributed or resold.
6. The Cs-1 Electricity Service per kWh charge will remain locked for the entire term of the customer's participation in the Cs-1 program, regardless of other changes that may from time to time be approved by the Public Service Commission of Wisconsin to either the Rg-1 Residential Service charges or the Cs-1 Transmission Service per kWh charges.
7. The customer's solar share will be converted into kWh Cs-1 use per billing period based on the customer's proportionate subscribed share of the project. This volume will be the lesser of the calculated share volume or the all kWh of electricity used by the customer per billing period.
8. If a customer moves to another location within the MGE service territory, the quarter kW Cs-1 project share at the new location will be limited to an amount equal to the lesser of the amount at the old location or 50 percent of the amount at the new location. Customers cannot transfer their share of service to other customers. There will be no adjustment to the previously paid Community Solar Participation Fee.
9. All renewable energy credits associated with energy produced by the Middleton Community Solar Project and purchased by customers participating in this program will be retired annually.
10. Due to the fact this service is optional and may increase utility bills, the Company may limit customer participation in the program based on bill payment and collection histories.

Madison Gas & Electric Company

Middleton Community Solar Pilot Project
 Capital Expenditure Forecast

Cost Category

Installed Cost of Panels	\$858,000
Smart Invertor (project share)	\$42,000
Capital Cost of Land	\$0
Installed Vendor Cost	\$900,000
Overhead Loadings	5%
Fully-loaded Capital Cost	\$945,000
Installed Capacity (kW - AC)	500
Loaded Cost (\$/kW Capacity)	\$1,890

Assumptions:		
Equipment Cost:	\$945,000	linked to assumptions tab
Service Life - Yrs:	14.49	recent rate review of PV
Tax Life - Yrs:	5	
Net Salvage - %:	0.0%	not used
Federal Income Tax Rate:	35.00%	
Federal Effective Rate	32.24%	
State Income Tax Rate:	7.90%	
State Effective Rate	7.90%	
Composite Income Tax Rate:	40.14%	calculated
Income Tax Multiplier:	53.851%	
Income Tax Multiplier:	13.197%	calculated
Combined Tax Multiplier:	67.056%	
Gross Receipts Tax:	3.19%	
Discount Rate:	7.97%	calculated

Cost of Capital, 3270-UR-120:			
Item	Percent	Cost	Weighted Cost
Common Stock	58.96%	10.20%	6.01% % and cost linked to assumptions tab
Long Term Debt	37.96%	5.13%	1.95% % and cost linked to assumptions tab
Short Term Debt-Fixed	3.08%	0.40%	0.01% % and cost linked to assumptions tab
Short Term Debt	0.00%	0.00%	0.00% % and cost linked to assumptions tab
Total	100.00%		7.97% calculated
Total Equity	58.96%		6.01% calculated
Total Debt	41.04%		1.96% calculated

ITC Credit	30%		
Tax Payment Reduction (Yr1)	\$283,500	ITC Gross Reduction	\$283,500
Tax Basis Reduction(%)	50%		
Tax Basis Reduction	\$141,750	X 35.00%	(\$49,613)
Revised Federal Tax Basis	\$803,250	ITC Net Benefit	\$233,888

Year	Plant	Beg. of Yr. Unrecovered Investment (C)	Average Rate Base (D)	Equity Return (E)	Debt Return (F)	Book Depn. (G)	Federal Deferred Income Taxes (H)	Federal Deferred Income Taxes (State Affect) (I)	Federal ITC Credit Deferred Income Tax Impact (J)	State Deferred Income Taxes (K)	Federal Income Taxes (L)	State Income Taxes (M)	Normalized Federal ITC Credit (N)	Gross Receipts Taxes (O)	Revenue Requirement (P)	
															0.0%	
2015	1	\$945,000	\$945,000	\$887,555	\$53,342	\$17,396	\$65,205	\$33,406	(\$3,423)	\$9,923	\$9,780	\$28,725	\$7,040	(\$16,138)	\$0	\$155,570
2016	2	\$945,000	\$830,110	\$749,908	\$45,069	\$14,698	\$65,205	\$67,142	(\$6,558)	\$15,876	\$18,738	\$24,270	\$5,948	(\$16,138)	\$4,963	\$144,015
2017	3	\$945,000	\$669,707	\$613,779	\$36,888	\$12,030	\$65,205	\$31,157	(\$3,214)	\$9,526	\$9,183	\$19,864	\$4,868	(\$16,138)	\$4,594	\$127,312
2018	4	\$945,000	\$557,851	\$516,487	\$31,041	\$10,123	\$65,205	\$9,565	(\$1,207)	\$5,715	\$3,449	\$16,716	\$4,097	(\$16,138)	\$4,061	\$115,104
2019	5	\$945,000	\$475,123	\$433,759	\$26,069	\$8,502	\$65,205	\$9,565	(\$1,207)	\$5,715	\$3,449	\$14,038	\$3,440	(\$16,138)	\$3,672	\$104,788
2020	6	\$945,000	\$392,396	\$361,955	\$21,753	\$7,094	\$65,205	(\$6,628)	\$298	\$2,858	(\$851)	\$11,714	\$2,871	(\$16,138)	\$3,343	\$95,843
2021	7	\$945,000	\$331,514	\$311,997	\$18,751	\$6,115	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$10,098	\$2,475	(\$16,138)	\$3,057	\$89,562
2022	8	\$945,000	\$292,479	\$272,962	\$16,405	\$5,350	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$8,834	\$2,165	(\$16,138)	\$2,857	\$84,678
2023	9	\$945,000	\$253,444	\$233,927	\$14,059	\$4,585	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$7,571	\$1,855	(\$16,138)	\$2,701	\$79,838
2024	10	\$945,000	\$214,409	\$194,892	\$11,713	\$3,820	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$6,308	\$1,546	(\$16,138)	\$2,547	\$75,000
2025	11	\$945,000	\$175,375	\$155,857	\$9,367	\$3,055	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$5,044	\$1,236	(\$16,138)	\$2,392	\$70,161
2026	12	\$945,000	\$136,340	\$116,822	\$7,021	\$2,290	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$3,781	\$927	(\$16,138)	\$2,238	\$65,323
2027	13	\$945,000	\$97,305	\$77,787	\$4,675	\$1,525	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$2,518	\$617	(\$16,138)	\$2,084	\$60,485
2028	14	\$945,000	\$58,270	\$38,752	\$2,329	\$760	\$65,205	(\$22,822)	\$1,803	\$0	(\$5,151)	\$1,254	\$307	(\$16,138)	\$1,929	\$55,646
2029	15	\$945,000	\$19,235	\$9,617	\$578	\$188	\$32,130	(\$11,246)	\$888	\$0	(\$2,538)	\$311	\$76	\$0	\$1,775	\$35,059
2030	16	\$945,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,118	\$1,118
2031	17	\$945,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$36	\$36
2032	18	\$945,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1	\$1
2033	19	\$945,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2034	20	\$945,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sum of Nominal Amounts:				\$299,061	\$97,531	\$945,000	(\$49,613)	\$0	\$49,613	\$0	\$161,046	\$39,468	(\$225,935)	\$43,369	\$1,359,541	

Madison Gas & Electric Company

Community PV - Calculation of Rate Required to Fully Collect Capital & O&M
2016 - 2035 All-in Revenue Requirements

Years 7 - 23 Hidden for Viewing Purposes

PV Ownership Cost Summary:	0	1	2	3	4	5	6	24	25
		2016	2017	2018	2019	2020	2021	2039	2040
Capital Costs	\$945,000								
Revenue Requirement on Land / Rooftops		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Ratebase Recovery Required (Equity/Debt/Tax)*		\$155,570	\$144,015	\$127,312	\$115,104	\$104,788	\$95,843	\$0	\$0
O&M Costs		\$6,500	\$6,663	\$6,829	\$7,000	\$7,175	\$7,354	\$11,470	\$11,757
MGEE Contribution		(\$85,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Revenue Requirements		\$77,070	\$150,678	\$134,141	\$122,104	\$111,963	\$103,197	\$11,470	\$11,757
Total Revenue Requirements / kW		\$154	\$301	\$268	\$244	\$224	\$206	\$23	\$24
NPV of Costs to Utility	\$893,101								
MGE Required Rate of Return	7.97%								
Size of Array (500 kW)	500								
NPV Cost to Utility / kW		\$1,786							
Levelized Cost Recovery WITH 10% UPFRONT PAYMENT (\$/kW):									
	0	1	2	3	4	5	6	24	25
Levelized Rate w/ 10% Upfront		2016	2017	2018	2019	2020	2021	2039	2040
Require Rate		\$0.120	\$0.120	\$0.120	\$0.120	\$0.120	\$0.120	\$0.120	\$0.120
Annual Production (kWhs/kW)		1,296	1,290	1,284	1,277	1,271	1,264	1,155	1,150
	<i>Upfront Pmt</i>								
Customer Annual Payments	\$189	\$155	\$155	\$154	\$153	\$152	\$152	\$139	\$138
Ratepayer's NPV of Payments (@7.97%)		\$1,786							

Middleton Community Solar Pilot Project

Financial Benefits(Costs) to Ratepayers of Participant Early Exit of Community Solar Pilot

(\$/kW of Capacity)

Year Participant Exits Pilot:	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Years of Participation Prior to Exit:		1	2	3	4	5	6	7	8	9	10
Remaining Years of Pilot	2016 - 2040	2017 - 2040	2018 - 2040	2019 - 2040	2020 - 2040	2021 - 2040	2022 - 2040	2023 - 2040	2024 - 2040	2025 - 2040	2026 - 2040
NPV or Remaining Savings (Costs):											
2.0% Annual Inflation Rate	(\$156.08)	(\$130.38)	(\$105.33)	(\$80.99)	(\$57.48)	(\$34.85)	(\$13.22)	\$7.33	\$26.67	\$44.68	\$61.22
3.0% Annual Inflation Rate	(\$13.60)	\$23.46	\$59.51	\$94.42	\$128.02	\$160.11	\$190.51	\$219.00	\$245.33	\$269.26	\$290.50
4.0% Annual Inflation Rate	\$148.77	\$198.77	\$247.55	\$294.86	\$340.44	\$384.00	\$425.20	\$463.68	\$499.07	\$530.92	\$558.76
5.0% Annual Inflation Rate	\$334.28	\$399.07	\$462.55	\$524.40	\$584.21	\$641.55	\$695.96	\$746.89	\$793.77	\$835.93	\$872.68