BEFORE THE

PUBLIC SERVICE COMMISSION OF WISCONSIN

Application of Madison Gas & Electric Company for

Authority to Adjust Electric and Natural Gas Rates **Docket No. 3270-UR-125**

TESTIMONY OF KATHRYN R. KUNTZ ON BEHALF OF DANE COUNTY

Q. Please state your name and business address.

A. My name is Kathryn R. Kuntz. My business address is the City-County Building at 210 Martin Luther King, Jr., Blvd, Suite 421, Madison, WI 53703.

Q. By whom are you employed and in what capacity?

A. I am employed by Dane County. My title is Director of the Dane County Office of Energy & Climate Change. In this role I am responsible for leading Dane County's efforts to reduce greenhouse gas emissions and increase climate resilience, both internal to Dane County's operations and on a countywide basis.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of Dane County, one of the intervenors in the above captioned matter.

Q. Please state your educational background.

A. I received a Bachelor of Arts in Mathematics and History from the University of Minnesota, Morris and a Master's in US History from the University of Wisconsin, Madison. I am a Certified Climate Change Professional (CC-P®) from the Association of Climate Change Officers.

Q. Please describe your work experience in the utility industry.

A. I have thirty years of experience in the energy utility industry, coupled with prior experience in anti-poverty efforts. I have been employed at Dane County since November 2019 and the Director of the Office of Energy & Climate Change since 2020. Prior to working at Dane County I was the Executive Director of Cool Choices, a nonprofit created to implement a set of recommendations from Governor Doyle's Global Warming Task Force; in that role I worked collaboratively with utilities across Wisconsin and the Midwest on initiatives to accelerate climate action. From 2001 to 2010 I worked at Wisconsin Energy Conservation Corporation (WECC, now Slipstream) where my responsibilities included establishing various programs under

the statewide Focus on Energy program and, from 2007 to 2010, leading the Focus on Energy portfolio. In that role I worked closely with Focus on Energy program implementers, trade allies and utilities to accelerate energy efficiency and renewable energy adoption in the state. Before joining WECC, I worked as a project manager at the Energy Center of Wisconsin and Wisconsin Demand-Side Demonstrations, implementing energy efficiency programs and research in conjunction with utility partners. And before joining the energy industry in 1993 I worked as the research and program operations lead at the West Central Wisconsin Communication Action Agency (West CAP) for three years on an experimental anti-poverty program called the Full Circle Project.

Additionally, in 2019, the Public Service Commission (Commission) appointed me to be the Evaluation Industry Expert Representative on the Focus on Energy Evaluation Working Group. I continue to serve in that role.

Q. Have you testified in previous cases before the Commission?

A. No

Q. Are you sponsoring any exhibits in conjunction with your testimony?

A. Yes. I am sponsoring four exhibits:

- Ex.-DC-Kuntz-1: the Dane County Climate Action Plan
- Ex.-DC-Kuntz-2: the CADMUS: Focus on Energy 2021 Rooftop Solar Potential Study Report
- Ex.-DC-Kuntz-3: Regulatory Assistance Project, *Rate-Making Principles and Net Metering Reform: Pathways for Wisconsin*, 2022
- Ex.-DC-Kuntz-4: State of Wisconsin, *Clean Energy Plan*, 2022

Q. Were these exhibits prepared by you or under your direction?

A. Yes.

Q. What is the purpose of your testimony?

A. My testimony will describe how MGE's proposed changes to net metering will jeopardize Dane County's ability to achieve its climate action objectives, which are consistent with both federal and state clean energy and climate action goals.

Q. Please describe Dane County's interest.

A. In 2020 Dane County issued a Climate Action Plan (CAP) (Ex.-DC-Kuntz-1), which laid out strategies for cutting countywide emissions in half by 2030 and putting the County on a path to carbon neutrality by 2050.[1] CAP (Ex.-DC-Kuntz-1) was the culmination of three years of collaborative work with community stakeholders, including MGE.

We have two concerns about MGE's proposed changes to net metering:

[1] Ex.-DC-Kuntz-1.

- First, it will unnecessarily jeopardize our ability to achieve our countywide climate action goals by impeding solar adoption and, by extension, clean energy efforts more broadly; and
- Second, it will exacerbate existing inequalities in the energy economy by reducing the potential for underserved communities to benefit from solar installations.

Both of these concerns are described in more detail in this testimony.

Climate Action Planning & Implementation

Q. Please describe Dane County's climate action planning effort.

A. Dane County Executive Joseph Parisi established the Office of Energy & Climate Change in 2017, naming Keith Reopelle as the first Office Director. Parisi charged the Office with leading climate action efforts across Dane County. At the same time Parisi established a Council on Climate Change, asking the Office to work with the Council to create a countywide climate action plan.

The Council on Climate Change (Council) had 38 members, including three energy utility representatives from MGE, Alliant Energy and WPPI Energy.[2]

As part of the CAP, the Council developed a set of guiding principles (including equity and justice). The Council used a working group model to develop the array of emission-reducing strategies that make up the bulk of the CAP. In addition to a work group focused on climate modeling, the Council established nine working groups made up of subject matter experts to develop specific recommendations associated with:

- Energy Efficiency
- Buildings
- Transportation and Land Use
- Renewable Energy Production
- Agriculture and Forestry
- Water Energy Nexus
- Waste Materials and the Circular Economy
- Finance Solutions

The Council also created a Public Engagement Work Group and leveraged existing interactions between local municipalities to inform the work. Each work group developed a set of recommend strategies that would reduce emissions. The work groups presented their recommendations to the Council and, after discussion and some revisions, the expert recommendations were integrated into the CAP (Ex.-DC-Kuntz-1).

Reopelle secured foundation funding to help pay for expert climate modeling as part of the CAP (Ex.-DC-Kuntz-1). He hired Sustainable Energy Economics to do the modeling using their proprietary FACETS (Framework for the Analysis of Climate-Energy-Technology Systems) model. Once working groups had developed recommendations, the modelers estimated emissions

[2] A full list of organizations participating in the Council is available at https://daneclimateaction.org/climate-action-plan. This citation is not record evidence.

impacts and used that information as part of the modeling. The CAP (Ex.-DC-Kuntz-1) includes a set of time and sector-specific climate outcomes alongside modeling that shows how those outcomes can reduce countywide emissions by 50% by 2030.[3] Relative to solar, one outcome is that Dane County be served by 1200 MW of solar power by 2030. This outcome includes both customer-sited systems and utility-scale projects.

From the perspective of the CAP (Ex.-DC-Kuntz-1), there are benefits to pursuing both customer-sited solar energy systems and utility-scale projects simultaneously. While utility-scale projects have a lower total cost of construction, the full cost of those utility projects is borne by ratepayers whereas the public bears just a fraction of the cost of customer-sited projects where the private owners typically shoulder about two-thirds of the costs (accounting for both federal and Focus on Energy incentives). More, customer-sited projects are typically faster to install, requiring just a few months versus several years. And rooftop solar systems are consistently more popular with the general public, especially where there are concerns about rural farmlands.[4] Clearly utility-scale projects will represent the bulk of solar energy installed but the CAP (Ex.-DC-Kuntz-1) supports coincident customer-sited rooftop systems and robust community solar too.

Q. What was the outcome of Dane County's climate action planning?

A. Dane County released the Climate Action Plan (CAP) in April 2020.[5]

In the early months of 2020, Reopelle worked closely with Council members to ensure that every Council member supported the language in the CAP (Ex.-DC-Kuntz-1). All members of the Council on Climate Change signed on in support of the final CAP document (Ex.-DC-Kuntz-1). Additionally, the Dane County Board voted unanimously to support the CAP (Ex.-DC-Kuntz-1) and its implementation (2020 RES-181).[6]

Dane County's press release about the CAP quoted MGE CEO Jeff Keebler:

"MGE committed two years ago to aggressive carbon reductions by 2050 and we are pleased to partner with the county toward these efforts," said Jeff Keebler, MGE Chairman, President and CEO.[7]

The Dane County CAP (Ex.-DC-Kuntz-1) is unique insofar as it set ambitious targets and also delineated specific strategies as well as the outcomes necessary to achieve those targets. In public talks about the CAP (Ex.-DC-Kuntz-1), I often say that it set ambitious goals and laid out the path necessary to achieve those goals.

---

[3] https://daneclimateaction.org/climate-action-plan/Progress-on-CAP. This citation is not record evidence.
[4] Roberta S. Nilson, Richard C. Stedman, Are big and small solar separate things?: The importance of scale in public support for solar energy development in upstate New York, Energy Research & Social Science, Volume 86, 2022, 102449, ISSN 2214-6296, https://doi.org/10.1016/j.erss.2021.102449. (https://www.sciencedirect.com/science/article/pii/S2214629621005363). This citation is not record evidence.
[5] Ex.-DC-Kuntz-1.
[6] https://dane.legistar.com/View.ashx?M=F&ID=8765814&GUID=228FB3E9-3F3A-4A8A-9529-72F87A99911E. This citation is not record evidence.
[7] Ex.-DC-Kuntz-1.

The CAP (Ex.-DC-Kuntz-1) is also unique insofar as the guiding principles, including equity and justice, set by the Council are integrated into the recommendations from every work group.

Q. Please describe how Dane County is implementing the Climate Action Plan (CAP).

A. I joined the Office of Energy & Climate Change in November 2019 and one of my first responsibilities was to recommend strategies for implementing the CAP (Ex.-DC-Kuntz-1). I began by delineating all of the recommendations included in the CAP (Ex.-DC-Kuntz-1) and then prioritizing sectors and recommendations based on both the potential for emissions reduction and the current state of progress. Our strategy has been to focus our limited time and resources on the areas with high potential where there is not sufficient progress. At the same time, though, we provide limited support to areas with strong momentum so that the momentum continues.

The electric vehicle (EV) market, for example, has a lot of momentum given the commitments that major auto manufacturers have made around electrifying their fleets. As a result, we spend relatively little time working on that market.

By contrast, the building electrification market has been slower to develop in Wisconsin so I helped to launch an informal network of HVAC manufacturers, distributors and interested parties to collaborate on efforts to accelerate heat pump adoption.

Solar is one of the markets that has had good momentum in Dane County. The Cadmus 2021 Rooftop Solar Potential Study Report (Ex.-DC-Kuntz-2) indicates that MGE has more solar installations per capita than other investor-owned utilities,[8] likely in large part because of MGE's current net metering policies. The report also projects that Dane County would have the highest portion of rooftop solar in 2026 and 2034, again, if current trends and policies continue.[9] And the county has led a number of innovative utility-County solar arrays including Dane County's partnerships with MGE at the Dane County Regional Airport and with Alliant Energy and SunVest Solar on county-owned land at the Yahara Solar Project in the Town of Cottage Grove. Still, we know that even Dane County is far behind the solar progress in neighboring states and we know that there are substantive equity gaps—that low and moderate income households as well as community-based institutions that serve those populations lack access to the benefits associated with solar. Addressing that equity gap has been our focus in the solar market.

Q. What kinds of activities is Dane County pursuing to realize the goals of the Climate Action Plan?

A. Under Wisconsin statutes county governments have limited policy authority. Rather than issuing mandates, our approach is to demonstrate the benefits of climate action and then empower entities—businesses, nonprofits, local governments and individuals—to pursue actions that reduce emissions. We do this via several key strategies:

[8] Ex.-DC-Kuntz-2, page 18. Report is also available in PSC ERF under docket 5-FE-104 at https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=421984.

[9] Ex.-DC-Kuntz-2, page 31.

- *Lead by example in Dane County operations*: The County aims to be a model for the strategies we advocate. This year, for example, Dane County achieved 100% renewable electricity offsets through solar energy partnerships with both WPL and MGE. As our project was nearing completion, we provided advice to the Village of McFarland so that they could pursue a similar project with WPL. Similarly, we have helped other municipalities understand MGE's renewable energy rider program. The strategy here is to pursue innovative solutions and then share the results with others so that they can pursue similar outcomes.
- *Make it easier for local entities to take action*: A big role for the Office is to connect people to resources and remove barriers to action. We want to make sure people are aware of Focus on Energy resources, for example. We co-founded the Sustainability Leaders Collaborative, for example, to connect local governments and school districts, facilitating cooperation that can accelerate results. And, recognizing the unprecedented potential of the Inflation Reduction Act (IRA), we launched a substantial communications strategy about the IRA that includes online resources, public presentations and a growing network of allies who help us share IRA-related information out to diverse communities.[10] We aim to empower all Dane County stakeholders to take full advantage of the federal funding available. Insofar as about two-thirds of the IRA is tax credits, these funds will go where projects occur; there is no formula that ensures that Dane County (or even Wisconsin) will get a certain share of the funding, unless we make sure that entities are aware of the funds and pursue opportunities.
- *Celebrate progress to spur more action*: Positive reinforcement is a powerful tool because recognition can inspire action among peers who witness the recognition while also deepening the commitment to action in the entity that was recognized. The Office created a Climate Champions program to showcase local leadership on climate action and we are pleased to see that the program is motivating public and private entities to pursue climate action. To date Dane County has recognized almost 150 entities as Climate Champions including prominent local businesses (American Family, CUNA Mutual, Epic, Exact Sciences, MGE, Summit Credit Union, WPPI Energy, UW Health) as well as numerous local governments and school districts (Fitchburg, Madison, McFarland, Middleton, Monona, Oregon, Shorewood Hills, Sun Prairie).

In addition, we work closely with allies across Wisconsin, learning from each other and collaborating on issues of shared concern. Dane County co-founded the Wisconsin Local Government Climate Coalition, for example, so that climate ambitious local governments could collaborate on statewide policy issues. We also work closely with Office of Energy Innovation and Office of Sustainability and Clean Energy staff on a variety of climate initiatives.

Finally, I would just note that a key focus for us since August 2022 has been to promote and leverage the unprecedented federal dollars that are now available to support local climate action through the IRA. We leverage the IRA as part of all of the strategies laid out above—we are using IRA credits to finance Dane County projects and sharing our experience with others. To lead by example, we set up new webpages about the IRA to make it easier for local people and

[10] This citation is not record evidence.

businesses to access the funds and we are already making plans to celebrate local entities who are using IRA funds to achieve their climate goals. The IRA offers substantive funding that can enable many of the ambitious targets laid out in Dane County's CAP (Ex.-DC-Kuntz-1) as well as the broader statewide goals set forth in Governor Evers' Clean Energy Plan.[11]

The IRA is really a once-in-a-generation opportunity to accelerate clean energy investments in a way that can transform our economy. As discussed below, we are very concerned that MGE's proposed changes to net metering will nullify key opportunities within the IRA, jeopardizing our progress on climate goals but also ensuring that Wisconsin is left behind relative to the clean energy future that other states are successfully pursuing.

Impact on Countywide Climate Action Goals

Q. How do you expect MGE's proposed changes to net metering to affect customer-sited solar installations?

A. The proposed changes to net metering will definitely slow customer-sited solar installations in Dane County. Installations will slow because projects will have longer paybacks and it will be much more difficult for customers to determine whether or not a solar array is a cost effective investment. MGE proposes to transition away from an easy-to-understand and easy-to-estimate net metering protocol with monthly netting of electricity imports and exports to a more complex system wherein each export to the grid and each import from the grid is valued separately.

Dane County has had an active 9 MW Renewable Energy Rider (RER) project with MGE at the Dane County Regional Airport since December 2020. Under the RER, Dane County gets a discount on the solar output that is used in real time by specific Dane County meters and then MGE pays us the avoided cost rate for excess generation. Accordingly, I am quite familiar with an arrangement where real-time solar production is paired with real-time electric consumption. I spent the first half of 2021 working with MGE staff to understand the available RER data, resulting in a primer I still use to orient new County staff to the RER. One of the clear lessons from the RER is that pairing solar and consumption at 15-minute intervals yields very different economics than would monthly net totals. I am also convinced it is very difficult to predict the economics of the instant true up unless one had several years of AMI consumption data and, even with the data, the estimation process is a complicated calculation.

In 1-DC-DR-8, MGE confirmed that just 3.4% of their residential customers have AMI meters and that, of the 3.4% with AMI meters, 41.9% already have solar installations.[12] That means that just 1.4% of MGE residential customers without solar have an AMI meter that could provide those customers with the real-time data to understand optimal sizing of a solar array under the new proposed rates. Moreover, without broader residential AMI data, it is infeasible that MGE staff

[11] Ex.-DC-Kuntz-4.

[12] https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=475871. This citation is not record evidence.

or solar installers can provide customers with clear advice on solar sizing. All of this creates additional uncertainty, which will stall installations.

The savings calculations are further complicated by the fact that MGE's proposed buy back rates for these systems will vary from year to year based on external factors associated with the regional power grid—factors that are well beyond the understanding of a typical consumer. In MGE's response to questions from RENEW Wisconsin (1-RENEW-RA-1) Brian Penington of MGE explains that "customers with their own electric generation facilities having an aggregate capability of producing 20 kW-AC or more of electricity may negotiate with MGE for rates other than specified in this rate schedule."[13] This means that larger, more sophisticated customers with larger solar arrays will be able to negotiate while small businesses and residential customers will be stuck with a complicated and variable rate that they do not understand.

This complexity will increase customer uncertainty about solar and it will slow the installation of rooftop solar arrays.

The complexity will also likely mean that local installers will be less able to estimate savings, which will surely discourage some customers from installing. It seems likely that the only customers pursuing installations under MGE's proposed rate structure will be those entities who have the financial means to install solar regardless of any payback potential. So instead of seeing a steady growth in installations I would expect a substantial drop in installations. If MGE's net metering proposal is approved our area will go from being a leader on customer-sited solar to being a laggard in installations.

The reduction in solar installations will, of course, affect the local businesses that perform solar installations. In the year since the passage of the IRA I have spoken with several local solar installers who told me that the ten years of robust tax credits under the IRA gave the installers confidence to add staff and grow their businesses. MGE's proposed changes to net metering would undo that market certainty.

More, a dramatic slowdown in solar installations is likely to also slow electrification and even energy efficiency efforts across Dane County, all of which will impede our ability to achieve our 2030 climate action goals.

Q. How are energy efficiency, electrification and solar adoption linked?

A. Dane County's approach to reducing greenhouse gas emissions is a "deep decarbonization" strategy. Similar to other deep decarbonization strategies around the globe, this approach entails three sets of activities for reducing greenhouse gas emissions:

1) *Increasing resource efficiency*, where we focus first on energy but also address the need to mitigate waste associated with water, food and other resources.
2) *Transitioning to energy from clean sources*, where we talk about getting electricity from wind and solar as well as the Renewable Natural Gas (RNG) we source from landfills and manure digesters.

[13] https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=475017. This citation is not record evidence.

3) *Transitioning buildings and fleet from fossil energy to clean energy sources,* where we explain the need to move to all-electric buildings, electric passenger vehicles and electric and RNG-powered heavy-duty vehicles.

Dane County Executive Joseph Parisi and I do numerous public talks across the county to engage folks in climate action each year and in these talks we emphasize how these three strategies are interconnected. Reducing energy use means we can meet our energy needs with a smaller amount of renewable energy, for example.

In public talks and other communications we also emphasize the need to pursue all three strategies simultaneously. While we encourage entities to start with energy efficiency, we acknowledge that new technologies mean that the energy efficiency work is never really done, that new cost-effective efficiency opportunities will emerge. We encourage people to pursue cost effective efficiency and then renewable energy and electrification too, always watching for new energy efficiency opportunities. Often we illustrate this approach by talking about our county facilities; we share how we initially invested in energy efficiency, then rooftop solar and that we are now doing electrification work and more energy efficiency as we identify opportunities that were previously not cost effective.

Emphasizing that these strategies are interconnected and that everyone has a role to play in reducing emissions enables us to mobilize audiences to action. Focusing on just one area of action, by contrast, makes it easy to justify delays: someone might say they will pursue electrification once the grid is 100% clean, for example, or that they are waiting for a new technology to emerge before they look at energy efficiency. Our point is that there is always something that everyone can do right now to reduce their emissions.

Recent research by staff at Electric Research Power Institute (EPRI) and Lawrence Berkeley National Lab (LBNL) terms this phenomena 'co-adoption' where households and businesses pursue solar and electric vehicles, for example, simultaneously.[14] More, researchers note "Households and businesses are increasingly adopting two or more of the distributed energy resources (DERs) of solar photovoltaic (PV) systems, battery energy storage systems, and electric vehicles (EVs), with their complementary charging equipment."[15]

Put simply, renewable energy, electrification and energy efficiency are all strategies people can use to reduce their energy bills. Barriers to action in one of these arenas is likely to spill over into inaction in other areas, even if that is not the intent.

Q. What impact do you anticipate the proposed net metering changes to have on countywide emissions in Dane County?

[14] https://beccconference.org/agenda/. This citation is not record evidence.

[15] Minhua Long, (EPRI) and Margaret Taylor PhD (LBNL), "Co-adoption of Solar, Storage, and/or Electric Vehicles by Residential and Commercial Customers", 2023 Behavior Energy and Climate Change Conference Presentation, Abstract at https://beccconference.org/agenda/ under Session B1-Why We Decarbonize (Or Don't) on Monday, November 13, 2023. This citation is not record evidence.

A. As noted above, the proposed MGE changes will slow customer-sited solar installations. I would expect that slowing solar will also slow efficiency and electrification.

A 2010 investigation of Focus on Energy's residential customer investments in energy efficiency and renewable energy by Bill Schutten showed that Wisconsin residents who installed solar arrays were likely to subsequently pursue additional energy efficiency efforts.[16] These findings are consistent with other research that suggests that a solar installation gets people interested in their energy usage, often spurring subsequent energy efficiency and conservation efforts.[17]

Here in Dane County I interact with any number of local residents who aspire to install solar, get an electric vehicle (EV) and also pursue energy efficiency and electrification of their homes. Dane County residents are, according to the Yale University Program on Climate Change Communication, deeply concerned about climate change and interested in taking action.[18] Some of these Dane County residents – motivated by the climate crisis and relatively affluent – will pursue solar installations no matter what happens in this rate case. For less affluent households, though, approval of MGE's changes will mean that solar is out of reach because it is less affordable or even just more difficult to assess whether or not it is affordable. A recent study of solar installation trends in Arizona and Massachusetts by Illume Advising, a local energy consulting firm, reinforces this point: customer uncertainty correlates with customer inaction. When the benefits are not clear, people will use that uncertainty as an excuse for inaction, leading to more solar installations in Massachusetts than Arizona, despite the clear solar advantage in Arizona.[19]

Further, at least some of the households who decide that they cannot pursue a solar installation will also decide to delay electrification, if only because the lack of solar justifies inaction on electrification. In my experience many Dane County households are interested in electrification and a solar installation—they will be less likely to act if the solar installation is discouraged.

Similarly, I think rates that discourage customer-sited solar and make it more difficult for customers to understand the impact of a solar array on their bills will lead to lower investments in energy efficiency. Indeed, the low buy back rates for solar might spur some customers to increase their electric usage during daytime hours to reduce any potential sales back to MGE. This could exacerbate our peak demand. More broadly, though, increased complexity means increased uncertainty, which (as noted above) is a recipe for inaction. Unfortunately all of this is

---

[16] Bill Schutten and Kathy Kuntz, "Would You Like Efficiency with That? Linking Efficiency and Renewables to Motivate Customer Action," American Council for an Energy Efficient Economy, 2010 Summer Study on Buildings, available at https://www.aceee.org/files/proceedings/2010/start.htm. This citation is not record evidence.

[17] James Keirstead, Behavioural Responses to Photovoltaic Systems in the UK Domestic Sector, Keble College, D. Phil Dissertation, Trinity Term 2006, available at https://ora.ox.ac.uk/objects/uuid:f4da2e2c-c118-482f-aa57-44fdd0afbc4f/download_file?file_format=application%2Fpdf&safe_filename=final_thesis.pdf&type_of_work=Thesis. This citation is not record evidence.

[18] As an example, the Yale University effort tracks how worried adults are about climate change. In 2021 65% of US adults reported being worried compared to XX across Wisconsin and 73% in Dane County. See interactive map at https://climatecommunication.yale.edu/visualizations-data/ycom-us/ for more examples. This citation is not record evidence.

[19] Liz Kelley, Illume Advising, *Exploring Distributed Solar Disparities*, available at https://illumeadvising.com0/2023/exploring-distributed-solar-disparities/. This citation is not record evidence.

happening at a moment when we need much more climate action—energy efficiency, electrification and solar installations.

As a local government staff person accountable for countywide climate action goals, I want very much for my constituents to know that we are all working together to reduce emissions. I want households and businesses to think of their local utility as a partner in climate action, just as they think of our office as a partner. MGE's proposal puts that collaborative spirit at risk. If MGE is allowed to prematurely replace a clear monthly net metering system with an opaque alternative where customers cannot even estimate their savings, trust will be lost. In that scenario it will be harder for us to motivate action.

I would much prefer an outcome where we can work with MGE to successfully inspire efficiency, electrification and clean energy projects that enable us to hit ambitious climate goals.

Q. Why do you think MGE's proposed solar buyback rate will be confusing to customers?

A. Only 1.4% of MGE customers without solar have an AMI meter capable of measuring real-time electric consumption. So most customers lack any data about their real-time consumption. More, for that 1.4% who could access their 15-minute interval data, a year's data would be at least 35,040 data points (recording consumption in 15-minute increments). To accurately estimate savings a customer or solar installer would need to:

1. Get the 35,040 real-time consumption data points from MGE
2. Estimate a proposed solar array's solar production data for each of those 35,040 points in time
3. Create a model that compares the 35,040 usage data points to the estimated production, to determine when and how much the system would sell back to MGE
4. Estimate the future annual wholesale buyback rates MISO will set over the next 25 years to determine the purchase rate
5. Calculate the total annual savings from the proposed array

This is a daunting and time consuming calculation. More, for most customers there is no data to model because 96.6% of MGE's residential customers do not have AMI meters.

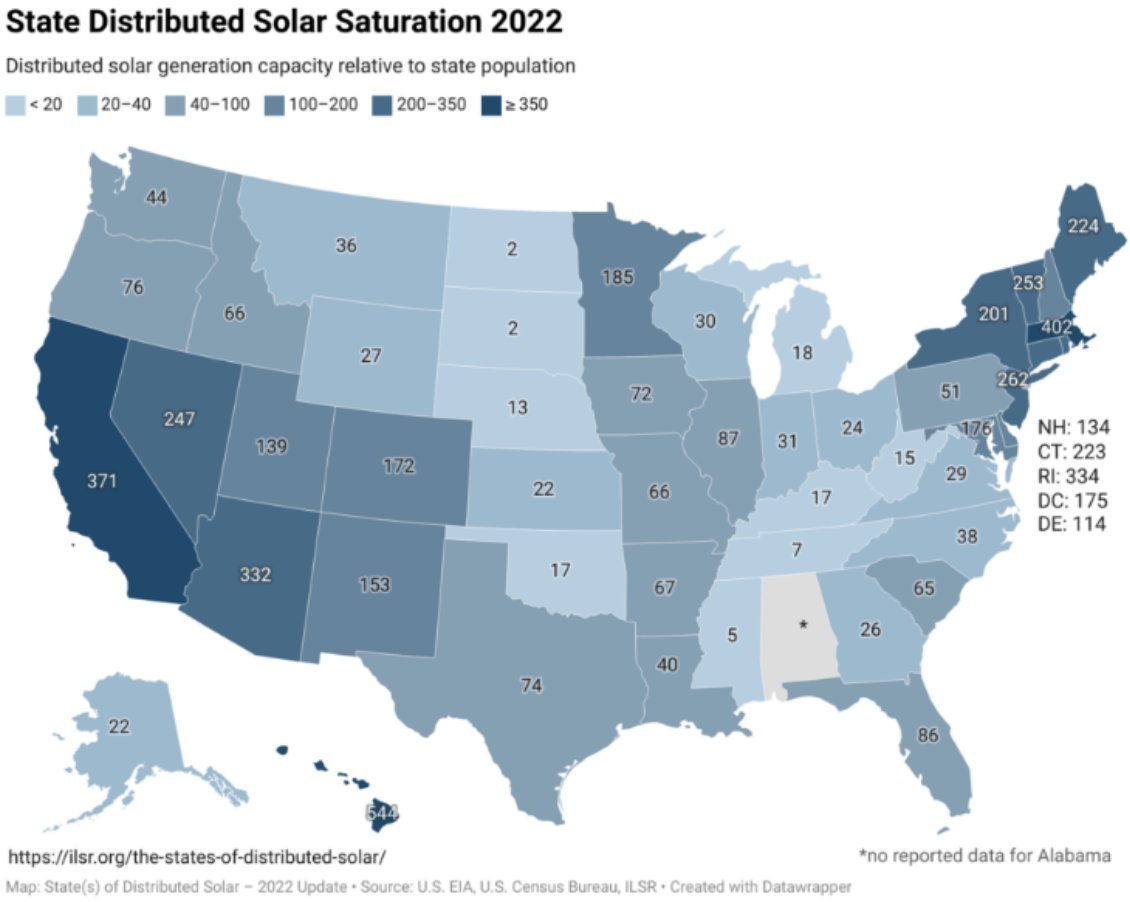
Over the course of my career I have had the opportunity to help hundreds of people understand their electric consumption. Most people outside of the energy industry have little to no understanding of how their household uses electricity, much less their utility bills. MGE is proposing to go from a simple monthly netting system (where the meter measures electric flow both ways) to a system that requires advanced analytics. There can be no doubt that this rate would confuse customers.

The new rate will also make it difficult or impossible for installers to accurately estimate the payback for a solar array. And that means that the only customers who would be likely to pursue a solar installation are those people who can afford the cost whether or not the system pays for itself over time.

Q. Do you think there is any urgency to change MGE's net metering rates in this rate case?

A. We think any change to MGE's net metering is premature at this time.

MGE reports that they have 2,092 residential solar installations across a residential customer base of more than 141,000 accounts. That is less than 1.5% of residential customers with solar. More, MGE projects their residential customer base will grow to 144,000 by January 2024. Even if solar installations were double MGE's predictions in 2023 only 2% of their residential customers would have solar. This is a far cry from the installations levels in California and other parts of the US. The map below from the Institute for Local Self Reliance shows the level of distributed solar by state as of 2022. Wisconsin has just 30 watts of distributed solar per capita while Minnesota has 185 watts and California has 371 watts.[20]



While there is a small ratepayer impact for the current net metering rates, in our view the advantages of net metering as a tool to grow solar adoption and accelerate climate action clearly exceeds the current cost to ratepayers. More, we expect it to remain the case that benefits outweigh costs until customer-sited systems are much more common. Accordingly, there is no reason to adopt dramatic changes to rates at this time. The 2017 analysis of rate impacts of net

[20] Institute for Local Self Reliance, *The State(s) of Distribute Solar-2022 Update*, available at https://ilsr.org/the-states-of-distributed-solar/. This citation is not record evidence.

metering by Galen Barbose of Lawrence Berkeley National Laboratory makes several points relevant to this issue:

- For the vast majority of states and utilities, the effects of distributed solar on retail electricity prices will likely remain negligible for the foreseeable future.
- For states or utilities with particularly high distributed solar penetration levels, retail electricity price effects may be more significant, but depend critically on the value of solar and underlying rate structure.
- Energy efficiency has had, and is likely to continue to have, a far greater impact on electricity sales than distributed solar.
- Natural gas prices impose substantial uncertainty on future electricity prices.
- Though their historical effects on retail electricity prices appear small, state RPS programs could lead to greater impacts if supply does not keep pace with demand.
- The effects of state and federal carbon policies on future retail electricity prices are highly dependent on program design and implementation details.
- Future capital expenditures in the electricity industry will put upward pressure on retail electricity prices.[21]

In short, numerous factors have a greater impact on rates than net metering, especially in a state like Wisconsin where solar adoption rates are low. Barbose closes the LBNL findings by noting "The most basic conclusion of this paper is that, in most cases, the effects of distributed solar on retail electricity prices are, and will continue to be, quite small compared to many other issues."[22]

Decades ago Wisconsin determined that it was good public policy to invest ratepayer funds in energy efficiency and renewable energy because even though it raised energy rates slightly in the short term, it delivered substantive long-term benefits to ratepayers. In our view the current minor rate impact of net metering is aligned with those broader policy objectives that justify funding for Focus on Energy and various other utility initiatives that reduce energy use and demand.

It is also important to note that, compared to other Midwest states, Wisconsin lags in rooftop solar and community solar projects. For example:

- In 2023 EcoWatch ranked Wisconsin 31st in new solar installations, compared to Minnesota at 21, Illinois at 14 and Michigan at 6.[23]
- The Institute for Local Self-Reliance tracks and scores states based on how their policies help or hinder local clean energy action. Wisconsin earned an F in 2023. This compares to a grade of C for Minnesota and an A for Illinois.[24]

[21] Galen L. Barbose, Lawrence Berkeley National Laboratory, *Putting the Potential Rate Impacts of Distributed Solar into Context*, January 2017, page 29-30, full report, executive summary and other materials available at https://emp.lbl.gov/publications/putting-potential-rate-impacts. This citation is not record evidence.
[22] Barbose, *Putting the Potential Rate Impacts of Distributed Solar into Context*, page 30. This citation is not record evidence.
[23] EcoWatch, *Where Does Your State Rank for New Solar Installation?*, at https://www.ecowatch.com/solar/states-leading-solar-energy-installation. This citation is not record evidence.
[24] Institute for Local Self Reliance, *The 2023 Community Power Scorecard*, at https://ilsr.org/2023-community-power-scorecard/. This citation is not record evidence.

- The National Renewable Energy Lab (NREL)'s Sharing the Sun Community Solar Project tracking indicates that as of December 2022 Wisconsin had just 5.88 MW(AC) of community solar, representing less than 0.1% of the nation's 6,081 MW(AC) community solar. That compares to 875 MW in Minnesota (14% of the US) and 205 MW in Illinois (3% of the US).[25]

The emphasis in Wisconsin should be on accelerating both rooftop solar and community solar options for customers, not constraining those opportunities.

Q. How would you prefer that MGE and the Commission handle net metering?

A. As noted above, these changes are premature given the current level of solar installations. Instead of rushing to a solution that will confuse customers and jeopardize local installation businesses, we would ask that the Commission assign this issue to a generic docket (perhaps the existing parallel generation docket) whereby stakeholders could collaborate to create a more consistent framework for net metering that included a transparent process for determining when and how net metering rates should evolve once customer-sited installations achieve a certain level of market adoption.

One of the major findings from the Cadmus study on the potential for rooftop solar that I referenced earlier was:

> **The most efficacious strategy for accelerating the adoption of rooftop solar systems is through implementation of a statewide net metering policy.** While extending the federal ITC, increasing incentives, and offering attractive financing options do lead to increased solar adoption, simulation modeling indicates that a statewide net metering policy would have the largest impact. Modeling results suggest that a statewide net metering policy would primarily increase adoption in the residential sector in utility territories where net billing compensation is not currently offered and where significant rooftop solar potential is concentrated. Net metering is a more attractive compensation scheme from a customer perspective compared to net billing because retail electric rates are higher than wholesale electric rates. Under net metering excess customer generation is valued at retail rates while under net billing excess generation is valued at wholesale electric rates.[26] *(Emphasis in original text.)*

It is ironic that the Inflation Reduction Act implements the secondary strategies that Cadmus identified; specifically, the IRA extends and increases the federal Investment Tax Credit (ITC) and (via Solar for All) it creates new attractive financing options. The most important strategy—a statewide net metering policy—is up to the Public Service Commission. Rather than dismantling one of the best net metering rates in Wisconsin, we would like to see the Commission standardize net metering rates across Wisconsin utilities so that we grow rooftop solar installations. Such action would be consistent with a recommendation in Governor Evers' Clean Energy Plan:

[25] National Renewable Energy Laboratory (NREL), *Sharing the Sun Community Solar Project Data (December 2022)*, at https://data.nrel.gov/submissions/220. This citation is not record evidence.
[26] Ex.-DC-Kuntz-2, page 52.

Create consistency in utility net metering and parallel generation policies that removes solar development barriers and accelerate solar adoption.[27]

Dane County is already on the record in the Parallel Generation Docket (#393239) advocating for more consistency in net metering across utilities.[28] Dane County is served by multiple utilities so we see very clearly how the existing variances in net metering affect customer decisions. Our comments in that docket include several examples of solar installations that are viable in one utility territory under one net metering regime are not viable in another utility territory. We cited, for example, a local developer who installs solar on multifamily buildings in one utility territory but not another because it is not cost effective under the second utility's net metering protocol.

The Commission has an opportunity to build on the insights from the Parallel Generation docket and the Regulatory Assistance Project's report, Rate-Making Principles and Net Metering Reform: Pathways for Wisconsin (Ex.-DC-Kuntz-3). That report suggests that action on net metering rates is premature in Wisconsin, noting:

"Jurisdictions with low levels of DG penetration, such as Wisconsin, may not need to act on these issues immediately, but it rarely hurts to be prepared for foreseeable issues. Additionally, many of the actions taken to avoid the duck curve are activities and programs that already exist in Wisconsin."[29]

The RAP report (Ex.-DC-Kuntz-3) goes on to recommend multiple strategies that Wisconsin could pursue prior to changing net metering. These strategies include:

- Target energy efficiency to the hours when load ramps up sharply.
- Orient fixed-axis solar panels to the west: Orienting solar panels to the west-southwest increases output during the afternoon and reduces morning output. This would produce a more valuable profile of power output, better suited to the shape of load to be served.
- Implement service standards allowing the grid operator to manage electric water-heating loads to shave peaks and optimize utilization of available resources.
- Retire inflexible generating plants with high off-peak must-run requirements.
- Deploy electric energy storage in targeted locations, including electric vehicle charging controls.
- Implement aggressive demand response programs.
- Use inter-regional power transactions to take advantage of diversity in loads and resources.[30]

It would be helpful to know which, if any of these strategies, Wisconsin utilities are pursuing.

Based on all the work already done in the Parallel Generation docket, we believe it would be possible to have an expeditious discussion about net metering practices today and into the

[27] Ex.-DC-Kuntz-4, page 114.
[28] https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=393239. This citation is not record evidence.
[29] Ex.-DC-Kuntz-3, page 11.
[30] Ex.-DC-Kuntz-3, page 11.

future. Such a discussion would also enable stakeholders to address equity concerns and maximize the state's ability to leverage available federal funding.

Consistent with Governor Evers' Clean Energy Plan (Ex.-DC-Kuntz-4), we urge the Commission to embrace net metering rather than dismantle it.

Equity in Climate Action

Q. How is equity relevant to Dane County's Climate Action Plan (CAP)?

A. In addition to strategies for reducing emissions, the CAP (Ex.-DC-Kuntz-1) set forth guiding principles, the first of which was:

Equity/Justice The climate solutions must be available to all Dane County citizens, regardless of race, income levels, or any other differences. The CAP (Ex.-DC-Kuntz-1) must put the most vulnerable people in our communities first.

This principle is an acknowledgement of the systemic inequalities in our existing fossil fuel economy. Dane County's concern is that the net metering changes proposed by MGE will exacerbate existing inequalities, which is inconsistent with the CAP (Ex.-DC-Kuntz-1), to which MGE was a signatory. Examples of current inequalities include the disparate levels of energy burden faced by Dane County households; according to an analysis by 350 Wisconsin, some Madison-area low-income homeowners spend up to 17% of their income on household energy costs while more affluent households spend just 2-3% of their income on energy costs.[31] Exposure to climate impacts is another area of inequality. As noted in the Madison-Dane County Public Health July 2019 Climate and Health Report, "In many communities, the populations who are on the frontline of climate change also mirror those who are most affected by the social and economic determinants of health: people of color, non-English speakers, residents with less than a high school education, indigenous groups, and individuals facing discrimination due to gender or religion."[32]

As a local government committed to climate action consistent with state, national and international climate commitments, Dane County is concerned that the changes to net metering proposed by MGE will substantively slow customer adoption of solar energy, especially among the populations that are already underserved by clean energy technologies. If approved these changes will reduce the likelihood of a just energy transition where all parties see the benefits of clean energy and the changes are also likely to stall customer-sited solar energy more broadly, which will jeopardize achievement of clean energy goals at the local and state levels.

[31] Isabel Caballero, Erica Talajkowski, and Grace Winter, Interns and Liz Hachten and Susan Millar, Volunteers, 350 Wisconsin, *Low-income Energy Burden in Madison, Wisconsin: A Climate Justice Challenge*, page 4. Report available at https://350wisconsin.org/ccst-reports/. This citation is not record evidence.

[32] LeClair, Jessica and Jeffery S. Lafferty, Doug Voegeli, Madison-Dane County Public Health, *Climate Health Report*, July 2019, page 6. Report available at https://www.publichealthmdc.com/documents/Climate_and_Health_Report_2019.pdf. This citation is not record evidence.

Q. Please describe why equity is a guiding principle in Dane County's Climate Action Plan (CAP)

A. Reducing emissions in ways that address equity gaps is the first guiding principle in Dane County's CAP (Ex.-DC-Kuntz-1) because stakeholders understood that, at both local and global levels, the populations who are suffering the greatest impacts of our climate crisis (for example, displacement or public health risks) are often populations who contributed the least to the climate crisis. A low income household in Dane County typically has lower emissions than an affluent household yet that low income household might face greater public health risks associated with poor air quality or lack of access to cooling during high heat events. And of course those differences are even starker when one makes global comparisons. The Worldometer, for example, estimates US 2022 carbon equivalent emissions at 15.23 tons per capita while in Pakistan, the site of a recent mass flooding disaster worsened by climate change, the figure is 0.83 tons per capita.[33] From our perspective it is a moral imperative to pursue climate initiatives that deliver benefits to the populations that were both historically underserved by energy programs and are currently at the greatest risk for climate impacts.

Dane County has long been concerned about equity issues. The CAP (Ex.-DC-Kuntz-1) references local research back to the 2013 *Race to Equity* report that highlights inequalities in health and educational outcomes in Dane County.[34]

As the Council talked through strategies for transforming our economy to one that relied on clean fuel solutions, the Council recognized this was also an opportunity to address systemic inequalities in the old system. And thus equity became the first guiding principle in our CAP (Ex.-DC-Kuntz-1).

Q. What strategies is Dane County pursuing to realize its equity objectives?

A. Relative to pursuing equity objectives the Office has two significant strategies: collaboration with environmental justice groups and communities and leveraging federal funding for equity initiatives locally. Both efforts are described below.

We are partnering with environmental justice (EJ) groups to ensure that the people most impacted by past inequities have the opportunity to shape solutions. Our efforts in this realm are largely those of a convener and connector; we interact with a variety of groups to make sure they are aware of pending opportunities for both funding and input into program design. As an example, over the last year we have partnered with UW-Madison researchers to engage both Latinx and Black communities in discussions about a variety of energy issues including the risk of high heat events. The forums helped us understand community priorities and also prompted us to create additional outreach strategies. In addition to the UW-Madison work we are also convening EJ groups to help them pursue federal funding for their environmental justice work.

[33] Worldometer, *CO2 Emissions Per Capita*, at https://www.worldometers.info/co2-emissions/co2-emissions-per-capita/. This citation is not record evidence.

[34] Wisconsin Council on Children and Families (now Kids Forward), Race to Equity: A Baseline Report on the State of Racial Disparities in Dane County, 2013. Available at https://kidsforward.org/assets/WCCF-R2E-Report.pdf. This citation is not record evidence.

Groups actively involved in these discussions include Centro Hispano, Urban Triage, Wisconsin Eco-Latinos, Operation Fresh Start and the Hmong Institute.

Our second strategy is to leverage federal funding for local equity initiatives. This takes a variety of forms.

- *Supporting Nonprofit Access to Elective Pay Credits*: The IRA offers new and unprecedented funding to tax-exempt entities including community-based organizations. We are helping numerous local nonprofits including Centro Hispano, Boys and Girls Club of Dane County and numerous food pantries understand and pursue Elective Pay Credits under the IRA. We are also working with United Way of Dane County and other entities to increase awareness of these funding opportunities.
- *Connecting Entities to New Opportunities*: The Office issues plain language email alerts to our network of EJ groups whenever the state or federal government announces a new funding opportunity or an opportunity to provide input on a pending program. These alerts describe the opportunity and why it matters. By providing concise and clear information we make it easier for the EJ groups to understand and respond to these opportunities.
- *Collaborating on Grant Applications*: Recently Dane County led a coalition of local governments, utilities and other stakeholders to apply for US Department of Transportation funding for a network of countywide electric vehicle (EV) chargers. The focus of that grant application was equity—we proposed to site charging stations in areas historically underserved where the private market was not likely to offer charging. And multiple local EJ groups supported the application.

Similar to our efforts to make it easy for all entities to pursue climate action, we are committed to providing additional support to our EJ partners. We aim to work with EJ allies to secure funding, especially new federal funding, for historically underserved populations.

Q. Please describe the federal funding opportunities related to equity that you are referencing.

A. There are a variety of new and expanded climate action funding sources available under both the Bipartisan Infrastructure Law (BIL) of 2021 and the Inflation Reduction Act (IRA) of 2022 that have potential to support increased equity. These initiatives align with President Biden's Justice40 commitment which sets the goal that 40% of the "overall benefits of certain Federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution."[35] These sources include:

- *Elective Pay for Tax-Exempt Entities*: Under the IRA, Congress is making renewable energy tax credits available to tax-exempt entities, which makes solar, geothermal and battery storage projects all more affordable for nonprofits and local governments.
- *Greenhouse Gas Reduction Fund:* Under the IRA, the EPA received $27 billion to mobilize financing and private capital for initiatives that reduce emissions. The EPA has announced that it will allocate funds through three competitive grant programs—Solar for All ($7B), National Clean Investment Fund ($14B) and Clean Communities Investment Accelerator ($6B). In April 2023 Governor Tony Evers created a Green Ribbon Commission on Clean

[35] https://www.whitehouse.gov/environmentaljustice/justice40/. This citation is not record evidence.

Energy and Environmental Innovation to advise WEDC on the development of a Green Innovation Fund, which is expected to be the entity that will compete for and coordinate this clean energy financing at the state level. Often referred to as a "Green Bank" the aim here is to create loan guarantees and other financing mechanisms that will leverage the federal dollars to accelerate clean energy projects.

- *Solar for All*: Of the three EPA initiatives, Solar for All is most relevant here because it is focused on providing funding to accelerate distributed solar for low and moderate income households. In the recent Solar for All Request for Applications, Section 1: Background opens with the following text:

> Residential distributed solar generation and energy storage, including rooftop residential and residential-serving community photovoltaic (PV) solar and storage, reduces energy costs for American households, abates pollution from power generation, generates wealth and jobs for local communities, improves public health, and provides resilient and secure power.
>
> Yet, to date low-income and disadvantaged households have been left behind in the rapid deployment of residential distributed solar generation, despite the benefits that this technology can provide to these communities.[36]
>
> Solar for All funding can be used to finance both customer-sited solar arrays and community solar, providing the projects deliver household savings of at least 20% of past electric bills.[37]

- *Environmental and Climate Justice Block Grant Program*: Under the IRA, the EPA has $3 billion to support environmental and climate justice initiatives around the country. This competitive grant opportunity enables local environmental justice organizations to collaborate on issues that will improve the lives of their constituents.
- *Low Income Weatherization Assistance Program (WAP)*: Under the BIL, WAP received an additional $3.5 billion that enables the program to fund innovative approaches to reducing household energy usage, including more solar installations.
- *Home Energy Rebates*: Under the IRA, Wisconsin will receive more than $149 million for new residential electrification and energy efficiency grants programs that the Commission has determined will be implemented through Focus on Energy. Those programs will have higher incentives for low and moderate income households and are expected to launch in the second quarter of 2024. While these programs do not provide funding for solar installations, we anticipate that some entities will couple solar with the electrification measures to maximize household savings.

Consistent with the goals of President Biden and Governor Evers, the Office aims to leverage these funds in support of a cleaner and more equitable Dane County economy.

---

[36] U.S Environmental Protection Agency, Office of the Greenhouse Gas Reduction Fund, *FUNDING OPPORTUNITY TITLE: Solar for All*, ANNOUNCEMENT TYPE: Request for Applications (RFA), FUNDING OPPORTUNITY NUMBER: EPA-R-HQ-SFA-23-01, page 4. Available at https://www.epa.gov/greenhouse-gas-reduction-fund/solar-all. This citation is not record evidence.

[37] US EPA, *Solar for All*, page 12. This citation is not record evidence.

Solar Adoption Among the Nonprofits Serving LMI Communities

Q. Why does Dane County advocate for solar adoption among nonprofits serving LMI households?

A. Dane County has long encouraged local nonprofits to pursue energy efficiency and renewable energy because these investments reduce operating costs. For a mission-based nonprofit, lowering energy costs means that the nonprofit has more funds available for client services.

Additionally, we encourage nonprofits to consider installing solar so that their clients and their employees have increased exposure to clean energy technologies. We believe that this helps to broaden solar adoption and that it can spur innovative partnerships around workforce development and other important issues. Our approach and strategy is aligned with the Equity First program outlined in Governor Evers' Clean Energy Plan (Ex.-DC-Kuntz-4), leveraging clean energy solutions to maximize the broader social and economic impacts of community-based organizations as a way to grow climate solutions.[38]

Q. Relative to nonprofits serving LMI communities, what barriers prevent solar adoption?

A. In my experience nonprofits face both financial and information barriers. The upfront cost of a solar installation has been a barrier, especially if the nonprofit lacks the expertise to verify energy savings. And in most cases nonprofits lack energy expertise—these nonprofits are experts in childhood trauma or job training or eldercare, not energy. Typically a nonprofit leader will deal with just one major construction project during their tenure, which makes the information barriers acute. I spend a fair amount of time working with local nonprofits, helping them understand their energy usage and the opportunities to reduce that usage, as well as connecting the nonprofits to other resources like Focus on Energy and PACE Wisconsin.

Ultimately a nonprofit will not pursue a renewable energy project unless the financial benefits are so clear and compelling that the nonprofit leadership is comfortable bringing the opportunity to their volunteer Board of Directors for approval. If the benefits are not clear, the leadership will prefer the status quo and not pursue a project. This is one of the reasons for our concern about MGE's proposed changes to net metering. Insofar as the proposed changes will make it much more difficult to estimate the benefits from a solar system, I believe these changes will stall nonprofit installations.

Q. How would you characterize solar adoption among nonprofits in Dane County currently?

A. From my perspective there's been little solar adoption among nonprofits. We requested data on this from MGE but in response 1-DC-DR-4 MGE indicated that they do not track nonprofit status for their commercial customers.[39]

In lieu of any MGE data I analyzed data I received in early 2022 from Max Schweiner. Schweiner is a Madison resident who, after installing solar on his own home, created a computer program

[38] EX.-DC-Kuntz-4, pp 73-75.

[39] https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=475867. This citation is not record evidence.

to analyze the City of Madison's online engineering permits to collect data on both residential and commercial solar installations. Schweiner used the data to develop a map of solar installations (both residential and commercial) in Madison and Milwaukee. In early 2022 Schweiner shared both his map and the data underlying the map with me so that we could feature his maps in our website blog.[40]

While Schweiner's data does not cover all of Dane County, it does cover installations in Madison from 2009 to 2021. In that time period Schweiner identified 125 commercial solar installations in the City of Madison, 14 of which were at nonprofit faith or social service organizations. Cause IQ estimates 6,396 nonprofits in the Madison area, many of which, of course, do not have rooftops for solar.[41] The number of nonprofits with rooftops and an opportunity to reduce energy costs, though, is surely more than 16. As an example, in recent months I have spoken with 3 area food pantries where there is interest in installing a solar array to reduce operating costs. Food pantries are a good example of the nonprofit challenge around solar: leadership is typically very interested in anything that will reduce operating costs but, at the same time, those food pantry leaders want to be sure that they can assure their current and future donors that all of the pantry's expenditures are prudent. If the payback on a solar system is unclear then food pantry leaders are not going to pursue solar even though it is a great fit with their operations given the consistent cooling load.

Several prominent local nonprofits are in the midst of solar installations. The Urban League of Greater Madison, for example, is doing a solar array with support from the Office of Energy Innovation's Energy Innovation Grant Program. These installations could be a tipping point that leads to more installations at nonprofits—unless the net metering rules change in a way that makes future projects infeasible.

Solar Adoption Among LMI Households

Q. Why does Dane County advocate for solar adoption for LMI households?

A. The EPA articulated the multiple benefits of solar adoption for LMI households effectively in the *Solar for All Request for Applications*:

> Residential distributed solar generation and energy storage, including rooftop residential and residential-serving community photovoltaic (PV) solar and storage, reduces energy costs for American households, abates pollution from power generation, generates wealth and jobs for local communities, improves public health, and provides resilient and secure power.[42]

[40] Dane County Office of Energy & Climate Change, *Solar Maps in Dane County*, at https://daneclimateaction.org/OECC-Blog/Solar-Map-in-Dane-County. This citation is not record evidence.
[41] Cause IQ, *Madison Area Nonprofits*, at https://www.causeiq.com/directory/madison-wi-metro/. This citation is not record evidence.
[42] US EPA, *Solar for All*, page 4. This citation is not record evidence.

Put simply, rooftop solar installations deliver multiple benefits to system owners; the populations historically underserved by clean energy programs—BIPOC communities, LMI households, rural communities, renters—deserve equitable access to the benefits of solar.

Insofar as the Commission is working with utilities to address energy burden for LMI households, I believe that solar installations should be part of that strategy, especially given the new Solar for All funding from the EPA.

Q. Relative to LMI households, what barriers prevent solar adoption?

A. The primary barrier to solar installations is a financial one. The first cost of installation is a substantial barrier to households that lack access to low-cost financing. A related financial barrier is that LMI households are more likely to need roof repairs prior to solar installation, which increases the cost of a project. The EPA's new Solar for All program has the potential to address both of these financial barriers, provided our households meet the program eligibility criteria.

Under Solar for All, according to the Request for Applications (RFA), entities will need to demonstrate that the solar installations reduce household electric bills by at least 20%. Currently, under MGE net metering, this requirement could be easily met because it is easy to calculate bill impacts. If MGE implements the proposed changes to their net metering rates, though, it will be difficult to project savings, which could jeopardize use of this funding.

The other big barrier to solar adoption for LMI households is that many LMI households are renters. In some states utilities sub-meter multifamily solar installations so that bill savings can flow to tenants but I am not aware of any Wisconsin utilities doing this. In response to a question from us, MGE verified in 1-DC-DR-3 that they are not aware of any instances in their service territory where renters benefit directly from solar installed on multifamily housing.[43] I am hopeful that when WEDC secures Solar for All funding for Wisconsin we can address the tenant issue given that the Solar for All RFA includes some discussion of ways entities could expedite allocation of savings to tenants.

Q. How would you characterize solar adoption among LMI households in Dane County currently?

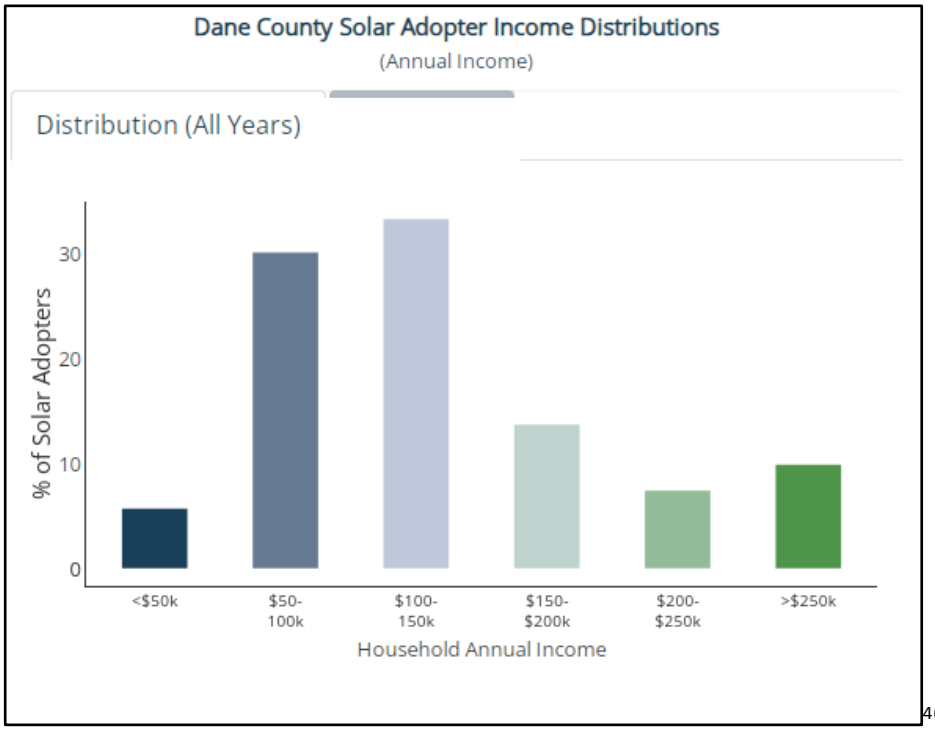
A. Based on the data I have, there is little solar adoption among LMI households in Dane County.

The November 2022 Lawrence Berkeley National Laboratory (LBNL) report, Residential Solar-Adopter Income and Demographic Trends gives us some general information on the income levels of households installing rooftop solar. As might be expected, higher income households are more likely to install solar but, at least nationally, LBNL reports that access to solar is broadening over time, especially in areas where there are policies to support LMI access to solar.[44] Still, in 2021, LBNL notes that "roughly one third of all households that installed solar in

[43] https://apps.psc.wi.gov/ERF/ERFview/viewdoc.aspx?docid=475866. This citation is not record evidence.
[44] Galen L, Barbose, Sydney Forrester, Eric O'Shaughnessy, and Naïm R Darghouth, Lawrence Berkeley National Laboratory (LBNL), *Residential Solar-Adopter Income and Demographic Trends: 2022 Update*, page 5. Available at https://eta-publications.lbl.gov/sites/default/files/solar-adopter_income_trends_final_0.pdf. This citation is not record evidence.

2021 had incomes between $50,000 and $100,000, while 15% of adopters were below that range and roughly half were above that range."[45]

LBNL also released a data tool with the 2022 report that enables users to hone in on states and, in some cases, counties. Relative to Dane County the income distribution for households installing solar is shown in the figure below. Only 35% of households installing solar have household annual incomes of less than $100,000. This compares to Dane County's median area income of $78,452.

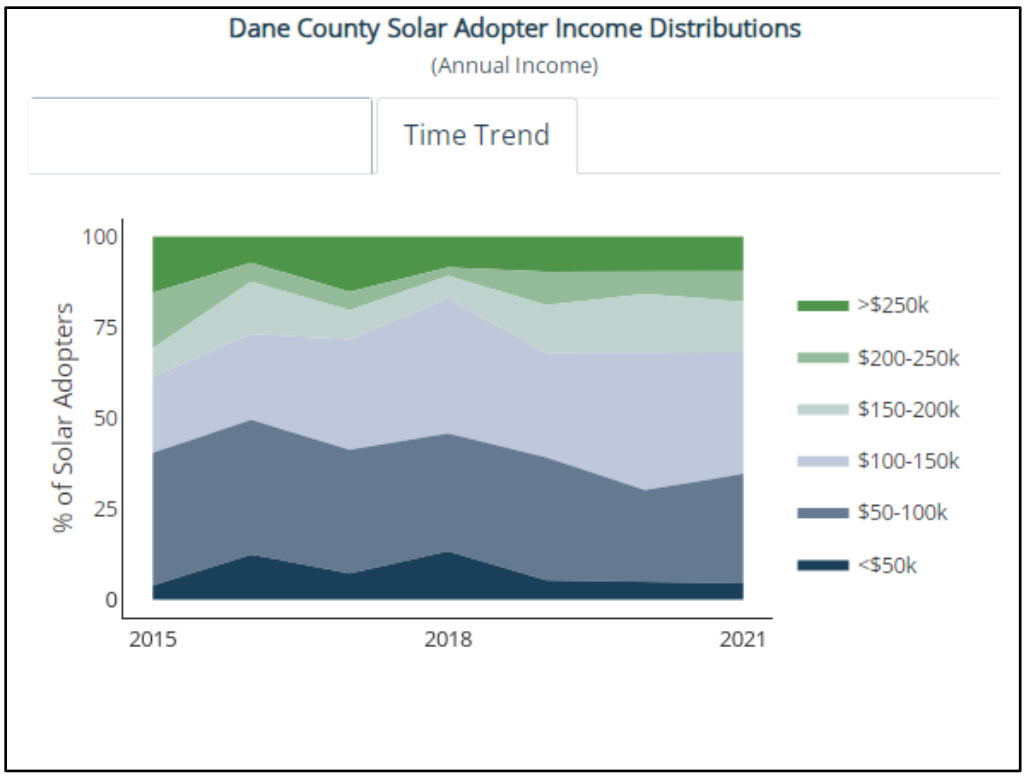


[46]

More, LBNL shows that this income distribution has been relatively steady since 2015.

[45] Lawrence Berkeley National Laboratory (LBNL), *New Berkeley Lab report on solar-adopter income and demographic trends, November 1, 2022 at* https://emp.lbl.gov/news/new-berkeley-lab-report-solar-adopter-2. This citation is not record evidence.

[46] Lawrence Berkeley National Laboratory (LBNL), *Solar Demographics Tool*, at https://emp.lbl.gov/solar-demographics-tool. This citation is not record evidence.



To investigate the demographics further we asked MGE to supply us with a summary of residential solar installations by census tract but they were unwilling to convert customer addresses to census tracts. Lacking the full data set from MGE I again turned to the data Max Schweiner had collected for his solar map. Rather than encompassing all of MGE's service territory, Schweiner's data is for the City of Madison and, again, it is culled from the City's records of building permits through 2021.

In total Schweiner identified 1,142 residential solar arrays in the City of Madison through 2021. This compares to the 1,485 residential arrays that MGE reported through the end of 2021 and the total MGE reported through July 2023 of 2,092 in their response to our query, Attachment 1 to 1-DC-DR-1.[47] The sample is robust enough that I presumed it to be representative of the broader data that was not available to us.

I used U.S. Census Bureau tools to convert Schweiner's list of addresses into Census Tracts.[48] And then I aggregated the installations by Census Tract, comparing this data to the Climate and Economic Justice Screening Tool's List of Disadvantaged Communities by Census Tract for Dane County.[49]

[47] https://apps.psc.wi.gov/pages/viewdoc.htm?docid=475863. This citation is not record evidence.
[48] The Census Bureau has a tool where you can batch process addresses to get the corresponding census tracts at https://geocoding.geo.census.gov/geocoder/geographies/addressbatch?form. This citation is not record evidence.
[49] US Council on Environmental Quality, Climate and Economic Justice Downloads at https://screeningtool.geoplatform.gov/en/downloads. This citation is not record evidence.

According to the U.S. Census Bureau, tracts "generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people."[50] Under Version 1 of the List of Disadvantaged Communities, a census tract is identified as disadvantaged if it meets the thresholds for at least one of the tool's categories of burden. "Census tracts that are surrounded by tracts that are identified as disadvantaged and meet an adjusted low income threshold are also considered disadvantaged."[51] In an area like Dane County, where there are relatively few concentrated areas of low-income households, a typical census tract might contain both LMI and non-LMI areas.

There are 126 Census tracts in Dane County. Of these 126 tracts, 107 are included in the Disadvantaged Communities list but only six (6) are considered to be 100% disadvantaged by area. Median household income in those six tracts ranges from $37,265 to $69,444 compared to the countywide median area income of $78,452 in Dane County.

Schweiner's documented residential solar installations are in 63 census tracts. Again, his data is only for the City of Madison.

Only 11 of the 1,142 residential solar installations on Schweiner's list is in one of the six census tracts that are 100% disadvantaged. That is an average of less than two installations per census tract.

By contrast, three other Dane County census tracts have 60 or more solar installations per tract for a total of 202 installation in those three tracts. None of those three tracts appear on the Disadvantaged Communities list at all, which means that they are not even adjacent to tracts on the Disadvantaged Communities list. Median household income in the three tracts with the most solar is $89,818, $91,835 and $100,534, compared to the countywide median income of $78,452.

None of that information should be a surprise to anyone. Until recently, it was quite a challenge for households with more limited income to install solar. The Biden Administration aims to change that through various federal initiatives including the Solar for All initiative discussed earlier. The remaining question, of course, is whether or not we will be positioned to leverage Solar for All funding to benefit LMI households in Dane County.

Equity Concerns with Proposed Rate Change

Q. What equity-related concerns do you have about MGE's proposed changes to their net metering rates?

A. MGE's proposed changes to net metering would lock in the current set of inequalities. Customers who had the resources to install solar prior to 2024 will continue on the old net

[50] US Census Bureau, *Glossary* at https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_13. This citation is not record evidence.
[51] US Council on Environmental Quality, 1.0 List of Disadvantaged Communities, page 1 at https://static-data-screeningtool.geoplatform.gov/data-versions/1.0/data/score/downloadable/1.0-communities-list.pdf. This citation is not record evidence.

metering rates, even though MGE asserts that those rates are unfair. New customers—including potential beneficiaries of the various IRA incentives, customers who are likely to be more diverse than existing solar owners—are denied access to a clear and beneficial net metering rate, even though it is premature to change the net metering rates.

As a student of US history, MGE's approach seems eerily familiar insofar as it perpetuates existing inequalities. Instead of embracing this moment when federal funding can help us ensure a broader array of households benefit from clean energy opportunities, MGE is proposing to restrict benefits to the people who had the financial resources to pursue solar before 2024. MGE would reward the people who were able to install solar when it was expensive and make it more difficult for other populations to see benefits now that solar is more affordable.

Additionally, as noted above, MGE's proposed changes will make it difficult to calculate system payback. If a customer cannot calculate payback it will be more difficult to get financing for a system, which will disproportionately impact LMI households, nonprofits and small businesses.

Perhaps most distressing, MGE's proposed changes will make local LMI households ineligible for the federal Solar for All financing because we will not be able to verify that the households will save at least 20% of their electric bill with a solar installation. If the Commission approves MGE's rate request we will miss an opportunity to pursue a more equitable clean energy future.

Q. What equity-oriented initiatives would you like to see MGE pursue in lieu of the proposed changes to net metering?

A. Given the various opportunities under the Inflation Reduction Act plus the examples from our neighboring states, it would be wonderful if MGE collaborated with Dane County and other local governments on equitable access to solar power. Rather than debating net metering rates I would much prefer that we be collaborating on strategies to accelerate climate solutions in an equitable way.

One area for collaboration would be to pursue policies that will enable tenants to benefit from rooftop solar installations. Other states have addressed this issue, allowing sub-metering so that tenants can realize the benefits of rooftop solar. This is an important issue because electrification strategies in multifamily housing have the potential to increase energy costs for tenants (at least in the short term). In other states the remedy is to install a shared rooftop solar array that reduces those electrification expenses. Local initiatives like the Efficiency Navigator program implemented by Elevate and Sustain Dane emphasize the need to address this issue. More, the pending Solar for All funding will create some additional momentum for us to explore this issue.

I would also appreciate an opportunity to collaborate with MGE on strategies for increasing LMI household access to community solar projects. Current community solar projects have high up-front costs. More, the supply of community solar is very limited. All of that creates barriers for households that have been historically underserved by energy programs. As demonstrated by other states, giving LMI households access to shares in a community solar project can reduce energy burden. And the model works well for renters who move from one building to another

within the area. Again, there are terrific examples in other states of how community solar can be leveraged to benefit disadvantaged communities. Minnesota's Community Solar Gardens program is one good example of a model that can benefit both community-based organizations and LMI households, reducing energy bills for historically underserved households who cannot install rooftop solar.[52] We would welcome an opportunity to collaborate with MGE on such a project in Dane County.

I believe Dane County's Council on Climate Change made equity a guiding principle of our CAP because members understood that it would take extra effort both to transition to a clean energy future AND to ensure that all members of our communities benefited from that clean energy future. With the federal funding available under both the Bipartisan Infrastructure Law and the Inflation Reduction Act this is our best opportunity to pursue equitable solutions. I am hopeful that MGE can be persuaded to join us in that effort.

Q. Does this conclude your direct testimony?

A. Yes.

[52] Clean Energy Resource Teams, *Community Solar Gardens*, at https://www.cleanenergyresourceteams.org/solargardens. This citation is not record evidence.