(Docket 5-EI-157)
Wisconsin's Green Fire comments on Public Service Commission of Wisconsin Investigation of Parallel Generation Purchase Rates

The time has come for the Wisconsin Public Service Commission (WiPSC) to take a customer-centric approach to address the need for dramatic greenhouse gas emission reductions. There should be a fundamental paradigm shift away from monopoly utilities solely building large-scale solar farms to forming a solid utility-customer partnership in a modern energy system focused on distributed generation, storage, efficiency, demand flexibility and carbon reduction. Together these energy technologies are commonly referred to as distributed energy resources (DERs). Evidence from the Focus on Energy Rooftop Solar Potential Study shows that Wisconsin is failing to take advantage of the customer's ability to address energy efficiency and storage and demand flexibility and clean energy generation through a distributed or community model (1).

Focus on Energy Solar Potential Study:

The study found that Wisconsin's rooftops could support enough solar panels to meet two-thirds of the state's electricity needs, generating more electricity than all of last year's fossil fuel sources combined. Yet, this study predicts fewer than 2% of solar panels are likely to be installed under the current market conditions.

Barriers to rooftop solar installation in Wisconsin include the following:

- Unaffordable upfront costs of installing rooftop solar panels
- Lack of financing options for rooftop solar panel projects (there is currently no third-party finance in Wisconsin because of ambiguity in the law)
- Rental properties or multi-family housing that limits residents' influence on rooftop solar installations

The study found enough shade-free roof space in Wisconsin to support nearly 39,000 megawatts (MW) of solar generating capacity – more than double Wisconsin's total existing generating capacity (meeting two-thirds of projected demand in 2034).

Distributed generation with solar photovoltaic (PV) has failed due to current net metering tariffs. Greater financial incentives are necessary to encourage customers to invest in solar panels, energy storage systems, and dynamic demand flexibility technology. Research demonstrates that distributed generation with solar PV technologies has multiple technical advantages, "including improved reliability, reduced transmission losses, enhanced voltage profile, reduced transmission and distribution losses, transmission and distribution infrastructure deferment, and enhanced power quality." (2)

Therefore, the answer is "**no"** to the following docket (5-EI-157) WiPSC questions:

1. *"Do current new metering tariffs in Wisconsin appropriately balance the ratemaking principles of efficient price signaling, maintaining customer understanding and acceptance, equitable cost allocation, and recovery of revenue requirement?"*

2. *"Do current new metering tariffs in Wisconsin align with Commission and state energy policy goals?"*

Why are we answering "no" to these docket questions?

Regarding state energy policy goals, note that Governor Tony Evers signed an executive order in 2019 committing Wisconsin to fulfilling carbon reduction goals set by the 2015 Paris Climate Accord and establishing a statewide goal of 100 percent carbon-free electricity by 2050. This is consistent with President Biden's goal of a 50-52 percent reduction in greenhouse gas pollution by 2030, economy-wide net zero emissions by 2050, and eliminating carbon pollution in the power sector by 2035. Additionally, all Wisconsin investor-owned utilities have clean energy goals of 100 percent carbon-free electricity consumption by 2050. Finally, a citizen-driven comprehensive state energy plan calls for a variety of steps to reduce carbon energy dependence and advance clean energy. **The current design of WiPSC parallel generation purchase rates will not help Wisconsin achieve the above stated energy policy goals.**

Many national studies demonstrate the effectiveness of distributed solar and storage to change the energy system and meet federal and state greenhouse gas reduction goals. For example, a recent report, *The Critical Role of Local Solar in Achieving 80 Percent Clean Electricity by 2030,* published by Clean Coalition in November 2021, found that local solar plus storage saves ratepayers $109.6 billion by 2030 versus utility-scale only approaches (3). Other national studies found similar conclusions on the benefits of local solar including:

- Department of Energy's *Solar Future Study* (4)
- Solar Energy Industries Association (SEIA) 30x30 analysis (5)
- Local Solar Roadmap (6)

More recently, a study done for the state of Michigan found local solar plus storage would save the average Michigan utility customer $773 annually through 2050 compared to utility solar plans. NGO Vote Solar submitted this study for Michigan Governor Whitmer's draft *Michigan Healthy Climate Plan* in March 2022 (7).

There are two emerging trends in the energy space worth acknowledging:

- An increase in flexible load (demand) from electric vehicles (EV) charging
- The potential for EVs to serve as load modifying or supply resources in vehicle-to-home or vehicle-to-grid configurations.

EVs are part of a broader trend reflected in the "electrify everything movement" of shifting to electricity and away from petroleum and natural gas loads. Additionally, the emergence of networked "smart" electric appliances including water heaters and thermostats integrated into "smart homes" shifts and aggregates loads along with customer-sited generation and energy storage. This highly networked electrical energy system can enable increased DERs (particularly solar plus storage), demand response/flexibility tools, and combined with greater energy efficiency can manage demand at a lower cost than traditional hub and spoke central utility infrastructure.

A future de-carbonized system will enable customers to act as investors and partners in managing the electric grid using energy storage, efficiency measures, and demand flexibility in conjunction with clean technology generation.

Business owners and homeowners, landlords and tenants, and software entrepreneurs can now become networked partners in a decentralized and digitalized energy system focused on decarbonization.

The WiPSC, as a part of the investigation of parallel generation purchase rates, also asked these questions:

3. *"How could Wisconsin utilities incorporate the rate design elements and options identified by the Regulatory Assistance Project (RAP) to better align new metering offerings with ratemaking principles and policy goals?"*

4. *"What, if any, further action should take place to further review and/or reform net metering tariffs in Wisconsin?"*

The RAP study includes an extensive discussion of the value of solar methodology. **Wisconsin's Green Fire strongly recommends the WiPSC study and to adopt a value of solar methodology.** A thorough peer-reviewed analysis of a case study for the value of solar was published in the academic paper, *A review of the value of solar methodology with a study of the U.S. value of solar* written by Koami Soulemane Hayibo and Joshua Pierce (8). The commission staff should consult this study and discuss with the WiPSC on how to adopt best practices for calculation of Wisconsin's value of solar tariff.

In addition, the WiPSC recently held a workshop on performance-based ratemaking facilitated by the RAP. The lessons learned from the workshop could be implemented in a complementary ratemaking or tariff project to help grow Wisconsin's distributed local solar and storage markets and similarly stimulate use of heat pumps and electric vehicles in a low carbon energy strategy. **The growth of these DERs and other technologies to reduce carbon pollution from utilities in Wisconsin would better align tariffs with Wisconsin energy policy.**

Again, the steps we recommend (for WiPSC docket questions three and four) include a Wisconsin value of solar tariff and performance-based ratemaking to grow local solar and storage along with other DERs.

Citations:

(1) Eckstein, Jeremy; Spencer, Sophia; Hicks, Amalia; Velonis, Aquila; and Rios Romero, Sabrina. (Cadmus) (2021*). Focus on Energy: The 2021 Rooftop Solar Potential Study*. https://focusonenergy.com/sites/default/files/inline-files/Potential_Study_Report-FoE_Rooftop_Solar_2021.pdf

(2) & (8) Hayibo, Koami Soulemane and Pierce, Joshua M. (2021). *A review of the value of solar methodology with a case study the U.S. VOS. Renewable and Sustainable Energy Reviews* 137(2021). Retrieved from http://www.elsevier.com/locate/rser

(3) Clean Coalition. (2021) *The Critical Role of Local Solar in Achieving 80 Percent Clean Electricity by 2030.* Retrieved from https//clean-coalition/wp-content/uploads/2021/08/The-critical-role-of-local-solar-in-achieiveing-80-clean-electricity-by-2030-01_rf_Nov_2021.pdf

(4) U.S. Department of Energy Solar Energy Technologies Office and the National Renewable Energy Laboratory. (2021) Solar Futures Study. https://www.energy.gov/eere/solar/solar-futures-study

(5) Solar Energy Industries Association (SEIA). The New Solar Decade Roadmap. www.seia.org › 30x30roadmap

(6) Local Solar for All. Local Solar Roadmap. www.localsolarforall.org

(7) Clack, Christopher; Choukulkar, Aditya; Cote, Brianna; and McKee, Sarah. (Vibrant Clean Energy) (2022). *Electrification and Decarbonization Pathways for Michigan*. VibrantCleanEnergy.com

The executive summary of the report can be downloaded: https://www.vibrantcleanenergy.com/wpcontent/uploads/2020/12/WhyDERs_ES_Final.pdf

The full technical study report can be downloaded: https://www.vibrantcleanenergy.com/wpcontent/uploads/2020/12/WhyDERs_TR_Final.pdf

The accompanying result summary slide show can be downloaded: https://www.vibrantcleanenergy.com/wpcontent/uploads/2020/12/LocalSolarRoadmap_FINAL.pdf

The WIS:dom®-P model output national capacities spreadsheet can be downloaded: https://www.vibrantcleanenergy.com/wp-content/uploads/2020/12/Summary-Capacities_Nov2020.xlsx.zip

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