

BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Joint Application of Wisconsin Electric Power, Docket No. 5-BS-254
Company, Wisconsin Public Service Corporation,
And Madison Gas and Electric for Approval to Acquire
Ownership Interests in the Paris Solar Generating and
Battery Energy Storage System

DIRECT TESTIMONY OF MICHAEL J. VICKERMAN
ON BEHALF OF RENEW WISCONSIN

Q. Please state your name and business address

A. My name is Michael J. Vickerman, and my business address is 214 N. Hamilton
St., Suite 300, Madison, WI 53703.

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

A. I am Policy Director for RENEW Wisconsin (RENEW).

Q. On whose behalf are you testifying?

A. I am testifying on behalf of RENEW.

Q. Please describe your educational background.

A. I have a Bachelors of Arts degree in History and Art History from the University
of Wisconsin.

1 Q. **Please describe your work experience.**

2 A. I began working for RENEW Wisconsin in October 1991 as its Advance Plan 6
3 intervention manager. I became RENEW's Executive Director in 1994, and
4 served in that capacity until 2012. Since then, I have been RENEW's Policy
5 Director. My work with RENEW today focuses on renewable energy policy
6 development at the regulatory, legislative, and municipal level. My professional
7 qualifications are further summarized in Ex.-RENEW-Vickerman-1.

8

9 Q. **Please describe RENEW.**

10 A. RENEW is a domestic, nonprofit corporation headquartered in Madison that
11 works to advance the renewable energy goals adopted by the State of Wisconsin
12 over the years. Since its founding in 1991, RENEW has worked to increase access
13 to and development of renewable energy sources in Wisconsin to power homes,
14 businesses, and vehicles. To that end, RENEW formulates and advocates for
15 policies and programs to expand the use of solar power, wind power, renewable
16 natural gas, local hydropower, geothermal energy, energy storage, and electric
17 vehicles.

18 In recent years, solar generation has emerged from the margins of the
19 electric power landscape to become a reliable and cost-effective energy resource
20 for a wide variety of applications and circumstances. Solar's emergence owes to
21 its remarkable scalability, unequalled by any other generation source today. Many
22 RENEW members are active in solar electric development. They include
23 contractors and consultants specializing in (1) behind-the-meter installations for

1 retail customers, (2) solar arrays directly feeding utility distribution systems, and
2 (3) large-scale solar power plants supplying multiple electric providers. To a
3 degree unmatched by any other state-based organization, RENEW works to
4 increase the accessibility of solar energy, in all sizes and configurations, to all
5 citizens of the state. In furtherance of that aim, RENEW became the Wisconsin
6 state chapter of the Solar Energy Industries Association in 2020.

7

8 **Q. Are you familiar with the above-referenced facility that is the subject of this**
9 **proceeding?**

10 A. Yes. I have reviewed Joint Applicants' application and direct testimony. I have
11 also reviewed key documents in the proceeding (9801-CE-100) that led to the
12 granting of a Certificate of Public Convenience and Necessity (CPCN) for the
13 Paris project. RENEW is a full party in that proceeding, which is still ongoing.

14

15 **Q. What is the purpose of your testimony in this proceeding?**

16 A. The principal purpose of my direct testimony is to provide support for the
17 application submitted by Wisconsin Electric Power Company (WEPCO),
18 Wisconsin Public Service Corporation (WPS), and Madison Gas and Electric
19 Company (MGE) (collectively, the Joint Applicants) to acquire the Paris Solar
20 Generating and Battery Energy Storage System (hereinafter Paris). As the first
21 utility-scale project in Wisconsin that combines large-scale solar generation with
22 significant onsite storage capacity, Paris will advance Joint Applicants' carbon
23 dioxide reduction goals while generating clean, affordable and reliable power for

1 their customers. In our view, Paris represents a key step in their recently launched
2 transition to replace older fossil generation sources with in-state, zero-carbon
3 renewable generation.

4

5 **Q. Have you prepared any exhibits with your direct testimony?**

6 A. Yes. In addition to Ex.-RENEW-Vickerman-1 referenced above, I am sponsoring
7 the following exhibits:

- 8 • Ex.-RENEW-Vickerman-2, excerpts from the Commission’s 2020
9 Renewable Portfolio Standard Report issued in July 2021; and
- 10 • Ex.-RENEW-Vickerman-3, a 2019 profile of Wisconsin’s electricity
11 sector published by the U.S. Energy Information Administration (EIA).

12

13 **Q. Please describe the impact that Paris will have on Joint Applicants’ efforts to**
14 **reshape their generation portfolio.**

15 A. Paris is part of the initial wave of solar generating facilities that is planned to
16 replace coal- and gas-fired capacity scheduled for retirement within the next five
17 years. In addition to providing 200 megawatts (MW) of generating capacity over
18 35+ years of operation, the Paris project marks the first application of utility-scale
19 storage on the site of a CPCN-level power plant. Assuming it receives the
20 remaining approvals in the ongoing 9801-CE-100 docket, Paris will bring to bear
21 110 MW of battery energy storage that can be used to supply power to the
22 transmission system at high-demand hours. Table 1 below lists the solar-only and
23 the solar + storage projects involving a minimum of two of the three Joint

1 Applicants. As shown in that table, Joint Applicants have committed to acquire
 2 1,200 megawatts of solar generation between 2020 and 2025. At 200 MW, and
 3 assuming at minimum a 23% capacity factor over much of its operating life, Paris
 4 will generate on average roughly 400,000 MWh each year.

Table 1					
Joint Applicants' Solar Generation Expansion Plan					
(in MW)					
Project	Capacity reserved for WEPCO	Capacity reserved for WPS	Capacity reserved for MGE	First full year of operation	Estimated annual output (in MWh)
Two Creeks		100	50	2021	300,000
Badger Hollow	50	150	100	2023	600,000
Paris	150	30	20	2024	400,000
Darien	187.50	37.50	25	2024	500,000
Koshkonong	225	45	30	2025	600,000
Subtotals	612.50	362.50	225		
Grand total			1,200		2,400,000

5
 6 To put Paris' expected output in perspective, in-state solar generation in
 7 2020 accounted for 0.1% of total sales in Wisconsin that year (76,278 MWh out
 8 of 67,447,893 MWh). These figures appear in Appendix E of the 2020 Renewable
 9 Portfolio Standard Report (Ex.-RENEW-Vickerman-2). In other words, the
 10 anticipated output from Paris alone represents a nearly seven-fold increase from
 11 total in-state solar energy production reported by Wisconsin's electric providers
 12 last year.

13
 14 **Q. What percentage of Joint Applicants' electricity sales will Paris account for?**

15
 16 A. Table 2 below lists total electricity sales recorded by the Joint Applicant utilities
 17 in 2020 and 2019. These figures were obtained from the annual reports filed by

1 each of the Joint Applicants, which are accessible from the Commission’s
2 website. Should Joint Applicant electric sales hold relatively constant over the
3 remainder of this decade, Paris’s expected output of 400,000 MWh will account
4 for slightly more than 1% of their collective sales once the project is placed in
5 service.

Table 2		
Joint Applicant Utilities		
Electricity Sales in 2020 and 2019		
(in MWh)		
Utility	2020	2019
WEPCO	23,012,230	23,880,460
WPS	10,605,072	10,758,317
MGE	3,101,965	3,217,069
Total	36,718,267	37,845,846

6
7 When one considers the ambitious nature of Joint Applicants’ carbon
8 reduction goals—80% from 2005 by 2030—and the fact that WEPCO and WPS
9 are still at the beginning stage of executing its Generation Reshaping Plan (Direct-
10 WEPCO WPS-Gerlikowski: 3p-4p), many more solar generating projects on the
11 scale of Paris will be needed over the next nine years.

12
13 **Q. How will the Paris project contribute to system reliability?**

14 A. Utility-scale solar plants built with single-axis tracking devices are designed to
15 follow the sun’s daily path during daylight hours, starting with the first minutes of
16 sunrise and continuing through to the final minutes of sunset. This design feature

1 optimizes the solar plant's ability to capture sunshine in the early morning and in
2 the late afternoon/early evening hours. The latter attribute is particular valuable
3 for Joint Applicants and other utilities that have significant summer peaks, which
4 tend to occur between 3:00 pm and 7:00 pm in the summer months. The battery
5 energy storage system enhances that design by storing excess production that
6 occurs earlier in the day for use later that day. With the capability of providing
7 grid support after sundown, a solar and storage facility at Paris will reduce the
8 need for generation from other utility sources during late afternoon peak periods.
9 This particular attribute could become more valuable to Joint Applicants and
10 their customers if future fuel prices were to move sharply higher for one reason or
11 another. Indeed, the combination of solar and storage should enable Joint
12 Applicants and other electric utilities in Wisconsin to accelerate their deployment
13 of renewable generating capacity, especially solar. These utilities will need the
14 Paris project and many more renewable generators of similar scale, as they are
15 only at the beginning stages of reshaping their generation portfolios.

16

17 **Q. Do you have any recommendations for how Joint Applicants can strengthen**
18 **the case for Paris and other planned acquisitions of clean energy projects?**

19 A. Yes, I have one. RENEW questions the need to treat forecasts for achieving
20 utility-specific reductions in CO₂ emissions as confidential information. Nowhere
21 in the application or in Joint Applicants' public testimony does one find a number
22 representing their current emission levels or an estimate of the reduction in CO₂
23 emissions attributable to Paris. This practice effectively prevents utility customers

1 and the public from assessing the efficacy and the cost-effectiveness of proposals
2 that will affect a utility's carbon intensity. Though there's no doubt that Paris will
3 displace greenhouse gas emissions from other sources owned by Joint Applicants,
4 by how much is not disclosed in a public filing. RENEW does not see how the
5 public interest is served by keeping such information behind the cloak of
6 confidentiality.

7 In the absence of a specific, publicly accessible estimate from Joint
8 Applicants, one can turn to the U.S. Energy Information Administration (EIA) for
9 a statewide per MWh CO₂ emissions rate. EIA'S 2019 profile for Wisconsin
10 (Ex.-RENEW-Vickerman-3) tracks carbon dioxide emissions, sulfur dioxide
11 emissions and nitrogen oxide emissions from electricity generators in the state. In
12 2019, EIA reported an average CO₂ emissions rate of 1,233 pounds, or 0.615
13 metric tons, per MWh. Thus Paris, with its anticipated annual output of 400,000
14 MWh/year or more, should displace, at a minimum, 493,200,000 pounds of
15 CO₂/year, or 246,600 metric tons/year.

16

17 **Q. Does RENEW support Commission approval of this application?**

18 A. Yes. RENEW Wisconsin wholeheartedly supports Commission approval of the
19 application from Joint Applicants to acquire the Paris Solar Generating and
20 Battery Energy Storage System. In our view, the 200-MW solar/110 MW battery
21 storage project will be a cost-effective, low-risk asset, one that is well-configured
22 to meet the challenge facing Joint Applicants, namely to expedite the transition
23 from a fossil-heavy generating fleet to one achieving net zero-carbon status by

1 2050. Building the Paris project will enable Joint Applicants to retire a substantial
2 subset of their aging baseload units within the current decade, without incurring
3 any reductions in system reliability or other undesirable outcomes. Before those
4 plant closures occur, the flow of electricity from the Paris project will displace
5 fossil-fueled generation elsewhere, which will measurably reduce the volume of
6 airborne pollutants and greenhouse gases discharged from Wisconsin sources.
7 Finally, as a noncombustible renewable resource, Paris is wholly consistent with
8 Wisconsin’s Energy Priorities Law, and, notably, at the scale needed to achieve
9 deep carbon reductions.

10

11 **Q. Does this complete your direct testimony?**

12 **A. Yes, it does.**