

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF WISCONSIN**

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Application of Wisconsin Power and Light Company  
for a Certificate of Authority for Acquisition,  
Construction, Installation, and Operation of Six  
Solar Electric Generation Facilities in Wisconsin

Docket No. 6680-CE-182

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**NON-PARTY BRIEF  
GRANT COUNTY INTERVENORS**

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**I. INTRODUCTION**

Wisconsin Power & Light has filed an application, initial and revised, with the Wisconsin Public Service Commission for a Certificate of Public Convenience and Necessity. Grant County Solar's 200 MW solar project is one of the projects covered under this umbrella acquisition docket, planned to be built on roughly 2,500 acres in Iowa County, on land leased to the company, with the project expected to be operational for at least 30 years into the future. The WP&L acquisition includes five other solar projects, 2 others before the Commission and 3 of them before local governments for permitting. Grant County Intervenor is a party in the Grant County Solar CPCN docket before the Commission. Because of their interest, Grant County Intervenor offers this non-party brief in an attempt to address its interests in this proceeding.

The issues presented are, as proposed by Commission staff and set forth in the Prehearing Memorandum, whether the proposed project complies with the applicable standards under Wis. Stat. §§ 1.11, 1.12, 196.025, and 196.491, and Wis. Admin. Code, chs. PSC 4, and 111. The Certificate of Public Convenience and Necessity criteria provides a general framework for review of electric generating facilities, but unlike other generation and transmission, particularly

wind, there are no solar specific rules to guide the Commission. Despite a solar siting rulemaking petition that was denied, and despite several utility scale projects approved and others before the Commission, such as the six projects under the umbrella of this application, Wisconsin has yet to promulgate solar siting application requirements, siting criteria, or solar specific requirements for environmental review. See PSC Docket 1-AC-254. Wisconsin is currently addressing “application filing requirements” that do address some of the concerns of Grant County Intervenors. See PSC Docket 5-AFR-700.

**II. CONDITIONS ARE REQUIRED FOR ANY COMMISSION ORDER DUE TO THE MANY UNCERTAINTIES AND UNKNOWNNS REGARDING IMPACTS OF SOLAR SITING AND GENERATION.**

On review of this docket, and in light of the Grant County Solar docket, there are many issues that regulation and issues that require study. Specific suggestions are found in testimony in this docket.

**A. WP&L must identify solar panels to be used.**

Applicants have consistently refused to identify the solar panels to be used. As a condition to any Commission Order, applicants must identify solar panels to be used.

**B. Setbacks should have greater distance between project and residents.**

PSC’s Burtley makes suggestions regarding setbacks of 300 feet:

A way to minimize impacts to these residences would be to increase the distances from the fenced array areas to nearby residences in the form of a standardized setback distance. For example, in several previous EAs, Commission staff reviewed the proposed layout of fenced array areas and how various setback distances to nearby residences could affect the proposed layouts. For example, if the Commission implemented a standardized setback distance of 300 feet between array area fences and nearby residences...

Direct-PSC-Burtley-8; see e.g., Ex.-PSC-EA, Section 6.2.16.3. Burtley also suggests a generic setback review initiated by the Commission where:

... the Commission could direct staff to start a generic docket or write a report that compares and investigates various setback distances proposed by different

developers in Commission-approved solar PV generation projects as well as what setback distances other states are implementing (if any). This could provide a more systematic review of facilities prior to implementing a docket-specific setback distance and inform policy making decisions on local and national levels.

Direct-PSC-Burtley-9.

**C. Heat Island Effect presents need for a condition requiring study of utility scale solar projects.**

Heat Island Effect is a material issue for Grant County Intervenors, one that GCI urges the Commission to act on as applications are considered and Ordered. GCI has raised heat island effect in the Grant County Solar docket, but PSC staff notes only that heat island has been raised as an issue in 9803-CE-100 and 9805-CE-100 – it is not clear why 9804-CE-100 was skipped over. See Direct-PSC-Burtley-11-12. Burtley sets out the issues and need for study, and the Commission should give great weight to this testimony, as heat island effect is one of the areas of unknowns of solar siting impacts. Wisconsin has sited large utility projects very quickly, despite these unknowns, and uninformed siting is not in the public interest.

Empirical research is needed to measure the occurrence and spatial extent of PVHI, and understand potential impacts it could have on local environments at utility-scale solar facilities in temperate landscapes dominated by working agricultural lands...

Id., p.12; see also Direct-PSC-Schumacher-14. Burtley suggests, and GCI strongly supports, an:

... order condition requiring the applicant conduct a 3<sup>rd</sup> party analysis of the PVHI effect for the proposed project. If a docket-specific study was required, it would generate empirical data from a utility-scale solar facility constructed and operated in Wisconsin that would add to the current scientific understanding of PVHI in a temperate, agriculturally dominated landscape. It could also provide an evidence-based assessment and recommendations that could be used to inform environmental impact assessments and policy decisions on local and national levels. More specifically, the proposed project includes six utility-scale solar projects which provides a unique opportunity to compare and address site specific and/or cumulative impacts from PVHI that could occur as a result of the construction and operation of utility scale solar facilities in various agriculturally dominated regions of Wisconsin which would all be owned by the same entity.

Id., p. 13. Burtley testifies regarding ways the Commission could direct a systematic understanding of heat island effect, which Grant County Intervenors also supports:

One example of how the Commission could encourage a more systematic understanding of PVHI and its potential impacts would be to direct staff to start a generic docket or write a report that synthesizes the existing information on PVHI and work with the solar industry, stakeholders, and local universities to encourage and facilitate the generation of empirical research on PVHI and potential effects in Wisconsin, particularly on agricultural lands, that could be used on local and national levels to inform policy making decisions.

Another example, suggested in the Wood County Solar project (docket 9803-CE-100), would be to use funding from the Focus on Energy program (for example) to investigate PVHI at utility-scale solar facilities in Wisconsin; this could decrease the financial burden on any one docket and provide a systematic funding mechanism that could support an informed understanding of PVHI and its potential impact across 1,000s of acres of approved solar facilities in Wisconsin.

Id., p. 13-14.

The Commission should require conditions regarding study of heat island effect as detailed above to begin to inform the record and policy decisions.

**D. Vegetation management can be improved with a Condition.**

Vegetation management can be improved with a condition also suggested by Burtley, and which GCI supports, that the:

... applicant could work cooperatively with Commission staff on the composition and placement of vegetative buffers and pollinator enhancement plantings in its site-specific vegetation management plan.

Direct-PSC-Burtley-20:1-3. There are additional suggestions regarding plantings:

... to maximize the success and potential benefits these plantings could provide to the project and the local community, the required and recommended actions from DNR species experts that the applicant could implement to minimize and avoid impacts to endangered resources.

Direct-PSC-Burtley-20; see also Direct-WPL-Sklitzky-15. The EA states that:

The most effective way of mitigating aesthetic impacts of solar facilities includes retaining and planting vegetative buffers between proposed facilities and adjacent residences and roads.

Ex.-PSC-EA-56. The Commission should consider a condition requiring vegetative buffers to address aesthetic and viewshed impacts.

The Commission should include conditions regarding vegetation management, as above, in any Commission Order in this docket.

**E. There is a need for a condition requiring avian study, specifically impact of solar on waterbirds.**

Again, PSC staff Burtley has specific suggestions for waterbirds study which GCI supports due to the location of Grant County in the Mississippi flyway.

The Mississippi flyway is a major eagle migration route, and eagle nests have been found near at least two of the projects. The suggestions for identification of nests pre-construction and setbacks to nests should be applicable to all solar projects, and particularly those in the Mississippi flyway, such as Grant County, and post construction impacts and mortality study, as was Ordered for Two Creeks (9696-CE-100) and Badger Hollow (9697-CE-100). GCI supports a condition for all six projects requiring study as proposed by Schumacher. See Direct-PSC-Schumacher-12-15.

The specifics in Burtley's testimony are excellent descriptions of what should be studied:

For example, as cited and discussed in Section 6.2.22 (Ex.-PSC-EA) it has been demonstrated that solar PV panels have the ability to attract waterbirds which can result in injury and/or mortality either through direct collision or stranding. To illustrate, there is concern that if waterbirds are disproportionately attracted to solar PV panels. For example, the Commission could require a docket-specific study on avian impacts, similar to those required for several Commission approved projects... [and a study] would provide an evidence-based assessment and recommendations that could be used to inform environmental impact assessments and subsequent policy decisions on local and national levels. More specifically, the proposed project includes six utility-scale solar projects which provides a unique opportunity to compare and address site specific and/or cumulative impacts to avian species, populations, and resources that could occur as a result of the construction and operation of utility-scale solar facilities in various regions of Wisconsin which would all be owned by the same entity. A study like this could be highly effective in identifying mitigation actions that could minimize environmental impacts and would generate a body of knowledge that does not

currently exist in the scientific community.

As noted, there have been few scientific studies of avian interactions and mortality at solar facilities that would be comparable to the utility-scale solar facilities being proposed in Wisconsin. The Commission required the first two utility-scale solar facilities to conduct post-construction mortality surveys in an attempt to generate empirical data to measure potential avian impacts in Wisconsin. These types of studies have also been required by the Commission as a part of approved CPCNs for several wind generating facilities. Understanding how utility-scale solar facilities impact birds (i.e. behavior and mortality) is necessary to inform environmental impact assessments and subsequent policy decisions regarding potential site-specific and cumulative impacts of solar PV facilities on avian species and populations, as well as to establish effective mitigation methods. For example, as cited and discussed in Section 6.2.22 (Ex.-PSC-EA) it has been demonstrated that solar PV panels have the ability to attract waterbirds which can result in injury and/or mortality either through direct collision or stranding. To illustrate, there is concern that if waterbirds are disproportionately attracted to solar PV panels that could result in diving ducks (which have adaptations like a heavier body, legs set further back in their body, shorter wings, etc.) landing in fenced panel array areas (not necessarily colliding with them) and subsequently being stranded because they must run across water to reach the speed necessary for takeoff. Further direct effects to birds or bird populations include mortality from construction, collision, and predation as well as sublethal effects such as injury and energetic costs. Indirect effects to birds or bird populations may also include habitat loss, habitat fragmentation, and habitat degradation. The types and magnitude of impacts on birds and bird populations can be related to project-specific factors such as location, size, and technology. Potential research questions are identified in Section 6.2.22 (Ex.-PSC-EA).

Direct-PSC-Burtley-16-17(footnotes omitted). Burtley also recommends that the Commission:

... direct staff to start a generic docket or write a report that synthesizes existing information and identifies effective methods to measure injury and/or mortality to avian species, as well as work with the solar industry, stakeholders, and local universities to encourage and facilitate the generation of empirical research that could be used on local and national levels to inform policy making decisions.

And that the Commission:

... implement a program similar to Virginia's Solar Permit by Rule Regulation which would set up a fund to support research investigating impacts of projects on avian resources. This could decrease the financial burden on any one docket and provide a systematic funding mechanism that could support an informed understanding of avian impacts across 1,000s of acres of approved solar facilities in Wisconsin. This example is discussed in Section 6.2.22 (Ex.-PSC-EA).

Direct-PSC- Burtley p. 17. These Burtley suggestions are, again, strongly supported by GCI because the Commission needs to know potential impacts of siting solar, particularly when there are so many large solar projects, such as this umbrella docket with six projects encompassing thousands of acres. As a regulator, it is the Commission's responsibility to assure siting is in the public interest and is environmentally sound.

**F. The impact of fencing requires a wildlife study, and an associated condition.**

Fencing around the solar arrays limits wildlife movement, particularly movement of large wildlife, and very little is known about the specifics. The EA states:

Fence ecology is a new field of study, and there is much more to understand considering the amount of fencing that would be installed in the landscape with the construction of each utility-scale solar facility.

Large-scale solar facilities are a relatively new addition to the landscape and research is ongoing to determine impacts to wildlife. Most research on the impacts of solar facilities on wildlife has occurred in different habitats than are found in Wisconsin. A 2019 meta-analysis report<sup>63</sup> from the United Kingdom found that generally there is still not much evidence on the ecological impacts of ground mounted solar PV sites, that most literature acknowledges the need for further research, and that the objectives and design of surveys should be considered on a case-by-case basis, to ensure any actions are justified and effective.

Ex.-PSC-EA-64-65. Much as avian study is required, there is a need for study of impact of utility scale solar on wildlife, including but not limited to the impact of fencing on the movement and existence of wildlife in the area.

The Commission should require study on the impact of fencing and of utility scale solar projects generally, on wildlife. This is a particularly important condition for this umbrella docket of six projects covering over 5,000 acres.

**G. A condition regarding line-of-sight communications is needed.**

The Commission should include a condition regarding submission of completed project designs, an updated ER Review, and mitigation to line-of-sight communications, including a provision that the applicant shall mitigate impacts to line-of-sight communications and landowners that can show disruption to broadcast communications post construction. See Rebuttal-WPL-Skalitzky-5 discussed at Direct-PSC-Craft-6, Direct-PSC-Shumacher-11, 18, and Direct-WDNR-1 Radermacher-7.

**H. A condition regarding stray voltage and noise pre and post-construction testing and monitoring is required.**

The potential for stray voltage is a material concern to Grant County Intervenors. In the Grant County Docket, Grant County Solar has committed to perform stray voltage testing and “work with” landowners and the distribution utility. In this docket, the same commitment should be emphasized in a Commission Condition.

Stray voltage testing consistent with Wis. Admin. Code § PSC 128.17; (plus) “WP&L shall work with the applicable distribution utility to make available stray voltage testing at each agricultural confined animal operation within one-half mile of the project areas, prior to construction and after the project is energized. WP&L shall work with the distribution utility and farm owner to rectify any identified stray voltage problem arising from the construction or operation of the project. Prior to testing, WP&L shall work with the applicable distribution utility and Commission staff to determine where and how it will conduct the stray voltage measurements. WP&L shall report the results of its testing to Commission staff.

Direct-PSC-Chee-6.

WP&L shall perform post-construction noise studies as described in the most current version of the PSC Noise Measurement Protocol. In the event of a substantial change to the proposed facility layouts, WP&L shall confer with Commission staff to determine if a new pre-construction noise study must be completed. WP&L shall file a copy of the post-construction noise study reports with the Commission.

Direct-PSC-Chee-7. WP&L agrees to this condition:

At Direct-WPL-Skalitzky-21, I indicated that WPL is willing to conduct stray voltage testing for the Sub-100 MW Projects in a manner that is consistent with Mr. Chee's proposed order condition. WPL is also willing to conduct post-construction noise studies for these projects in a manner consistent with Mr. Chee's proposed order condition.

Rebuttal-WPL-Skalitzky-3

The Commission must order stray voltage testing as suggested by staff, and agreed to by WP&L.

**III. WP&L'S REQUEST TO ACQUIRE THESE SIX PROJECTS SHOULD BE DENIED DUE TO THE EVIDENT UNKNOWNNS AND UNCERTAINTIES OF SOLAR PROJECT IMPACTS. IF THE COMMISSION APPROVES WP&L'S REQUEST, IT MUST BE AN ORDER WITH CONDITIONS.**

It is Grant County Intervenors position that WP&L's request to acquire these six projects should be denied due to the evident unknownns and uncertainties of solar project impacts. If the Commission approves WP&L's application, it must be an order with conditions. The conditions outlined above, many suggested by Commission staff, address many of the uncertainties of siting solar and of the impacts of utility scale solar, focused on the need for study of these impacts. The Commission, as regulator, should give great weight to staff suggestions as it moves forward siting some of the largest solar projects in Wisconsin, and particularly with this docket of six solar projects covering over 5,000 acres.

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