COMMONWEALTH OF KENTUCKY

BEFORE THE KENTUCKY STATE BOARD ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of:

ELECTRONIC APPLICATION OF AEUG MADISON SOLAR, LLC FOR A CERTIFICATE OF CONSTRUCTION FOR AN APPROXIMATELY 100 MEGAWATT MERCHANT ELECTRIC SOLAR GENERATING FACILITY IN MADISON COUNTY, KENTUCKY PURSUANT TO KRS 278.700 AND 807 KAR 5:110	)))))))	CASE NO. 2020-00219

SITING BOARD STAFF'S FIRST REQUEST FOR INFORMATION TO AEUG MADISON SOLAR, LLC

AEUG Madison Solar, LLC (AEUG Madison), pursuant to 807 KAR 5:001, is to file with the Siting Board an electronic version of the following information. The information requested herein is due on February 9, 2021. The Siting Board directs AEUG Madison to the March 16, 2020 and March 24, 2020 Orders in Case No. 2020-00085[1] regarding filings with the Siting Board. The Siting Board expects the original documents to be filed within 30 days of the lifting of the current state of emergency. All responses in paper medium shall be appropriately bound, tabbed, and indexed. Electronic documents shall be in portable document format (PDF), shall be searchable, and shall be appropriately bookmarked.

Each response shall include the name of the witness responsible for responding to the questions related to the information provided. Each response shall be answered

[1] Case No. 2020-00085, *Electronic Emergency Docket Related to the Novel Coronavirus COVID-19* (Ky. PSC Mar. 16, 2020), Order at 5–6. Case No. 2020-00085, *Electronic Emergency Docket Related to the Novel Coronavirus COVID-19* (Ky. PSC Mar. 24, 2020), Order at 1–3.

under oath or, for representatives of a public or private corporation or a partnership or association or a governmental agency, be accompanied by a signed certification of the preparer or the person supervising the preparation of the response on behalf of the entity that the response is true and accurate to the best of that person's knowledge, information, and belief formed after a reasonable inquiry.

AEUG Madison shall make timely amendment to any prior response if AEUG Madison obtains information that indicates the response was incorrect when made or, though correct when made, is now incorrect in any material respect. For any request to which AEUG Madison fails or refuses to furnish all or part of the requested information, AEUG Madison shall provide a written explanation of the specific grounds for its failure to completely and precisely respond.

Careful attention shall be given to copied material to ensure that it is legible. When the requested information has been previously provided in this proceeding in the requested format, reference may be made to the specific location of that information in responding to this request. When filing a paper containing personal information, AEUG Madison shall, in accordance with 807 KAR 5:001, Section 4(10), encrypt or redact the paper so that personal information cannot be read.

1. Refer to the Application, Volume I, page 1, under the section heading 2 "Description of Proposed Site." Table 1 provides information regarding the land cover in the proposed project site. State whether the land cover class information derived from the 2016 U.S. Geological Survey is the most recent information.

2. Refer to the Application, Volume I, pages 2–3, under the section heading 3 "Public Notice Evidence."

a. Confirm that there are 162 property owners that own property adjoining the proposed solar site.

b. Refer to the Application, Volume I, Appendix B. Of the 162 adjoining property owners listed in this appendix, identify any property owner that did not receive the December 7, 2020 letter. For those property owners that did not receive the letter, provide any follow-up measures performed by AEUG Madison to provide these owners with notice.

c. State whether any of these adjoining property owners provided feedback regarding the proposed solar facility site. If so, state how AEUG Madison responded to those feedback.

3. Refer to the Application, Volume I, pages 4–6, under the section heading 6 "Public Involvement Report."

a. State whether there were any feedback received from the public meetings that were conducted. If so, state how AEUG Madison responded to those feedback.

b. The last sentence of this section states "In some cases, AEUG Madison Solar has even addressed the community's concerns by amending its Project design/layout." Provide specific details of the concerns that were raised and how AEUG Madison revised the solar project's design or layout to address those concerns.

4. Refer to the Application, Volume I, Appendix C – Public Involvement Documents.

a. On slide 17 of the Madison Count Solar Public Meeting August 6, 2020 PowerPoint presentation, state what is meant by the following statement and how

such statement is applicable to the proposed solar project: "Social impact projects designed for every project ACCIONA builds."

b. Regarding the commitment that a portion of the proposed project's revenue will be reinvested in the community, state how AEUG Madison will honor this commitment.

c. Refer to the last PowerPoint presentation in this appendix, slides 15–16. Provide the questions and answers that were discussed during this presentation.

5. Refer to the Application, Volume III, Appendix F – Visual Assessment Report.

a. On the first page of the report, reference is made to the size of the project site being 2,021 acres. Reconcile this statement with the references to the project site being 1,770 acres (Application, Volume I, Section 2) and 1,100 acres (Application, Volume I, Section 3).

b. Where the visual assessment determined that the view of the solar facility would be unobstructed such as at VP-03 (Three Forks Substation) and VP-11 (Red House Road (North)), state how AEUG Madison will mitigate the view shed impacts at these locations.

6. Refer to the Application, Volume I, Appendix G, Figure 1, page 4. Provide a copy of the Solar Market Insight Report 2019 Year in Review report.

7. Refer to the Application, Volume I, Appendix G, Figure 2, page 4.

a. Provide a copy of Tracking the Sun: Pricing and Design Trends for Distributed Photovoltaic Systems in the United States, 2019 Edition.

b. Explain whether the installed price is an "all in price."

c. Explain how the estimated cost of the current Madison county project compares to the prices in Figure 2.

8. Refer to the Application, Volume I, Appendix G, page 6. Of the states with similar irradiation to Kentucky, explain and list the states that have renewable energy portfolio standards or mandates from regulators and which do not.

9. Refer to the Application, Volume I, Appendix G, page 8. Provide an explanation of NREL's Jobs and Economic Development Impacts (JEDI) modeling methodology and whether and how it differs from IMPLAN modeling methodology.

10. Refer to the Application, Volume I, Appendix G, pages 8–9. Regarding the literature review, explain whether the touted economic benefits of the various hypothesized solar projects are net benefits and take into account the negative economic consequences of environmental or market forces upon the local electric utility and energy sectors.

11. Refer to the Application, Volume I, Appendix G, Table 1, page 12. Provide the data sources behind the table and explain how IMPLAN was used to populate the table.

12. Refer to the Application, Volume I, Appendix G, page 20. Provide a copy of the articles by Paul Gottlieb, Franscis et al., and Dwight Lee referenced in the first two paragraphs.

13. Refer to the Application, Volume I, Appendix G, page 21. Provide a copy of the Gottlieb 2015 article referenced in the first paragraph.

14. Refer to the Application, Volume I, Appendix G, Figure 15, pages 29–32. Based on the Monte Carlo study and specific agriculture product study results, explain why farming should not be expected to disappear in Madison County.

15. Refer to the Application, Volume I, Appendix G, pages 33 and 35.

a. Explain the degree to which the JEDI model has been calibrated to Madison county, the regional economy (including how "regional" is defined), and the state economy.

b. Explain whether the degree to which the various elements of the solar project are manufactured locally, regionally, in Kentucky or imported from outside Kentucky or the region.

c. Explain how the JEDI model calibration parameters came from the Minnesota IMPLAN Group. If not, explain the source of the other calibration parameters.

16. Refer to the Application, Volume I, Appendix G, pages 35. Provide a listing of cost estimated and other project related assumptions provided by Acciona Energy.

17. Refer to the Application, Volume I, Appendix G, pages 36–37.

a. Explain how the model distinguishes between the construction and operational (annual) phases of the project.

b. Explain whether the correct interpretation of the Construction results in Table 6 are that Madison county will have an estimated increase of $13,210,187 in new local earnings over the long-term life of the solar project as a result of the short-term construction and installation activity. If the interpretation is incorrect, provide a correct interpretation of the results.

18. Identify where on KY-388 the expected locations of the entrances and exits to the construction site will be located.

19. Describe the signage or traffic signals that will be present near those entrances and exits.

20. State how often traffic signaling is expected to be necessary to prevent any traffic issues.

21. Please indicate the hours of the day the commuting construction workers will arrive and vacate the site during both the construction phase and when the anticipated morning and afternoon peaks will occur.

22. Please indicate the hours of the day the workers will arrive and vacate the site during the operational phase.

23. Please provide an approximate percentage breakdown of where the construction workers will commute from each day, if possible.

24. Please provide the weight classes of the vehicles anticipated to access the site daily during construction, as identified in Appendix C, Section 3, Table 3.2-1.

25. Provide the expected maximum weight of the largest vehicles (including any materials or equipment that the truck is hauling).

26. If possible, provide an approximate breakdown by point of origin for the construction truck traffic.

27. State where the construction crew, supervisors and others will park on-site.

28. Refer to the questions propounded by Wells Consulting, which are attached as an Appendix to this information request, and provide responses to those questions.

Linda C. Bridwell, PE
Executive Director
Public Service Commission *on behalf of* the Kentucky State Board on Generation and Transmission Siting
P.O. Box 615
Frankfort, KY 40602

DATED JAN 25 2021

cc: Parties of Record

APPENDIX

APPENDIX TO A REQUEST FOR INFORMATION OF THE KENTUCKY STATE BOARD ON ELECTRIC GENERATION AND TRANSMISSION SITING IN CASE NO. 2020-00219 DATED JAN 25 2021

[FIFTEEN PAGES TO FOLLOW]

January 25, 2021

List of Questions for Data Request

AEUG Madison Solar, LLC
KY State Board on Electric Generation and

Customer:
Kentucky Public Service Commission

Prepared for:
Quang D. Nguyen

Wells Engineering, PSC
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January 25, 2021

List of Questions for Data Request

Prepared by:

Vasu Chikkeruru, P.E.
Sr. Power Systems Engineer

Reviewed by:

Jim Cook
Chief Operating Officer

Approved by:

Patrick Wells, P.E.
President/CEO

Synopsis

This document is a list of questions prepared for the data (or) information to be requested as part of the application process for Solar Electric Generation Plant in Madison, KY.

WEPSC Order: WE200928193

Public Service Commission PO:
PON2 123 2100001588

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CONTENTS

REVISIONS

Revision	Date Issued	Issue Type	By	Description
0	01-20-2021	For Review	VC	Issue for Review & Record
1	01-21-2021	For Submission	VC	Issue for Submission

Power Systems Engineering

Since 2004, Wells Engineering has served utility, industrial, and commercial facilities for all their power needs. Quality and innovation have established Wells as the go-to engineering firm specializing in the planning, design, control, and analysis of electrical power systems. With a great reputation of working closely with our clients and listening to their requests, our team diligently provides solutions that fit every need.

Wells Engineering delivers innovative solutions aligned with rigid standards and best engineering practices.

Our Mission

Our mission is to provide unsurpassed quality engineering service and customer support. We will conduct our business in the most professional manner possible and provide the highest quality product in a timely manner. Our value added engineering will be recognized and provide the opportunity to earn our customers' confidence. We will use proven technology to create advanced power systems designs to support the development of the safest and most reliable systems for our clients.

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APPLICATION ENGINEERING. Relay Protection & Control • RTU & RTAC Programming • Induction Motor Control • Synchronous Motor Control • Capacitor & Filter Banks • SVC Systems • FACTS/STATCOM • Forensic Investigation • Sequence of Events Failure Analysis • Power Systems Planning • Grounding & Bonding • Maintenance Planning & Audits • Troubleshooting • Disaster Recovery Plans • Technical Witness

PROJECT AND CONSTRUCTION MANAGEMENT. Equipment Specifications • Bid Document Facilitation • Subcontractor Qualification • Vendor Selection • Construction Estimates • Contract Administration & Implementation • OEM Factory Witness Testing • Resource Management • Master Project Schedule • Material Tracking • Spare Parts Management • Warranty Negotiation • Procurement Leveraging • Cash Flow Management

TESTING AND COMMISSIONING. MV/HV/EHV Circuit Breakers • Circuit Switchers • MV Switchgear • GSU & Power Transformers • Capacitor Banks • Harmonic Filter Banks • PTs & CCVTs • CTs • Substation Relay Protection & Control • Overcurrent, Fault Locators, & Distance Relays • Generator Protection Relaying Disconnect Switches • Surge Arrestors • Station Batteries • Grounding Resistors/Reactors/Transformers • Ground Grid • Reclosers • Reactors • Thermography • Relay protection & controls • Substation Commissioning • Predictive & Preventative Maintenance • Field Engineering & Troubleshooting • Arc Flash Hazard Analysis & Training • Refurbishment & Repair Electrical System Upgrades • NERC Compliance Testing

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1 Introduction

The present document is a list of questions prepared for the request of data (or) additional information in the matter of Application of AEUG Madison Solar, LLC for a certificate of construction for an approximately 100MW Merchant Electric Solar Generation Facility in Madison County, KY pursuant to KRS 278.700 & 807 KAR 5:110

Scope

As part of the application evaluation process Kentucky Public Service Commission has appointed Wells Engineering PSC for providing consultancy services.
The present document is created as part of the First request for information required as per the order issued for case number.2020-00219, by the commission.

Reference Document

The following documents are referenced for the creation of this document.

i. Commonwealth of Kentucky Order for Case no. 2020-00219
ii. Site Assessment Reports Vol.I, Vol.II and Vol.III for Case No. 2020-00219 by AEUG Madison Solar, LLC, KY
iii. Kentucky Revised Statutes, KRS 278-706, 708, 710

2 List of Questions

In this section a detailed list of questions is described.

Question#1

Electrical One-Line Diagram

Electrical One-line diagram is very important document required for understanding and evaluating the Electrical Power Network and Interconnection.

Applicant to submit Electrical One-line diagram of the installation.

Question#2

Overall Project Layout

Applicant to submit the Overall layout diagram of the project, indicating the fence line, 200' setback line, Solar Panel Locations, Battery & Inverter locations, Substation location, Transmission line route and Easements, Employee stay/quarters, Provision of Medical/First-Aid service.

Question#3

Project Schedule

Applicant to submit an over-all tentative schedule of the project, starting from the receival of the certificate for construction to the completion of the project.

This document helps in understanding the total time required and the major milestones involved. It will also be used to confirm the timing of the economic benefits listed.

Question#4

Project Generation Capacity

The document 'Generation Interconnection Feasibility Study Report for Queue Project AE2-308 THREE FORKS-DALE 138 KV 110 MW Capacity / 150 MW Energy' which is Appendix E of the Vol.I of the submittal lists 150MW max capacity and 110MW output recognized by PJM. Whereas the application indicates only 100MW as the capacity.

Reference section#2 of application Vol.I, Page 1.
Applicant to provide information on,
What is the reasoning behind the different numbers and what is the actual max output that will be delivered onto the grid at any given time?

Question#5

Area occupied by solar panels.
What is the area occupied by Solar panels is filled with, Sand or Concrete?
Applicant to submit a site plan indicating access road, maintenance pathway, vegetation, and site screening and fencing.

Question#6

Applicant to provide pertinent information for*,*
At end of life when the system is decommissioned will the area be restored? Will the soil be useful for farming after the demolition of the solar plant after 30 years? If not, will the companies do something to bring the soil back to normal?

Question#7

New Roads.
Applicant to provide information on any new roads paved or stoned. If no new roads are paved, the Applicant shall provide information on the '*routes of vehicle movement*.'

Question#8

Largest Trailer/Truck.
Applicant to provide information on the largest trailer or truck that will be used for transporting the plant equipment? & What roadways will be used to access the site for these vehicles?

Question#9

Residential Quarters/trailer homes.

Applicant to provide information on constructing any residential quarters or installing trailer homes for the operations staff.

Question#10

Construction Power
Applicant to provide information on the power required for construction of the plant.

Question#11

Storage Battery Potential Hazards
Applicant to provide information on the potential hazards associated with the storage batteries and what are the safety precautions taken?

Question#12

Storage Battery Environmental Impact
Applicant to provide information on the environmental impact these batteries impose.

Question#13

Local/Regional Grid reliability
Applicant to provide information on any adverse effect on the local or regional grid reliability. Have interconnection studies been competed to that effect?
Ref: KRS 278.710 (1) (f)

Question#14

Cell Phone Towers
Applicant to provide information on any cell phone tower that may be required/constructed for the project.

Question#15

Fiber Optic Communication & Associated excavation

Applicant to provide information on any fiber optic or any kind of communication network installed as part of the project?

Applicant to provide information on excavation that may be required for the above.

Question#16

PV Cell/Solar Panel Manufacturing

Applicant to provide information on where the PV cells/Solar Panels are manufactured?

Applicant to indicate the % of Import & % of Made in USA

Question#17

Substation

Applicant to provide information on the location where the substation which acts as a collector of solar generation is constructed and indicate it on the plant layout.

Question#18

DOE Compliant Transformer

Applicant to provide information on the DOE Compliant transformers used at site.

Question#19

Transmission line Easements

Applicant to provide indicative information on the Transmission line routing and easements.

Question#20

Transfer Function

Applicant to provide a preliminary power system transfer function, available if any.

Question#21

Additional Compliance

Applicant to provide compliance on the following,

(i) Copy of the specification/requirement of 200' setback distance as per local planning zone.

(ii) Summary of efforts as per KRS 278.706(2)(g)

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Visit us at

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