

August 21, 2014

**VIA ELECTRONIC FILING**

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 Seventh Place East, Suite 350  
Saint Paul, MN 55101-2147

Re: Supplemental Information Regarding Application Completeness  
In the Matter of the Application of Aurora Distributed Solar, LLC for a Site Permit  
for an up to 100 MW Distributed Solar Energy Project to be Constructed at up to 24  
Different Locations Throughout Xcel Energy's Minnesota Service Territory  
Docket No. IP-6928/GS-14-515

Dear Dr. Haar:

Aurora Distributed Solar, LLC ("Aurora") submits this supplemental information to address issues raised by the Minnesota Public Utilities Commission ("Commission") staff ("Commission Staff") in its Staff Briefing Papers filed August 14, 2014 ("Briefing Papers") regarding the completeness of Aurora's site permit application in the above referenced matter.<sup>1</sup> Aurora requests that the Commission find its application complete with receipt of this supplemental information.

This filing addresses:

1. Additional cost information;
2. Supplemental design information; and
3. Future development considerations.

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<sup>1</sup> Staff Briefing Papers of the Minnesota Public Utilities Commission Staff, Docket No. IP-6928/GS-14-515 (August 14, 2014).

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## I. Project Cost Information

Aurora has prepared and hereby submits more detailed cost information for Aurora's proposed project, including, but not limited to: land acquisition costs; engineering and professional services costs; equipment costs; balance of plant construction costs; and operations and maintenance costs. Because of the trade secret nature of this information, Aurora has prepared and is e-filing both **NON-PUBLIC** and **PUBLIC** versions of Appendix A to this letter, which contains the abovementioned cost information.

In accordance with *Minnesota Rules*, part 7829.0500, and *Minnesota Statutes*, Chapter 13 ("Government Data Practices Act"), Aurora has designated as **TRADE SECRET** certain commercially sensitive information (i.e., information regarding Aurora's costs to develop, construct and operate the project), which, if released, would have a detrimental effect on Aurora by providing potential competitors and others with valuable information not otherwise readily ascertainable and from which such persons would obtain economic value. Aurora undertakes substantial efforts to protect and maintain the confidentiality of this information.

## II. Supplemental Design Information

In the Briefing Papers, Commission Staff commented that it believed the application submitted by Aurora did not fully meet the requirement for an engineering analysis of each of the proposed sites as required by Minn. Rules 7850.1900 Subp. 1 (I). Commission Staff noted that Aurora submitted a Typical Solar Array – 2 MW Portion" which, in the opinion of Commission Staff, did not constitute an engineering analysis of each site. Commission Staff further commented that an engineering analysis should include a set of plans and specifications.

Aurora appreciates Commission Staff's thorough review of the application and is willing to provide additional design information on the project, as outlined below and attached, but it believes that sufficient design information for the project was provided in the application for the application to be deemed complete. In addition to the engineering drawing titled Typical Solar Array – 2 MW Portion, Aurora also provided a detailed description of how the final design of each facility will be based on that typical design.<sup>2</sup> Furthermore, location-specific preliminary engineering drawings for each of the 24 proposed facility locations were provided in Appendix D of the application. The engineering drawings contain solar panel arrangements, inverter locations, access roads, stormwater retention areas, fence lines and gates, and point of interconnection switchgear in addition to surveyed parcel lines, existing utilities and associated easements, road right-of-ways and an existing aerial photograph. The final design and configuration information for each facility is subject to change and will be based upon, in part, the equipment and technology available at the time the site permit is issued for the project as

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<sup>2</sup> Application for a Site Permit, Aurora Distributed Solar, LLC (July 9, 2014), at 23.

well as information provided during the site permit process. This level of information is consistent with other site and route applications.

Aurora is supplementing this design information with the attached typical pole drawing and single-line electrical schematic for a typical facility. (See Appendix B.) The preliminary single-line schematic represents the anticipated electrical design and components of the solar project facilities. As noted above and in the application, the design and component information contained in the typical drawings for the proposed project are scalable and can be readily adjusted for each of the proposed facilities. A description of the attached single-line electrical schematic is provided below:

Each facility will consist of several strings of photovoltaic panels (aka modules), which generate direct current (“DC”) electrical power. The panels are protected from faults by fuses and from voltage surges by surge arresters. An inverter will convert the DC electrical output of the panels to alternating current (“AC”) power.

From this point, a transformer is utilized to step-up the low voltage output of the inverter to medium voltage ranging from 12.5 kilovolts (kV) to 34.5 kV, which is the normal range of voltages Xcel Energy, the utility that will purchase the power generated by the project, uses for their existing distribution system. The transformers are connected to one another via a medium voltage underground electric cable to the point of interconnection. The point of interconnection is the location between the facilities owned by the solar project and the facilities owned by Xcel Energy.

At the point of interconnection, a recloser will function as a protective device to disconnect the medium voltage cable for equipment faults and electrical disturbances. This also includes a disconnect switch that has blades that can be opened to disconnect the project from the Xcel Energy system. The blades are visible and lockable to provide safety for operating personnel.

A meter will also be located at the point of interconnection to measure the electrical output of the solar project and a fused disconnect device will be utilized to provide equipment protection for faults and to de-energize the downstream equipment and facilities. Additionally, a supervisory control and data acquisition (“SCADA”) system will connect to the meter and relay equipment to provide remote control of opening or closing the recloser and data acquisition (such as project power output and voltage). The point of interconnection is the point at which ownership of the project and associated facilities ceases. Xcel Energy will be responsible for any required cabling, interconnection lines, or any other necessary equipment and infrastructure between the point of interconnection and Xcel Energy’s distribution system.

### III. Capacity Expansions.

Commission Staff also raised whether additional information on future capacity expansions could be provided. The size of each facility is dictated, in part, by the constraints at each facility location as well as the interconnection capacity at each of the substations to which Aurora proposes to interconnect. Aurora submitted interconnection requests for each of the proposed facility locations based upon preliminary engineering analyses of the maximum amount of energy that could be generated at each of the proposed facility locations based upon technology available at the time of submission. Aurora does not have access to Xcel Energy's current interconnection limit for each of the substations associated with the proposed facility locations. Therefore, the only information Aurora has regarding Xcel Energy's interconnection expansion capability is limited to the responses received from Aurora's interconnection requests as to whether there is adequate capacity to accommodate Aurora's proposed requests. As stated in Aurora's application, the project could be expanded in the future, but Aurora is not currently planning any expansions. Moreover, if any expansions would become an option in the future then Aurora would be required to seek the necessary power purchase agreements and site permit approval to accommodate such an expansion. Aurora does not have information regarding the ability to expand these interconnections. Such information would have to come from the utility.

### IV. Conclusion

Aurora respectfully requests that the Commission find the application complete based on the content of the application, the supplemental fact sheets submitted on August 6, 2014, and the information provided in this supplemental filing.

Sincerely,

*/s/ Christina K. Brusven*

Christina K. Brusven

Jeremy P. Duehr

*Attorneys at Law*

**Telephone:** 612.492.7000

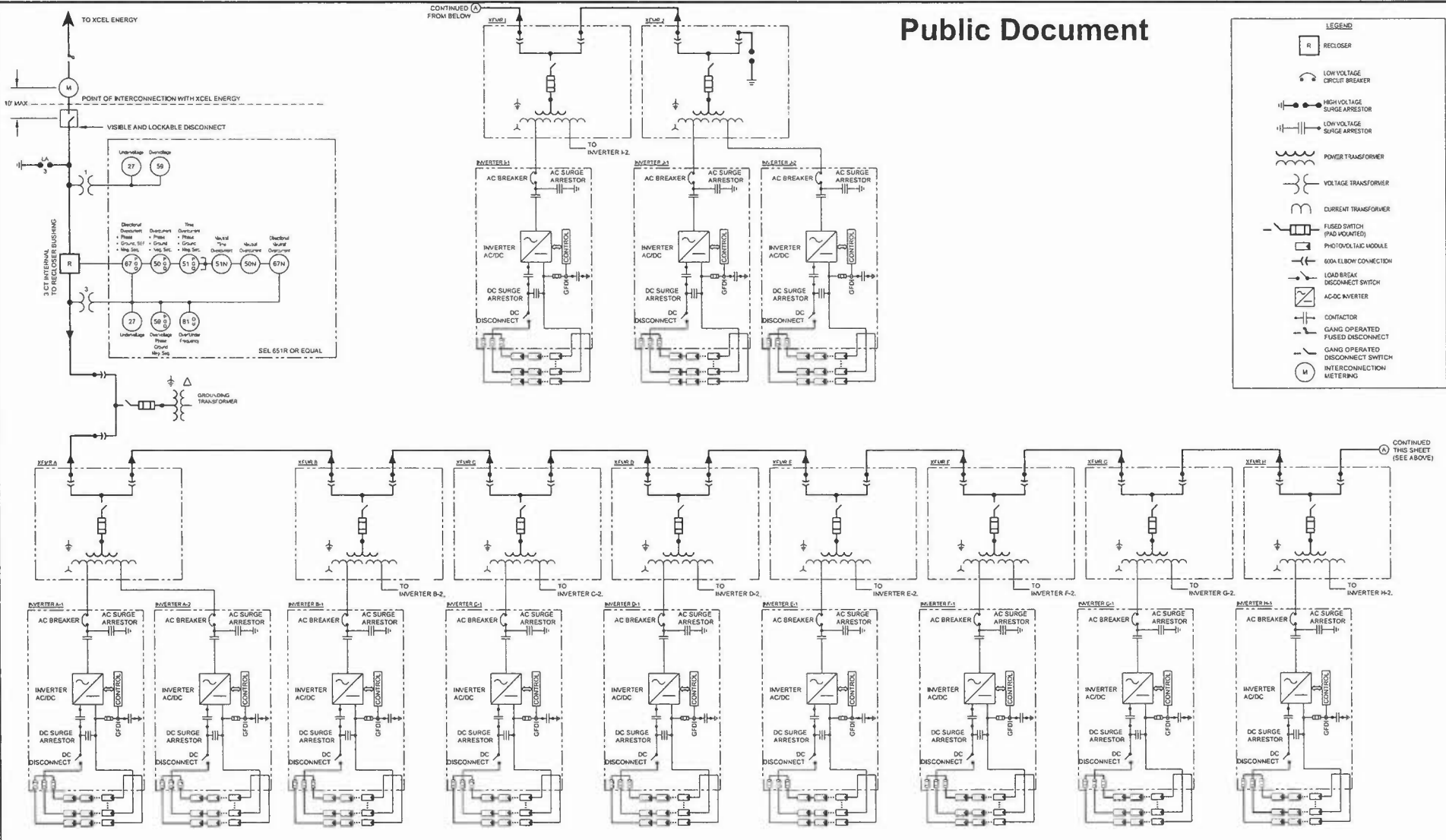
**Email:** cbrusven@fredlaw.com and jduehr@fredlaw.com

**ATTORNEYS FOR AURORA DISTRIBUTED SOLAR, LLC**

JPD

Appendix A – Aurora Supplemental Cost Information

Components	Cost
<b>Equipment Costs</b>	
<i>Module Supply</i>	[TRADE SECRET DATA HAS BEEN EXCISED...]
<i>Racking &amp; Foundation Supply</i>	
<i>Inverter Supply</i>	
<i>SUBTOTAL EQUIPMENT</i>	
<b>Balance of Plant</b>	
<i>General Conditions</i>	
<i>Site Preparation</i>	
<i>Tracker System Assembly and Erection</i>	
<i>Meteorological Stations Supply &amp; Install</i>	
<i>AC Collection</i>	
<i>SCADA</i>	
<i>SUBTOTAL</i>	
<b>Interconnection</b>	
<i>Switchgear, network upgrades etc.</i>	
<i>SUBTOTAL</i>	
<b>Commissioning &amp; Testing</b>	
<b>Indirect Costs</b>	
<i>Engineering and Professional Services</i>	
<i>Permits</i>	...TRADE SECRET HAS BEEN EXCISED]
<b>TOTAL</b>	<b>\$ 247,569,000</b>
<b>Annual Operations</b>	
<b>O &amp; M</b>	<i>\$ 2,300,000</i>
<b>Insurance</b>	[TRADE SECRET DATA HAS BEEN EXCISED...]
<b>Land Payments</b>	
<b>Production Tax (Yr1)</b>	...TRADE SECRET DATA HAS BEEN EXCISED]



Appendix B

DESIGNED
DRAWN
EED

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**



Leidos Engineering  
131 Saundersville Rd., Suite 300  
Hendersonville, TN 37075  
(615) 431-3200

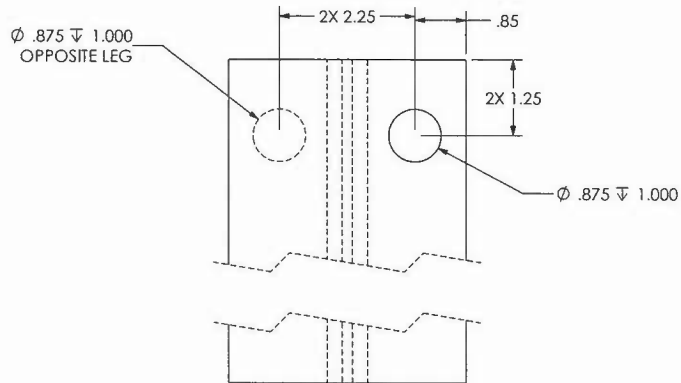
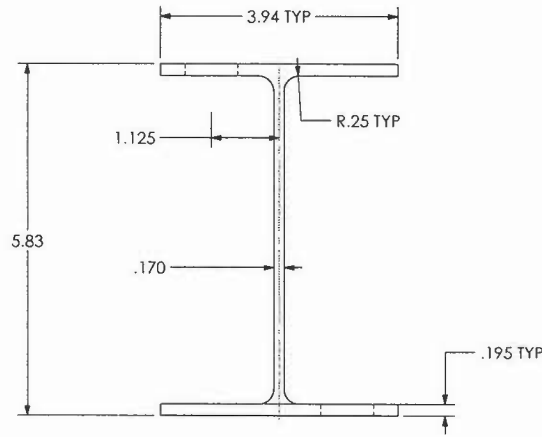
GERONIMO ENERGY  
  
PROPOSED ELECTRICAL  
SINGLE-LINE SCHEMATIC

PROJECT NUMBER: 3153301004
SHEET OF: 1 1
DRAWING NUMBER:

**NOTES:**

1. MATERIAL:  
STEEL, 50 KSI STRUCTURAL.
2. FINISH:  
GALVANIZE PER ASTM A 123  
COATING THICKNESS TO BE  
20 YEAR/HIGH CORROSIVE  
ENVIRONMENT  
MINIMUM.
3. REMOVE ALL BURRS AND SHARP  
EDGES  
PRIOR TO HOT DIP GALVANIZING.
4. ALL FABRICATION SHALL BE  
PERFORMED  
PRIOR TO HOT DIP GALVANIZING.
5. HOLE PATTERN DETAILS ARE SAME  
REGARDLESS OF SECTION WEIGHT.
6. IF DESIRED, 4 SLOTS ARE  
PERMISSABLE TO SAVE TOOLING  
COSTS/ SETUP TIME.

**Public Document**



**Appendix B**

TITLE		I-beam, W6 x 8.5, 2 Hole	
REV	PRODUCT NUMBER	DRAWING NUMBER	REV
B	30083-042	30083-901	C-01
DATE	PRODUCT REV	DATE	TRIALS
	C-01		1 OF 1





First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_14-515_GS-14-515
Betsy	Engelking	betsy@geronimoenergy.com	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	OFF_SL_14-515_GS-14-515
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 500  Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_14-515_GS-14-515
Burl W.	Haar	burl.haar@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_14-515_GS-14-515
John	Lindell	agorud.ecf@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_14-515_GS-14-515
David	Post	David.Post@enel.com	Enel Green Power North America	7650 Edinborough Way Ste 725  Edina, MN 55435	Electronic Service	No	OFF_SL_14-515_GS-14-515