



September 24, 2013

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7th Place East, Suite 350  
St. Paul MN 55101-2147

Reference: Docket No. E-002/M-12-1278

Dear Dr. Haar,

We were pleased and encouraged that our proposal was given the highest score and ranking in the RD category by the independent reviewers, as well as positive reviews by the advisory group. Despite the ranking, our project on 'affordable CIS thin film solar cells' was placed in the reserve list for RDF 4 funding,

The Xcel Energy RDF helped *InterPhases* launch a very different CIS PV technology that potentially offered "the optimum path to low PV cost" [*RDF 2 review*]. With a clear plan for solar manufacturing in Minnesota, our RDF 4 project is poised to realize this promise.

The proposal garnered positive comments such as,

- *The quality of the proposal along with performance parameters is very good; the project will build upon and enhance prior RDF-supported research ...(and) advances (it) to commercialization and marketing.*
- *...high likelihood of royalty returns, which would be based on net revenue and easily tracked.*

*InterPhases* project arguably fulfills all of the 11 relevant attributes (RD4 Selection Supplement) used by the advisory group in their subjective evaluation. The two concerns, both of which refer to just one attribute, "Value to Xcel Energy electric ratepayers in MN and WI".

As regards to '*value to Minnesota*', our proposal specifically emphasizes our intent to manufacture in Minnesota, which includes locating a 3MW/year pilot plant and future manufacturing plants in MN. The crucial components of the RDF4 project include: collaborating with University of Minnesota for research and analyses, and partnering with two Minnesota manufacturers for specialty materials and production technology. These partnerships will create value for Minnesota and the ratepayers, via education, in-state jobs and revenue. Additional investments from out-of-state investors will create revenue source for the State.

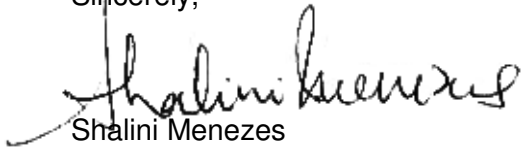
With respect to '*relying on the RDF support*', we note that the objective of the RD category is to assist in moving technologies forward towards commercialization. While our inexpensive, easy to scale CIS PV technology has attracted major corporations and investors, they seek market-ready manufacturing technology. They are reluctant to commit R&D funds but keen to participate in the production. Thus, RDF support is crucial to bridge the gap at this critical juncture along the commercialization path. The RDF grant will only partially support this final R&D step of the project, leading to the planned complete pilot line, as specified in our proposal. The balance will come from our manufacturing partners and investors. Future investments and benefits will more than offset the project cost.

Thus, our proposal had adequately addressed the issues related to these concerns, and the fact that they were still raised, deems the evaluation to be too subjective. In view of the high overall technical merit/score and the previous RDF investments in our PV technology, we request that the Minnesota Public Utilities Commission to please reassess the concerns and recommend *InterPhases'* project for funding.

We understand why the RDF 4 would support more solar installation EP projects (Supplement II). They can bring immediate benefits and visibility. However, we should keep in mind that current low solar prices are largely driven by severe global overcapacity and cheap silicon PV panels from China. Note that CIS PV is better suited to Minnesota's extreme weather than silicon<sup>1</sup>. We believe that supporting technology innovations like CIS solar cells can lead to truly low cost US-based manufacturing, in line with the RDF mission to "support emerging renewable energy technology through research and development". This will make manufacturing in the state and in US competitive, profitable and sustainable.

Thank you for your consideration.

Sincerely,



Shalini Menezes  
Director

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<sup>1</sup> [http://www.xcelenergy.com/staticfiles/xcel/Corporate/Corporate%20PDFs/RDF\\_Pilot\\_Flex\\_PVIS.pdf](http://www.xcelenergy.com/staticfiles/xcel/Corporate/Corporate%20PDFs/RDF_Pilot_Flex_PVIS.pdf)