

Renewable Development Fund Project EP3-12

Milestone 12 Report – 11/29/10

Public



Solarflow Energy
an effortless shift to solar

Gerardo Ruiz, Project Manager
freEner-g LLC, dba Solarflow Energy
www.solarflowenergy.com
2740 – 31st Avenue South
Minneapolis, MN 55406
T: 612.605.5228 – F: 612-677-3967

Legal Notice

THIS REPORT WAS PREPARED AS A RESULT OF WORK SPONSORED BY NSP. IT DOES NOT NECESSARILY REPRESENT THE VIEWS OF NSP, ITS EMPLOYEES, OR THE RENEWABLE DEVELOPMENT FUND BOARD. NSP, ITS EMPLOYEES, CONTRACTORS, AND SUBCONTRACTORS MAKE NO WARRANTY, EXPRESS OR IMPLIED, AND ASSUME NO LEGAL LIABILITY FOR THE INFORMATION IN THIS REPORT; NOR DOES ANY PARTY REPRESENT THAT THE USE OF THIS INFORMATION WILL NOT INFRINGE UPON PRIVATELY OWNED RIGHTS. THIS REPORT HAS NOT BEEN APPROVED OR DISAPPROVED BY NSP NOR HAS NSP PASSED UPON THE ACCURACY OF ADEQUACY OF THE INFORMATION IN THIS REPORT.

Milestone 12 Report

An Effortless Shift to Solar

Project Title: A Solar Electric Solution for Residential Markets

Contract Number: EP3-12

Milestones: 12

Report Date: 11/29/2010

Principal Investigator: Gerardo Ruiz
612-605-5228Contract Contact: Gerardo Ruiz
612-605-5228

Congressional District for Corporate office: 5.

Congressional Districts for Project location: Overall, across the Twin Cities, but for this installation corresponding to Milestone 11 – District 4.

Executive Summary

The goal of this project, as stated in the proposal submitted on July 17, 2007, is “to demonstrate the commercial viability of providing solar-generated electricity to homes and small businesses based on a leasing and service package”. In addition, the "project will provide distribute residential solar energy through rooftop-mounted photovoltaic solar panels" and the importance of the project is to overcome pricing and capitalization barriers in this market, which have been documented to be the biggest obstacles to solar expansion.

The key objective of the project is to install 280 KW of solar capacity in approximately 25 sites distributed across the Twin Cities. The exact number of installation sites will depend on the actual number of panels in each site.

The delivery of 280 KW will be grouped into 15 milestones, with the twelfth milestone requiring the installation of 33.6KW.

The rest of this report will be dedicated to describe the technical details, what went well, what did not, lessons learned, etc.



Project funding provided by customers of Xcel Energy through a grant from the Renewable Development Fund

© 2009, freEner-g LLC. ALL RIGHTS Reserved

Milestone 12 Report

An Effortless Shift to Solar

As a reference to the reader, the installation was 39.9KW in Oakdale.



Technical Progress

From a technical perspective, the installation was successful with some interesting new challenges given that Solarflow utilized for the first time a MN-made product: TenKSolar. The solar panel technology is unique in that it utilizes reflectors in front of the panels and that the racking system is self-ballasting and integrated with the panels/reflectors. In addition, no micro-inverters are used; instead, eight conventional 5KW inverters support the entire array. Lastly, solar monitoring is provided by Deck Monitoring. At the end of the installation, just like with previous installations, all inspections were conducted and the resulting signed documents from Xcel are enclosed to this report in Appendix A (confidential information, given that it includes customer data).

The system is fully monitored with the Deck Monitoring systems, which can be viewed on the web. For a real time view, please click on the following link:

<http://solarflowenergy.com/livesolardata>

Project Benefits

Project benefits are:

1. Demonstration of the viability of 'solar-as-a-service'
2. Delivery of 280KW of generating capacity, which will count towards the Xcel Energy goal for Renewable Energy Standard
3. Green job generation

Project funding provided by customers of Xcel Energy through a grant from the Renewable Development Fund

© 2009, freEner-g LLC. ALL RIGHTS Reserved

Milestone 12 Report

An Effortless Shift to Solar

4. Generation of clean electricity for a minimum of 15 years

Given that 209.08KW out of a total 280 KW have been delivered so far, project benefits have already been achieved in part. In particular, demonstration of the viability of solar as a service has now been done for both residential and commercial customers. In addition, a little over 75% of the solar generating capacity has been delivered.

Project Findings – what went well and what to improve on

As we started the solar PV installation phase, the following went well:

1. Sweeping with short bristle brooms was effective.
2. Wire stripping tool saved time.
3. Completing the array wires and nuts from side to side was faster than factory style.

Things to improve on:

1. Set pallets of panels closer to array location.
2. Verifying inventory of material from suppliers.
3. Provide additional labor training prior to the job site.

Project funding provided by customers of Xcel Energy through a grant from the Renewable Development Fund

© 2009, freEner-g LLC. ALL RIGHTS Reserved

Appendix A – Xcel Energy signed Interconnection Agreements- DELETED DUE TO CONFIDENTIAL INFORMATION
