

Renewable Development Fund Project EP3-12

Milestone 11 Report – 11/10/10

Public



Solarflow Energy
an effortless shift to solar

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Milestone 11 Report

An Effortless Shift to Solar

Project Title: A Solar Electric Solution for Residential Markets

Contract Number: EP3-12

Milestones: 11

Report Date: 11/10/2010

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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 eleventh 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.



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As a reference to the reader, the installation was 39.79KW in Roseville.



This particular solar installation was captured via a time-lapse video that can be seen online:

http://www.youtube.com/watch?v=TdzZiWkXBo&feature=mfu_in_order&list=UL

Technical Progress

From a technical perspective, the installation was successful with no major issues. As stated in previous reports, the process begins with permit requests and equipment ordering, in particular, building permits from each City, electrical permits from the State and submittal of Xcel Interconnection Agreement. On installation day, the process entails racking and ballasting, installation of micro-inverters and panels and electrical conduits/circuits to the business' electrical service. After installation, inspections were conducted and an Xcel Area Engineer was scheduled for testing and commissioning. All inspections were conducted successfully 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 Enphase Enlighten systems. For a real time view, please click on the following link. Please note the panel-by-panel electricity generation display and the buttons for 'Time-lapse: Today's Power/Power Last 7 days', which are particularly insightful:

http://enlighten.enphaseenergy.com/installer_systems/590/freEner-g

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

Given that 169.18KW 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 60% 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:

Things that went well:

1. Staging materials on the roof saves time
2. Rapid Rac is faster than TenKsolar
3. Working in teams of two is the best way to install Rapid Rac

Things to improve on:

1. Verify layout to ensure roofers do not have to return to do additional work
2. Installation of monitoring equipment should be addressed as early as possible in case internet access issues become extensive
3. Review all inverter connections- one bad connection can knock out numerous modules

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