Community Renewable Energy Deployment Provides Replicable Examples of Clean Energy Projects

The U.S. Department of Energy (DOE) created the Community Renewable Energy Deployment (CommRE) program—a more than $20 million effort funded through the American Recovery and Reinvestment Act of 2009—to promote investment in clean energy solutions and provide real-life examples for other local governments, campuses, and small utilities to replicate.

Five community-based renewable energy projects received funding from DOE through the CommRE:

- City of Montpelier (Montpelier, Vermont)
- Forest County Potawatomi Tribe (Forest County, Wisconsin)
- Haxtun Wind, Phillips County (Holyoke, Colorado)
- Sacramento Municipal Utility District (SMUD) (Sacramento, California)
- University of California at Davis (Davis, California).

Funding includes technical assistance provided by DOE's National Renewable Energy Laboratory (NREL) on project concept development, best practices, planning, financial approaches, and policy guidance. Additionally, each community is leveraging local government and private industry funding to complete their projects.

City of Montpelier

With $8 million in funding from DOE, the City of Montpelier, Vermont, has partnered with the State of Vermont to install a central district energy system fueled with locally-sourced renewable and sustainably-harvested wood chips. The system is projected to reduce annual greenhouse gas emissions by 50,000 tons—the equivalent of $15 million in annual fuel oil savings—and invest approximately $100 million into the local Montpelier economy.

Additionally, the city is working on innovative financing strategies to give property owners the option to heat their homes with renewable energy. NREL technical experts have assisted the project team by providing technical reviews of the draft request for proposals (RFP) and participating on the proposal review committee. The team also provided information on guidelines for steam metering.

Forest County Potawatomi Tribe

The Forest County Potawatomi Tribe in Forest County, Wisconsin, received $2.6 million in funding from DOE for an integrated renewable energy deployment plan using a biogas generation facility and solar photovoltaics (PV) to provide heating, cooling, and electricity for the tribe's government buildings, reducing annual greenhouse gas emissions by an estimated 20,000 tons. As part of this project, the Potawatomi Tribe plans to implement a 2-megawatt (MW) biogas generation facility on tribe-owned land in Milwaukee County and install distributed biomass district heating systems at the Tribe's Stone Lake campus. To help the Tribe identify the best biodigester design for their needs, NREL experts provided a technical review of the preliminary design.

In October 2011, the Potawatomi Tribe completed the installation of solar PV panels on the rooftop of their administration building in Milwaukee, which the Tribe estimates will produce approximately 35,000 kilowatt hours of electricity per year and reduce carbon dioxide emissions by approximately 41 tons annually.

Haxtun Wind, Phillips County

The community-owned 30-MW Haxtun Wind project in Phillips County, Colorado, received more than $2.5 million in funding from DOE to install up to 20 turbines located on more than 7,000 acres just south of the town of Haxtun, Colorado. The county plans to connect to the grid at the existing Haxtun substation with few additional improvements needed. At the request of Haxtun Wind, NREL facilitated conversations with potential off-takers.

The Haxtun Wind project is estimated to generate enough renewable electricity to supply power to approximately 9,000 homes and will contribute to the economic vitality of the area

by bringing income streams into the county in the form of local tax revenue, landowner lease income, community ownership profits, and job creation.

Sacramento Municipal Utility District

To help meet its aggressive renewable energy supply goal of 37% by 2010, the Sacramento Municipal Utility District (SMUD) in Sacramento, California, received more than $5 million in funding from DOE for several projects. Through its "Simply Solar" effort, SMUD plans to develop a 1.5-MW community-scale solar project to demonstrate renewable energy technologies and promote the acceleration of market adoption.

In partnership with the Sacramento Regional County Sanitation District Wastewater Treatment Facility, SMUD is also implementing a wastewater treatment facility to generate biogas, which will be fed into SMUD's Cosumnes Power Plant. NREL experts completed a technical review of the plans for the anaerobic digestion system at the wastewater treatment facility, helping the project team ensure that the project is technically sound.

SMUD is also working with two local dairy facilities—New Hope and Van Warmerdam—to install anaerobic digestion systems. The biogas produced from these systems will generate about 1.2 MW of energy.

University of California at Davis

With the help of $2.5 million in DOE funding, the University of California at Davis (UC Davis) aims to achieve net-zero energy use in the campus's West Village community.

In October 2011, the initial phase of the UC Davis West Village sustainable campus neighborhood project was completed, which was designed to reduce energy consumption by 50% (when compared to current building code requirements) and generate its remaining energy needs through PV solar panels on building rooftops and parking structures. UC Davis also plans to install a pioneering technology that converts food and other organic waste into energy, fertilizer, and additional valuable byproducts. NREL conducted a technical review of the biodigester feasibility study and of the responses to the RFP.

The 130-acre campus will provide housing for approximately 3,000 people in 662 apartments and 343 single-family houses, serving as a model for other colleges and universities. It will also meet California net-zero energy goals for all new residential construction by 2020 and all new commercial construction by 2030.

Front page photos (l–r) from Forest County Potawatomi Tribe, NREL/PIX 20107; Gregory Urquiaga, UC Davis, NREL/PIX 20240; Curt Robinson, CNJV, Inc., NREL/PIX 22150; Page 2 illustration by Erica Augustine

Community Renewable Energy Project Development Tool

There are many important questions to be answered before any sort of project-specific planning can begin. Community leaders can use this Web-based tool when they start to consider implementing a renewable energy project to understand the market context in their community. For example:

- What is our current energy reality?
- What are our community's energy goals?
- What types of technologies make the most sense for us?

The Community Renewable Energy Project Development Tool uses an integrated deployment approach to help communities determine which alternative energy solutions will be the most appropriate by helping the user understand the project fundamentals, which include energy baseline, economics, policy, technology, and consensus (BEPTC™).

With this foundational information in hand, communities can work with government and city council members to identify specific renewable energy projects and gain project support, as well as move forward with deployment specifics like site selection and funding for their renewable energy project.

The Community Renewable Energy Project Development Tool:

- Supports individuals not familiar with developing renewable energy projects, giving much needed assistance to beginners
- Encourages information gathering before implementation so renewable energy projects
- Collects and saves community data for future use in one localized, easily accessible place
- Provides a data summary that can be shared with community leaders to garner support for the project.

Learn more and use the tool at *http://apps1.eere.energy.gov/deployment/communityre/project_development/index.cfm*.

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For more information, visit:
eere.energy.gov/deployment/communityre/

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