



Helping Minnesota communities determine their energy future

The Clean Energy Resource Teams (CERTs) connect you and your community with resources to identify and implement energy efficiency and renewable energy projects.



CERTs 2012–2013 Seed Grant Recipients

Each of the seven CERTs regions awarded \$10,000 worth of seed grants, catalyzing energy efficiency and renewable energy projects across the state.

Funding is provided by the Minnesota Department of Commerce, Division of Energy Resources. Thanks to everyone who submitted a proposal. Learn more and see past projects at <http://projects.mncerts.org>.

CENTRAL REGION

Crosslake Presbyterian Church – Clean Energy “Show & Tell” Project

Crosslake, MN – A dedicated cadre of Crosslake Presbyterian Church members will assemble and disseminate data on four existing efforts their congregation has made towards clean energy stewardship: 1) audit for further energy saving improvements to their church, 2) research the performance and results of their geothermal heating/cooling system, 3) analyze the impact of their wind power purchasing, and 4) measure the carbon sequestration from old growth and new planting in ten acres of forest on the church’s property. After benchmarking what they have already accomplished, the church hopes to move forward with a new project, the installation of a 5kW photovoltaic solar system. (Energy Efficiency: Low-Cost/No-Cost Upgrades, Building Envelope, Lighting Upgrades; Renewable Energy: Solar Electric, Wind; Additional Technologies: Geothermal, Carbon Sequestration; \$4,000)



Paradox Farm – Passive Solar Deep Winter Greenhouse Utilizing Underground Heat Storage

Ashby, MN – The Passive Solar Deep Winter Greenhouse Project at Paradox Farm will develop and operate an innovative, low energy, deep-winter greenhouse utilizing underground heat storage. This greenhouse will be based on the successful Garden Goddess model developed by Chuck Waibel and Carol Ford of Milan, Minnesota. This structure will be an active teaching tool for those interested in sustainable food production, and the prototype will be used to demonstrate the feasibility of contemporary solar-based, fourth season growing opportunities in northern latitudes. (Energy Efficiency: Behavior change; Renewable Energy: Solar Thermal; Additional Technologies: Energy Storage; \$3,000)

APEX Solar and Rural Renewable Energy Alliance – Solar Thermal Ventilation & Make-Up Air Research

Pine River, MN – As homes become increasingly efficient through improved building techniques and energy efficiency measures, ventilation make-up air is required to ensure indoor air quality and combustion appliance safety and efficiency. Ensuring sufficient fresh air in a tightly air-sealed residence is a necessary but energy intensive process. Although heat recovery ventilators (HRV) reduce related energy consumption, there is an additional opportunity to pre-heat the incoming air with solar thermal. This project will compare the 1) feasibility, 2) performance, and 3) cost-effectiveness of two different solar air heat technology types at meeting this need and supplying residences with fresh, ventilation make-up air. (Renewable Energy; Solar Thermal; \$2,500)

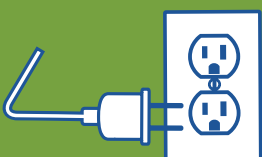
Center for Renewable Energy Education and Demonstration – Discovering Science on the Range in the Field of Energy

Central Region, MN – This cooperative effort involving the CREED Project, Hamline University’s Center for Global Environmental Education (CGEE) and the Laurentian Environmental Center (LEC), is designed specifically for high/middle school teachers wishing to update their Energy Efficiency/Renewable energy industry knowledge and to then encourage their students to choose a future career in this field. Statewide Seed Grant funding for this project will support the equivalent of 9 teachers in Minnesota. (Energy Efficiency, Renewable Energy and Additional Technologies; \$500)

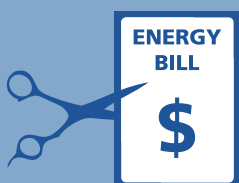
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**City of North Saint Paul – Energy Ed**

North Saint Paul, MN – The City of North Saint Paul, which has been in existence for 125 years, strives to be “an extraordinary small town in the Cities.” Its mission is to promote and protect a quality of life that is uniquely its own, distinguished by friendliness, courageous leadership, prudent stewardship, and active citizen participation. Energy Ed seeks to engage residents in the city’s initiatives on energy efficiency and renewable energy by offering community workshops. The project also includes creating an energy-saving contest among residents. City staff hope to educate residents about available rebates through the city’s municipal utility, as well as help them reduce overall energy consumption. (Energy Efficiency: Low-Cost/No-Cost Upgrades, Behavior Change, Building Envelope, Lighting Upgrades; Renewable Energy: Solar Thermal, Solar Electric, Wind; \$1,000)

Latino Economic Development Center – Latino Business Energy Workshops

Minneapolis, MN – The Latino Economic Development Center (LEDC) is a statewide membership-based non-profit organization with a mission to transform their communities by creating economic opportunities for Latinos. Their Green Initiative supports businesses to adopt sustainable practices and become community leaders of environmental education and engagement. As part of the Green Initiative, LEDC seeks to bring together Latino businesses for a series of culturally-adapted workshops about commercial energy efficiency and clean energy practices. The owners, managers, and employees of these businesses will be introduced to many energy topics, including a description of the local commercial energy system, common energy efficiency and clean energy opportunities, and services and rebates designed to help businesses implement energy upgrades. The businesses will be given the opportunity to network with each other and provide feedback on how they can best be supported in their transitions toward clean energy. LEDC hopes to spark a community conversation about clean energy and help Latino entrepreneurs become role models for sustainability. (Energy Efficiency: Low-Cost/No-Cost Upgrades, Behavior Change, Building Envelope, Lighting Upgrades; Renewable Energy: Solar Thermal, Solar Electric; \$2,000)

Minnesota Renewable Energy Society – Community Solar Background Study

Minneapolis, MN – The Minnesota Renewable Energy Society (MRES) is a member-run non-profit organization founded in 1978 to promote the use of renewable energies in Minnesota through education and through the demonstration of practical applications. The MRES Community Solar Background Study is a first step toward increasing the accessibility and affordability of solar energy by establishing groundwork for a Community Solar Program pilot project. MRES’s goal is to make investing in clean energy accessible regardless of income, home rental/ownership status or site viability. This Background Study will build on existing research and case studies from community solar initiatives around the country. The work completed under this grant will enable MRES to pursue next-step project implementation funding for a Community Solar Program model that has been vetted by experts and community stakeholders for feasibility in Minnesota’s regulatory, legal, and social context. (Renewable Energy: Solar Electric; \$2,000)

Saint Paul Public Schools – Solar Photovoltaic Upgrades and Education Plan at Battle Creek Environmental Magnet Elementary

Saint Paul, MN – The second largest school district in Minnesota, Saint Paul Public Schools understands that energy efficiency and clean energy measures at their facilities have tremendous potential to both educate and serve. St. Paul Public Schools (SPPS) seeks to cover the labor costs associated with upgrading an existing solar photovoltaic (PV) array at Battle Creek Environmental Magnet Elementary School. After a feasibility study of repairing the existing array, which has been inactive since 1995, it was determined that the array is certainly worth rehabilitating. SPPS aims to use this array and its resulting energy data for sustainability education for students and the community. Battle Creek Elementary is SPPS’s model school for sustainability practices, and it hopes to integrate the social and environmental benefits of Battle Creek’s solar electricity generation into considerations of design standards throughout SPPS’s 7.2 million square feet of facilities. (Energy Efficiency: Behavior Change; Renewable Energy: Solar Electric; \$2,000)

Affordable Energy Solutions, Inc. – Small Business HVAC System Performance Testing

Buffalo, MN – Affordable Energy Solutions, Inc. (AES) has been performing energy efficiency inspections since 1987 with the goal of capturing energy efficiency, the most accessible and cost effective energy source. AES knows that heating and cooling systems are a critical component of a building’s overall efficiency. Often, however, they are not operating at an optimal level, which can be frustrating for property owners who have installed systems but are not seeing the energy savings they expected. Often with minor and low costs, the performance of the system efficiency can be improved thus making HVAC retrofitting a very cost effective energy efficiency recommendation. This project will perform diagnostic testing on a sampling of forced air systems in small commercial buildings in the city of Buffalo to determine the overall system efficiency. Based on these results, a report will be compiled to determine how systems in Buffalo, and presumably greater Minnesota, are actually operating. This information will be used to make decisions about retrofits in the systems to increase the system efficiency. (Energy Efficiency: HVAC Efficiency Improvements; \$1,000)

NORTHEAST REGION

Center for Renewable Energy Education and Demonstration – Discovering Science on the Range in the Field of Energy

Northeast Region – This cooperative effort involving the CREED Project, Hamline University’s Center for Global Environmental Education (CGEE) and the Laurentian Environmental Center (LEC), is designed specifically for high/middle school teachers wishing to update their Energy Efficiency/Renewable energy industry knowledge and to then encourage their students to choose a future career in this field. Statewide Seed Grant funding for this project will support the equivalent of 9 teachers in Minnesota. (Energy Efficiency, Renewable Energy and Additional Technologies; \$500)



Arrowhead Economic Opportunity Agency – Home Energy Savers Program (HESP)

Virginia, MN – Home Energy Savers Program (HESP) is a home energy improvement and neighborhood revitalization program. HESP is one stop shop for residential energy efficiency upgrades available to homeowners of all incomes. The goal of this pilot project is to work with forty single family homes to reduce energy consumption through increasing energy efficiency. From start to finish, HESP will provide households with quality information, a full energy audit, a customized energy action plan detailing cost-effective measures specific to each home, assistance with rebates, attractive and accessible financing opportunities, reliable contractors and quality assurance. HESP will provide matching grant funds to low- and moderate-income homeowners to implement energy saving measures. (Energy Efficiency: Low-Cost/No-Cost Upgrades, behavior change, building envelope, lighting upgrades; Renewable Energy: Solar thermal, solar electric; Additional Technologies: geothermal; \$2,500)

University of Minnesota Duluth and Natural Resources Research Institute – Wind Turbines: Renewable Energy Education & Demonstration

Duluth, MN – The UMD campus, partnered with the Natural Resources Research Institute and in collaboration with a wind turbine start-up company, will investigate the installation of a wind turbine on campus, to use as a demonstration and education tool for students and the visiting public. Electricity generated from the turbine will contribute towards the university’s goal of reducing carbon emissions 25% by 2020. Energy generation from the turbine is expected to be between 7 MWH and 15 MWH based on data collected from two potential sites. (Renewable Energy: Wind power; \$2,500)

Hibbing Community College – Business Energy Retrofit Program Contractor Training

Hibbing, MN – The Business Energy Retrofit (BER) Program will provide training for local contractors in a series of 3-4 hour workshops taught by Hibbing Community College instructors and other commercial energy retrofitting experts. The training will focus on the technical elements related to commercial energy retrofitting projects that will ultimately save business owners money on their utility bills and will enhance the comfort and operation of businesses. The training will also teach contractors about rebates and incentives available to help sell energy-saving projects to their customers. (Energy Efficiency: Low-Cost/No-Cost Upgrades, behavior change, contractor training; \$2,000)

Cook County Higher Education and Cook County Local Energy Project – Cook County Energy Education Project

Grand Marais, MN – Cook County Higher Education (CCHS) will collaborate with Cook County Local Energy Project (CCLEP) to launch the Cook County Energy Efficiency Education Project. This pilot project will include energy audits and education to increase the energy efficiency of homes in Cook County. CCHS’s facility will serve as the home-energy audit demonstration site that will: 1) offer area contractors 8 CEU credits of training for Energy Efficient construction; 2) offer energy efficiency workshops for general public and CCHS students; and 3) will add ten home energy audits to the county using tools being developed by CCLEP’s Residential Energy Efficiency Program (REEP) process. (Energy Efficiency: Low-Cost/No-Cost Upgrades, behavior change, building envelope, lighting upgrades, contractor training; \$2,500)

NORTHWEST REGION

Village of Hope Homeless Shelter – Bemidji Homeless Shelter Goes Solar

Bemidji, MN – The Village of Hope Homeless Shelter facility was built to accept solar panels but due to lack of funds the panels were not installed. With a renewed goal of reducing energy costs, Village of Hope plans to dedicate those savings toward programs, projects and personnel. The Village of Hope Homeless Shelter will install a grid-tied, Minnesota-made solar electric system as a community example of how solar can reduce operating costs and empower nonprofits. (Renewable Energy: Solar Electric; \$5,000)



American Agricultural Energies – Torrefaction of Agricultural Residues into Biofuels Project

St. Hilaire, MN – American Agricultural Energies is planning to build a biofuel renewable energy torrefied solid fuels plant. This fuel would be made from agricultural and forestry residues, such as sunflower hulls, flax straw and rye grass drawn from the Thief River Falls area. Torrefaction is a thermochemical treatment of biomass at 200-320°C. The final product is a solid, dry material which is referred to as “torrefied biomass” or “bio-coal”. After the biomass is torrefied it will be densified into pellets. The final product repels water and thus can be stored in moist air or rain. The CERT grant will help with research and testing. (Renewable Energy: Biomass/Biofuels; \$4,000)

Center for Renewable Energy Education and Demonstration – Discovering Science on the Range in the Field of Energy

Northwest Region – This cooperative effort involving the CREED Project, Hamline University’s Center for Global Environmental Education (CGEE) and the Laurentian Environmental Center (LEC), is designed specifically for high/middle school teachers wishing to update their Energy Efficiency/Renewable energy industry knowledge and to then encourage their students to choose a future career in this field. Statewide Seed Grant funding for this project will support the equivalent of 9 teachers in Minnesota. (Energy Efficiency, Renewable Energy and Additional Technologies; \$1,000)

SOUTHEAST REGION

Rural Renewable Energy Alliance – Quantifying Effectiveness of Solar Heat for High Tunnels

Rural Hastings, MN – The Rural Renewable Energy Alliance’s project seeks to analyze and quantify the effectiveness of solar thermal to produce heat in high tunnels. Evidence of success remains anecdotal regarding the transfer of solar thermal heat to the soil and, consequently, increasing the growing season. RREAL’s installation of monitoring equipment will better document how solar thermal applications perform, helping to formulate costs and benefits of solar systems. RREAL plans to create a solar thermal high tunnel calculator, sharing the application broadly. (Solar Thermal, Research: Renewable Energy; \$3,000)



Ryan Family Dairy Farm – Energy Audit for Future Solar Project

Zumbro Falls, MN – Kimberly Ryan, a senior at University of Wisconsin – River Falls, seeks to better understand the energy operating costs at her family’s dairy farm. This seed grant will support a portion of the costs of the technical assistance needed to complete an on-farm energy audit and lay the groundwork for both energy efficiency improvements and a potential solar power system. The results of this project will be shared with other struggling dairy farms, seeking to provide options for efficiency upgrades resulting in decreased energy costs. (Energy Audit, Low-Cost: Energy Efficiency & Renewable Energy; \$655)

Three Rivers Community Action – Northfield Neighborhood Investment Project

Northfield, MN – Three Rivers Community Action plans to pilot the Neighborhood Investment Project, a home energy improvement and neighborhood revitalization program that provides a one stop shop for residential energy efficiency upgrades available to homeowners of all incomes. From start to finish, the program will provide households with quality information, a full energy audit, a customized energy action plan detailing cost-effective measures specific to each home, information and assistance with rebates, attractive and accessible financing opportunities, reliable contractors and quality assurance. Three Rivers is working with partner Community Action agencies to develop a regional and statewide plan for the program and will specifically plan and launch a Pilot for the program in a targeted neighborhood in Northfield. The Northfield Housing and Redevelopment Authority will be an active participant in the Northfield Pilot, providing an incentive for participation in the form of matching grant funds to low- and moderate-income homeowners to implement energy saving measures. (Energy Efficiency: Low cost/no cost upgrades, building envelope, lighting upgrades; Renewable Energy: Solar thermal, solar electric; Additional Technologies: Geothermal; \$4,345)

Center for Renewable Energy Education and Demonstration – Discovering Science on the Range in the Field of Energy

Southeast Region – This cooperative effort involving the CREED Project, Hamline University’s Center for Global Environmental Education (CGEE) and the Laurentian Environmental Center (LEC), is designed specifically for high/middle school teachers wishing to update their Energy Efficiency/Renewable energy industry knowledge and to then encourage their students to choose a future career in this field. Statewide Seed Grant funding for this project will support the equivalent of 9 teachers in Minnesota. (Energy Efficiency, Renewable Energy and Additional Technologies; \$2,000)

SOUTHWEST REGION

Southwest Minnesota Housing Partnership – Renter Community Energy Conservation Education

Slayton, MN – The Southwest Minnesota Housing Partnership (SWMHP) will prepare manuals and hold demonstrations on energy and water conservation strategies for tenants and property managers at SWMHP properties. The SW CERT grant will assist the SWMHP in extending energy and water conservation outreach to the communities where the SWMHP has properties and planned demonstrations. The education and outreach activities will lead to increased water and conservation in the SW CERT area. (Energy Efficiency: Low Cost/No Cost upgrades, Behavior Change, lighting upgrades; \$5,000)



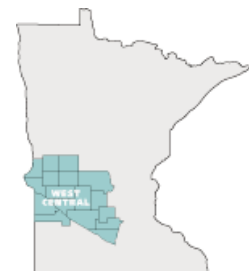
Redwood Area Development Commission – Renewable Energy, Energy Efficiency, and Education Integration

Redwood Falls, MN – The Redwood Area Development Corporation plans to incorporate a renewable energy module into the RADC website that will be accessible to residents, businesses, and ag producers. The information will include programming and resources that can assist in implementation of energy efficiency practices. The focus is on all utility providers in the 15 communities in the county with the goal of reducing energy use and assisting Redwood County in becoming energy independent. The website module is envisioned to be the “go-to-resource” for renewable energy, energy efficiency, and education for ag producers, small businesses, manufactures and residents. (Energy Efficiency: Low Cost/No Cost upgrades, behavior change, lighting upgrades; Renewable Energy: solar thermal, solar electric, wind, biomass/biofuels; Additional Technologies: Geothermal, energy storage; \$5,000)

WEST CENTRAL REGION

Camphill Village Minnesota, Inc. – Domestic Solar Hot Water System

Sauk Centre, MN – In its continued effort to minimize its impact on the environment while simultaneously reducing energy costs, Camphill Village Minnesota, Inc. aims to implement solar panels to power a second solar hot water system on site. Camphill Village will provide community members with tours of the renewable energy systems and information on energy efficiency and clean energy upgrades, hoping to promote its commitment to a sustainable lifestyle broadly to visitors, community members, and residents alike. (Solar Thermal: Renewable Energy; \$3,500)



Litchfield High School Youth Energy Summit Team – Solar Panel Installation and Education

Litchfield, MN – The Solar Panel Installation Project at Litchfield High School will install solar electric panels on the school building, hoping to generate between 500-800 kWh/month. Additionally, the YES! Team is requiring that the contractor for the project be available for energy education and information regarding the panels. Hoping to engage both the student body and the local community, the YES! Team plans to pursue media coverage, offer open houses, and provide energy education opportunities for students and the public. (Education, Solar Electric: Renewable Energy; \$3,500)

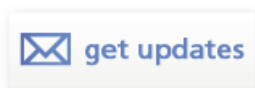
City of Hoffman – HVAC Efficiency Upgrade

Hoffman, MN – The Community Center in the City of Hoffman will receive a much-needed heating and cooling system upgrade. With furnaces over 20 years old, the Community Center will install new furnaces and a central air system, benefiting several community groups and residents who make use of the space. Furthermore, the City of Hoffman aims to increase the usability of the building, providing a venue for more community events and for more private events which would generate income for the city. Hoffman recently became a GreenStep City in 2011 and seeks to focus on energy savings, relying on this project as a catalyst for additional efficiency projects. (HVAC, Low-Cost: Energy Efficiency; \$2,500)

Center for Renewable Energy Education and Demonstration – Discovering Science on the Range in the Field of Energy

West Central Region – This cooperative effort involving the CREED Project, Hamline University’s Center for Global Environmental Education (CGEE) and the Laurentian Environmental Center (LEC), is designed specifically for high/middle school teachers wishing to update their Energy Efficiency/Renewable energy industry knowledge and to then encourage their students to choose a future career in this field. Statewide Seed Grant funding for this project will support the equivalent of 9 teachers in Minnesota. (Energy Efficiency, Renewable Energy and Additional Technologies; \$500)

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