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Montana Department of Environmental Quality

CASE STUDIES: STATE ENERGY PROGRAM

Montana Alternative Energy Revolving Loan Program

The Montana Department of Environmental Quality (DEQ) years ago recognized a need for better financing of small-scale renewable energy projects for residential and commercial applications. The Alternative Energy Revolving Loan Program (AERLP) has been helping home owners, small businesses, non-profit organizations and government entities to install alternative energy systems for almost 15 years. This traditional program was funded from air quality penalties collected by DEQ and, of course, from repayment of loans.

More than $1 million of Stimulus funding was infused into the program in 2009 to fund low-interest loans for solar electricity, solar hot water heating, wind power, ground-source heat pump systems and other alternative energy projects. A separate revolving loan program was established to meet ARRA reporting and disclosure requirements as well as broader parameters. The amount available to loan from the traditional program was raised to a maximum $60,000 for residential applications and up to $100,000 for commercial loans. The interest rate has been set at 4 percent.

The program has proven popular with more than 50 applications processed to date. More than $1 million in ARRA funding for the program has been loaned and repayments are starting to come in to the revolving account to fund additional loans. This is keeping renewable energy businesses and installers busy at a time when demand has slowed and when the traditional loan program has run out of revenue.

A typical example of a residential AERLP project is the Eisenstadt-Pilgrim residence in Missoula. A 3.5 kilowatt solar photovoltaic (PV) system supplies electricity to the home. Sixteen roof-mounted 216-watt panels and inverters generate electricity for the home. The system is expected to produce almost 4,000 kwh per year. The annual electric usage for the home is about 11,000 kwh; therefore, the system will supply 35 percent of the annual power used. Periods of high generation will be transmitted to the grid through a net metering agreement with the local utility.

The Eisenstadt-Pilgrims borrowed $24,500 for a photovoltaic array and the Hauger-Hobbs borrowed $46,500 for a ground-source heat pump retrofitted to a historic home. Both are located in Missoula.

Marc Hauger and Anne Hobbs applied to the AERLP to install a ground-source heat pump for a 100-year-old home in a historic Missoula neighborhood. A 4-ton open-loop system was specified, which pumps ground water for heat extraction with discharge into a separate dry well. Radiant floor heat is specified and the exterior envelope of the home will be highly insulated.

State Buildings Energy Conservation Program

The Montana Veterans Nursing Home in Columbia Falls was among the very first recipients in the state of energy efficiency funds from the American Recovery and Reinvestment Act (ARRA) of 2009.

State Energy Program funds were used for mechanical and electrical upgrades including modern digital controls, a new high-efficiency boiler, heat recovery system, variable air volume equipment, and a groundwater cooling system. These energy improvements will result in savings of approximately $27,000 per year. The $400,000 of ARRA SEP funding leveraged an additional $900,000 of state deferred maintenance funds. The Department of Environmental Quality's (DEQ) State Buildings Energy Conservation Program and the Department of Administration's (DOA) Architecture & Engineering Division collaborated on the project.

The Veterans Nursing Home features older structures and facilities and additions that date from the 1970s through the early 2000s. The 105-bed facility offers skilled and intermediate nursing facilities and ancillary services, including an Alzheimer's unit. Individual rooms were heated and cooled by old fan-coil units. The energy upgrades and other improvements were completed in June, improving comfort for residents while achieving savings for taxpayers. The energy savings from the mechanical and electrical improvements will be used to repay the $400,000 invested in the project plus 3 percent interest over the life of the project. This repayment will be used for additional energy conservation investments.

Montana Recycling Infrastructure Grants

Energy used to mine resources and manufacture goods can be reduced through recycling. In Montana, recycling is challenging because of long distances between communities and small population centers. The Montana Department of Environmental Quality (DEQ) has awarded $300,000 to 18 projects in 13 counties to support recycling infrastructure improvements. Projects include recycling processing equipment such as balers, collection bins, transportation trailers and facility support. The grants are designed to encourage communities to work together to reduce transportation costs.

Public events can have high associated energy costs. A grant to the Associated Students of Montana State University (ASMSU) will implement recycling at all major sporting events, trade shows, concerts and other large public gatherings. A long-term recycling strategy at public

gatherings was a natural choice for MSU's student applicants. The largest venues on campus — the 10,000-seat Brick Breeden Field House and 15,000-seat Bobcat Stadium — will be the focus. Hundreds of thousands of people attending events each year will come in contact with this recycling project.

A large three-county region in northwestern Montana is coordinating its recycling infrastructure efforts, thanks to this grant program. A high population growth rate in the larger Flathead has dramatically shortened the life expectancy of the regional landfill. Flathead and Lake Counties joined with the cities of Polson and Libby (in Lincoln County) to effectively collect, compact, transport and recycle a variety of commodities. An e-waste event was recently conducted and the area is now recycling textiles.

New recycling bins are rolled out at the Polson City Hall and a view of the Brick Breeden Field House at Montana State University in Bozeman.