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Technical/Business Planning: Small Wind Energy Projects

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Section 1: Introduction

In addition to the wind energy production case study, several additional tools have developed. The first of these is the “Wind Energy Subsidies and Programs: U.S. Federal and State of Montana Initiatives.” This document provides information about the numerous Federal and State of Montana programs that provide regulations or support for wind energy development. The second tool is a sample cash flow worksheet based on the case study. This worksheet is also provided in Excel format to allow users to modify the sample data and evaluate the outcome. Notes and instructions for this tool are provided. These tools will allow students to investigate wind energy projects beyond the information provided in the case study.

Section 2: Wind Energy Subsidies and Programs: U.S. Federal and State of Montana Initiatives

Introduction

This report describes the major policies, programs and incentives implemented by the U.S. Federal government, the State of Montana and Montana utility companies with respect to wind energy production. Federal incentives include Clean Renewable Energy Bonds, Tribal Energy Program, the Modified Accelerated Cost-Recovery System, Renewable Energy Production Incentive and the Renewable Electricity Production Tax Credit. Some incentives are based on energy production, while others are based on investment in infrastructure and equipment.

Montana policies and incentives presented in this overview include the Alternative Energy Revolving Loan Program, Universal System Benefits Program and others.

Federal Subsidies and Incentives

This section describes U.S. Federal subsidies, incentives and other programs that support wind energy production.

Clean Renewable Energy Bonds

This program is a financing mechanism established by the Federal Energy Tax Incentive Act of 2005. Clean Renewable Energy Bonds (CREB) are available for public entities (such as cities, counties and electrical cooperatives) to finance renewable energy projects. Issuers of CREBs do not pay interest on the bonds. Traditionally, bond holders receive interest and principal payments in return for purchasing a bond. However, in this case, potential bond purchasers receive principal payments and income tax credits (in lieu of interest) for purchasing a CREB. Only governmental agencies (city, county etc.) and electrical cooperatives are eligible for CREBs (www.irs.gov/irb/2006-10_IRB/ar07.html).

Tribal Energy Program Grant

The Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy provides financial and technical assistance to American Indian tribes through the Tribal Energy Program. The program supports tribal energy sufficiency, economic growth and employment on tribal lands. The DOE provided \$14.1 million for 91 tribal energy projects over the 2002 to 2007 period (www.eere.energy.gov/tribalenergy/).

Modified Accelerated Cost-Recovery System

The Modified Accelerated Cost Recovery System (MACRS) allows for accelerated depreciation deductions for certain tangible property, including wind production assets. Wind energy assets are classified as 5-year property for depreciation purposes under MACRS. Several depreciation schedules are available under MACRS (www.irs.gov/publications/p946/index.html).

Renewable Energy Production Incentive

The Renewable Energy Production Incentive (REPI) offers payments to qualified renewable energy facilities based on energy production. Incentive payments were established by the Energy Policy Act of 1992 at the rate of 1.5 cents per kilowatt hour. This rate is adjusted for inflation (the current rate is available at www.eere.energy.gov/repil/). This incentive is available for the first 10 years of a renewable energy facility's operation. Not-for-profit electric cooperatives, public utilities, state governments and Indian tribal governments are eligible to participate in the REPI program. The program is managed by the Department of Energy. REPI is authorized through 2026.

Renewable Energy Production Tax Credit

Wind energy facilities are eligible for a Renewable Energy Production Tax Credit (REPTC). This credit provides a 1.5 cent per kilowatt hour income tax credit. The credit is adjusted for inflation (the current rate is available at www.irs.gov/pub/irs-pdf/f8835.pdf). This credit is available for the first 10 years of a facility's operation. For-profit entities are eligible for this credit. The credit is set to expire on December 31, 2008.

Farm Bill Programs

The Farm Security and Rural Investment Act of 2002 created several programs that support wind energy production. The Renewable Energy Systems and Energy Efficiency Improvements Program (Section 9006) directed the Secretary of Agriculture to make loans, loan guarantees and grants to eligible applicants to develop renewable energy projects and improve energy efficiency. The Food, Conservation and Energy Act of 2008 (the most recent farm bill) also offers programs that encourage wind energy development.

At this time, many of the program details are not available but should be posted in the near future at www.rurdev.usda.gov/rbs/farbill/.

Montana Policies and Incentives

This section describes the major programs and incentives offered by the State of Montana related to wind energy production. Montana offers the following direct incentives for wind energy production (http://data.opi.mt.gov/bills/mca_toc/index.htm).

- 1) Non-Fossil Energy Tax Exemption (Montana Code Annotated (MCA) 15-6-224)
 - a. A single-family investment of up to \$20,000 for non-fossil fuel forms of energy generation (wind systems qualify) are exempt from property taxes for 10 years.
 - b. A multi-family investment of up to \$100,000 for non-fossil fuel forms of energy generation (wind systems qualify) are exempt from property taxes for 10 years.

- 2) Small Electrical Generation Equipment Tax Exemption (MCA 15-6-225)
 - a. Machinery and equipment used in a qualifying generation facility with a nameplate capacity of less than 1 megawatt is exempt from property taxes for 5 years after the generation of electricity begins. Wind energy systems qualify for this credit.

- 3) Property Tax Reduction for New/Expanded Generating Facilities (MCA 15-24-1402)
 - a. In the first 5 years after a construction permit is issued for a wind generating facility (new or expanding), qualifying improvements are taxed at 50 percent their taxable value. The percentage increases until year 10, after which the qualifying facility is taxed at 100 percent of its taxable value.

- 4) New or Expanding Industry Tax Credit (MCA 15-31-124/125/126)
 - a. Businesses that expand full-time job employment by 30 percent or more may be eligible for a license tax credit equal to 1 percent of new in-state wages paid during the first three years of operation. Wind energy production qualifies for this credit.

- 5) Installing Alternative Energy System Tax Credit (MCA 15-32-201)
 - a. A resident taxpayer who installs a non-fossil fuel form of energy production is eligible for an income tax credit up to \$500 in the year the system was installed. Wind systems qualify for this credit.

- 6) Commercial or Net Metering System Investment Tax Credit (MCA 15-32-401/402/404)
 - a. Investments in alternative energy systems larger than \$5,000 are entitled to an income tax credit equal to 35 percent of the investment in the year of the investment.

- 7) Wholesale Energy Tax Exemption (MCA 15-72-104)
 - a. Electricity generated from wind on State lands is exempt from the wholesale energy transaction tax of \$0.00015 per kilowatt hour.

- 8) Alternative Energy Revolving Loan Program (MCA 75-25-101/102/103)
 - a. A wind energy generation facility is eligible for loans of no more than \$40,000 and no longer than 10 years. The interest rate for 2008 was 5 percent.

Other Programs, Standards and Guidelines

Congress enacted the Energy Policy Act of 2005 to encourage the Federal government to use electricity generated from renewable sources. The policy requires that 3 percent (for 2007 to 2009) of the Federal government's electric purchases be from renewable sources. The policy increases this requirement to 5 percent for 2010 to 2012 and then to 7.5 percent for 2013
(www1.eere.energy.gov/femp/renewable_energy/renewable_fedrequire.html).

The Montana legislature also implemented a plan to increase the use of renewable energy (MCA 69-3-2002 to 2008). This plan requires publicly-owned utilities and competitive electric suppliers to procure a minimum of 5 percent of retail sales from renewable resources. The requirement is increased to 10 percent in 2010 and 15 percent in 2015.

The Montana legislature defined wind energy easements in MCA 70-17-303. This statute identifies minimum requirements for legal wind energy easements. The purpose is to ensure an undisturbed wind flow for wind energy projects.

The Montana legislature also enacted a policy that requires utilities to purchase electricity from qualifying small production facilities based on rates and conditions set by the Montana public service commission. This policy only applies if an agreement cannot be reached between the utility company and power producer. (MCA 69-3-601 to 604).

Universal System Benefits (MCA 69-8-402)

Utility companies in Montana are required to participate in the Universal System Benefits (USB) program. The program collects a small fee (the average residential customer pays \$1 per month) from all customers. These funds are used to support energy efficiency programs, low-income energy assistance and renewable energy programs. Northwestern

Energy (NWE) and Montana Dakota Utilities (MDU) manage USB funds collected from their customers. Northwestern Energy collected \$9.4 million of USB funds in 2007. They allocated about 8 percent (\$783,507) of these funds for renewable energy and research and development activities. Because of a pending lawsuit, MDU has halted USB fund expenditures. Montana's rural electrical cooperatives (REC) also participate in the USB program. Approximately 6 percent (\$430,371) of USB funds collected in 2007 by RECs was directed toward renewable energy.

Northwestern Energy also offers customers the E+ program. This program allows users to pay an additional fee to NWE for the purchase of electricity from renewable sources. Montana RECs offer similar programs that allow consumers to support renewable energy.

Net Metering Policies

Net metering allows customers to purchase and install small wind or solar energy generation equipment to meet their electrical demands. The legislature enacted MCA 69-8-601 to encourage private investment in renewable energy. Net metering customers who use more electricity than they generate cannot be charged higher rates for that usage than other customers in the same rate class (MCA 69-8-602). The legislation also defines standards for equipment used to connect net metering systems to the electrical grid (MCA 69-8-604). Net metering agreements must be approved by the electrical provider before a customer can install net metering equipment.

Summary

This report provides a brief overview of programs offered by the U.S. government, State of Montana and Montana utility companies. This overview does not provide comprehensive details about each program; therefore consumers and businesses interested in these programs should seek additional information from program sponsors.

References

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Personal Communication with Gary Wiens, Montana Electric Cooperatives Association Marketing Director, August 28, 2008.

Section 3: Notes of Cash Flow Worksheet

The case study of Dr. Brittan's wind energy project discusses his experiences with owning a wind turbine for over 20 years. This part of the case study is a narrative to accompany the sample cash flow statement. The cash flow statement is based on data from the case study.

A narrative of the cash flow statement is provided below:

- The size of the wind turbine installed and the year in which it was installed are provided in the top left corner of worksheet.
- The interest rate and the payment amount for loan used to finance the \$120,000 wind turbine purchase price. This information is provided in the top left corner of the worksheet.
- The column "Year" indicates the specific year of cash flow the row reports.
- The column "Loan Balance" indicates the outstanding loan balance at the beginning of each year.
- The columns "Principal" and "Interest" indicate the portion of the loan payment that is applied to interest charges and the principal portion of the loan.
- The column "Expenses" indicates the average annual repair and maintenance costs.
- The column "Tax Credit" reports the tax credit received in 1984.
- The column "kWh Produced" reports the average annual electrical production.
- The column "Price per kWh" reports the contracted priced received for each kWh for a specific year.
- The column "Revenue from Electricity" reports the annual revenue generated from electricity sales.
- The column "Net Cash Flow" indicates the net cash flow for each specific year.
- The "Net Present Value of the Project" is reported in the bottom left corner of the worksheet. The discount rate used in the calculation is also reported in the bottom left corner of the worksheet.