Supplemental Environmental Projects Using Renewable Energy: A New Approach to Addressing Air Quality Violation Penalties

Supplemental environmental projects can help companies mitigate all or part of penalties imposed as a result of air pollution violations. Supplemental environmental projects, or SEPs, are environmentally beneficial projects that offer pollution prevention, energy efficiency, green energy, and community-based programs that may include investment in cost-effective alternative energy technologies, such as wind energy.

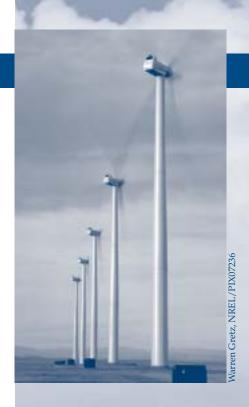
In Colorado, one company is successfully mitigating 80% of a penalty through a SEP that takes advantage of the utility's wind energy program by purchasing wind energy for a minimum of 5 years. To meet the additional demand, the utility will need to add another turbine to its existing wind farm. The environmental benefits that result from this increased capacity include sustained emission reductions, including carbon dioxide (CO_2) , nitrogen oxides (NO_x) , and sulfur dioxide (SO₂). In addition, the increased capacity will increase the diversity of the utility's energy portfolio and take further advantage of a free, renewable energy source.

A Colorado Case Study

During routine inspections, a large Denver company was found to be in violation of air pollution prevention regulations and was required to pay a noncompliance penalty of \$30,065. In addition, the company was assessed a civil penalty of \$395,000. Because it cooperated with the state, the company's civil penalty was reduced to \$316,000. To offset this penalty, the company developed a SEP through which it would purchase wind energy for a minimum of 5 years at a cost of \$303,360, or 80% of the civil penalty.

To receive approval from the Colorado Department of Public Health & Environment, Air Pollution Division, the company had to certify that this SEP was developed exclusively for mitigation of the current violation and it cannot be applied to any past or future violations. In addition, the SEP cannot be used to meet the requirements of federal, state, or local laws and regulations.

To ensure smooth implementation of the SEP after it was approved, the company consulted with local environmental stakeholders. To minimize accounting



Environmental Benefits

The environmental benefits associated with using electricity generated from wind range from air emission reductions to non-emission reductions. Air emission reductions include reductions in NO_x , SO_2 , CO_2 , particulates, and mercury. Non-emission reductions include reductions in the need for landfill disposal and wastewater treatment

Air emission reductions that will result from the Colorado SEP are estimated to be:

- Total NO_x avoided–97 tons per year
- Total SO₂ avoided–73 tons per year
- Total CO₂ avoided-3,640 tons per year

In general terms, these reductions are roughly equivalent to:

- 4,853,760 vehicle miles NOT traveled per month
- 1,820 tons of coal NOT burned per year
- 1,011 acres of trees planted (one-time occurrence)

The emission reductions for the Colorado SEP were calculated assuming that:

Amount of penalty = \$303,360

Wind premium = 2.5 cents per kilowatt-hour (kWh) or \$2.50 per 100 kWh

Total number of kWh = 12,134,400

Length of wind purchase = 5 years

kWh per year for 5 years = 2,426,880

Number of blocks purchased per month = 2,022

Pollution avoided from the purchase of wind energy in Colorado:

 $NO_x = 8$ lbs per 100-kWh block

 $SO_2 = 6$ lbs per 100-kWh block

 $CO_2 = 300$ lbs per 100-kWh block.

State air quality enforcement officials who would like a detailed analysis of the value of their SEPs can use the Environmental Protection Agency's (EPA's) detailed analysis modeling tool—PROJECT. A copy of the PROJECT computer program software and PROJECT User's Manual may be purchased by calling that National Technology Information Service at (800) 553-6847, and asking for Document #PB 98-500408GEI, or they may be downloaded from the World Wide Web at http://www.epa.gov/oeca/models/or http://es.epa.gov/oeca/models/project.html

For more information, contact:





U.S. Department of Energy Wind Energy Program Forrestal Building 1000 Independence Avenue, S.W. Washington, D.C. 20585 202-586-5348 www.eren.doe.gov/wind



National Renewable Energy Laboratory Karin Sinclair, MS3811 1617 Cole Blvd. Golden, CO 80401 303-384-6946 karin_sinclair@nrel.gov



U.S. Environmental Protection Agency Kate Narburgh 1200 Pennsylvania Avenue, N.W. Washington, D.C. 20460 202-564-1846 www.epa.gov

Produced for the U.S. Department of Energy by the National Renewable Energy Laboratory, a DOE national laboratory

Web sites

DOE/GO-102001-1283 April 2001

Printed with a renewable-source ink on paper containing at least 50% wastepaper, including 20% postconsumer waste



costs, the company submitted the entire amount of its SEP purchase to the utility. The utility placed the money in an interest-bearing escrow account from which it will manage the funds. The utility will use the money in the account to pay the premium it charges for energy

purchased by the company under the utility's WindSource Program for up to 5 years. If there are funds left in the escrow account after the 5th year, the utility will use the balance to continue paying the premium for the company.

U.S. Department of Energy Regional Offices www.eren.doe.gov/rso.html	Regional Office Contacts	States in Region
Atlanta Regional Office 730 Peachtree St., NE, Suite 876 Atlanta, GA 30308-1212 404-347-2696 www.eren.doe.gov/aro/	Dwight Bailey	Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, U.S. Virgin Islands
Boston Regional Office JFK Federal Building, Suite 675 Boston, MA 02203 617-565-9700 www.eren.doe.gov/bro/	Dick Michaud	Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont
Chicago Regional Office One South Wacker Drive, Suite 2380 Chicago, IL 60606-4616 312-353-6749 www.eren.doe.gov/cro/	William Hui	Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin
Denver Regional Office 1617 Cole Blvd. MS1721 Golden, CO 80401 303-275-4826 www.eren.doe.gov/dro/	Steve Palomo	Colorado, Kansas, Louisiana, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, Wyoming
Philadelphia Regional Office 1880 John f. Kennedy Boulevard, Suite 501 Philadelphia, PA 19103 215-656-6964 www.eren.doe.gov/pro/	Maryanne Daniel	Delaware, Washington DC, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia
Seattle Regional Office 800 Fifth Ave., Suite 3950 Seattle, WA 98104-3122 206-553-1132 www.eren.doe.gov/sro/	Curtis Framel	Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington, American Samoa, Guam, Palau, North Marianas

Green Power Network — www.eren.doe.gov/greenpower/apcd_0900_pr.html

Wind Powering America — www.eren.doe.gov/windpoweringamerica/