



## GREEN PURCHASING CASE STUDIES: SUNDERLAND RECYCLING FACILITY POWERED BY WIND

CITY OF PORTLAND, BUREAU OF PURCHASES  
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*Sunderland Recycling Facility features a 10kW wind turbine that powers its offices.*

### PURCHASING GREEN

In June 2005, Sunderland Recycling Facility, in partnership with EnergyTrust of Oregon, Inc., completed construction of the city's first wind turbine. The 10 kW turbine is a Bergey BWC Excel-S wind turbine with a GridTek 10 Power Processing Center that sits atop a 100-foot self-supporting lattice tower. Electricity generated by the wind turbine is used to power the facility's office. Additionally, solar photovoltaic panels power two red beacon lights, required by the Federal Aviation Administration

(FAA) because of the tower's proximity to Portland International Airport.

### BENEFITS

The wind turbine at Sunderland Recycling Facility helps Portland meet its goal of purchasing 100 percent renewable energy by 2010. The city is currently in negotiations to supplement its onsite generation of renewable energy with the purchase of 100 percent Oregon-based wind power for its city accounts.

The wind turbine reduces the city's reliance on fossil fuels. Unlike electricity generated from sources like coal, petroleum, and natural gas, wind energy produces no emissions and requires no water to operate. The installation of Sunderland Recycling Facility's wind turbine will save 134 tons of CO<sub>2</sub> emissions, or the equivalent of planting 3.5 acres of trees, over the life of the project.

The impact of wind turbines on bird and bat deaths has been a subject of concern. However, collisions with wind turbines account

### AT A GLANCE

#### WHO

Sunderland  
Recycling Facility

#### WHAT

10 kW wind turbine

#### COST

💰 Cost \$63,000

💰 Generates  
10,530 kW  
per year

#### BENEFITS

- ✓ Helps city meet renewable energy goal
- ✓ Produces no emissions
- ✓ Requires no water
- ✓ Will save 134 tons of CO<sub>2</sub> emissions over the life of the wind turbine

for only about 0.01 percent to 0.02 percent of total bird fatalities. Advances in the siting and design of wind turbines have greatly reduced bird fatalities, and studies are underway to examine ways to make wind turbines safer for bats. Sunderland Recycling Facility's wind turbine has had no problems with bird or bat deaths.

## **COST**

It cost about \$63,000 to purchase and install Sunderland Recycling Facility's wind turbine. EnergyTrust of Oregon, Inc. contributed 57 percent of the project's price. The wind turbine generates an estimated 10,530 kW – about \$900 worth of electricity – per year. Any power that is not utilized by the facility is returned to the grid.

***“The Sunderland Recycling Facility is a showcase for the city's sustainable efforts and demonstrates the city's commitment to increasing our solid waste recovery efforts. With the addition of the wind turbine, we can add energy conservation to the list of sustainable activities at Sunderland.”***

**Jill Jacobsen, Program Manager,  
Office of Transportation**

## **PERFORMANCE**

Some minor maintenance was performed on the beacon in 2006, but overall the wind turbine has experienced no major problems. Sunderland Recycling Facility has been pleased with the wind turbine's performance, and views this project as an opportunity to showcase the benefits of a small wind turbine and help the City of Portland achieve its renewable energy goals.

## **LESSONS LEARNED**

Since Sunderland Recycling Facility is located near an airport, additional provisions – including lighting – needed to be met. Regulatory requirements for wind turbines can vary by county and city, and certain restrictions may apply depending on the site's characteristics. It's important to research these regulatory requirements to ensure compliance.

## **ABOUT SUNDERLAND RECYCLING FACILITY**

Sunderland Recycling Facility, operated by the Portland Office of Transportation's Bureau of Maintenance (BOM), is Portland's recycling site for asphalt, concrete, and leaf composting. City crews use this material for maintenance and repair projects. Some of the recycled material, such as leaf compost, blended soil, and crushed rock, is sold to the public as part of BOM's outreach program. The 20-acre site processes about 30,000 to 50,000 cubic yards of material every year. In 2004, the city purchased an additional 14 acres to expand its current operations, including processing new materials such as street sweeping debris.

## **FOR MORE INFORMATION**

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