

Oregon Department of Energy

...Saving Energy Saves Everything...



Dry Creek Landfill turns biogas into electricity

Landfills are the source of an increasingly valuable commodity—energy. This electricity source can either be used by industry or the public.

Oregon has 14 landfills. Of those, six convert landfill gas from municipal solid waste into power and are classified as biomass generation or gas-to-energy projects.

One project leader committed to finding a solution to flaring landfill gas is [Dry Creek Landfill](#) located in Jackson County near Medford. Dry Creek's 50 million-ton capacity site has a landfill footprint of 250 acres amid its 1,000 acres. This regional landfill accepts 900 tons of municipal garbage daily from Jackson and Josephine counties as well as the coastal areas of southern Oregon and northern California.

Landfills generate a by-product known as landfill gas. Landfill gas—a mixture of methane and carbon dioxide—is created from landfill waste decomposition. The gas's nearly 50 percent methane component is what makes it an energy source. Capturing and converting it into electricity prevents it from escaping into the atmosphere, thus reducing greenhouse gas emissions.

Dry Creek Landfill first opened in 1974; began building its gas-to-energy project in 2006, completing it in 2007. The project, which has an active methane gas collection and control system in place, is the third of its kind in Oregon and the first landfill project in Southern Oregon.

The landfill is operated by Oregon Environmental



CAT engine exhaust stacks used to generate electricity

Industries LLC (OEI), a sister company of Dry Creek Landfill Inc. which operates the landfill.

At the onset of the project, the OEI leadership had a vision to convert the Dry Creek site to renewable power but first had to reach a certain threshold of gas production. That number was 1,040 standard cubic feet per minute (scfm).

Dry Creek reached that threshold in 2006 at which time OEI General Manager Lee Fortier applied for a Small-scale Energy Loan (SELP) of \$5.1 million from the Oregon Department of Energy. The project also qualified for \$2.2 million in renewable energy tax credits through the Business Energy Tax Credit (BETC) pass-through option.

According to Fortier, the loan helped to turn flared landfill gas into usable energy serving Jackson County residents. “We were able to take a wasted resource and turn it into a green product that consumers could use,” says Fortier.

Dry Creek’s new alternative energy system collects

methane gas through existing perforated pipes buried deep within the landfill, drawing it into a central collection point to power two twenty-cylinder Caterpillar engines.

The company purchased the CAT engines, associated fuel handling controls and interconnection equipment with the SELP loan.

Environmental and Financial Analysis

The CAT engines are rated at 1.6 megawatts each and generate electricity that feeds into PacifiCorp’s system. The engines burn and clean approximately 1,040 cubic-feet of landfill gas per minute—equivalent to 20,000 tons of coal and 1,000 kWh of fossil fuels.

Fortier says the Dry Creek Landfill project is estimated to generate about 23,869,800 kWhs of electricity, producing power for roughly 3,000 homes each year. The electricity produced will also eliminate nearly 13,055 standard tons of carbon dioxide (CO₂) emissions yearly over the first 20 years—the rough equivalent of planting 5,180 acres of forest. Dry Creek expects an annual energy savings valued at \$1.2 million.

This biomass project cost \$6.5 million to develop and its projected operational life will exceed 75 years.

About the ODOE SELP program

The purpose of the Small-scale Energy Loan Program (SELP) is to promote energy conservation and renewable energy resource development. For information, visit ODOE at Oregon.gov/ENERGY/LOANS/index.shtml.

Interview with Lee Fortier, OEI general manager for Dry Creek Landfill and article by Sylvia McDaniel, ODOE.