RE-Powering America's Land

Evaluating the Feasibility of Siting Renewable Energy Production on Potentially Contaminated Land

Middleton, Wisconsin

RE-Powering: EPA/NREL Feasibility Studies

The U.S. Environmental Protection Agency's (EPA) *RE-Powering America's Land* Initiative encourages renewable energy development on current and formerly contaminated land, landfills and mine sites when it is aligned with the community's vision for the site. EPA and the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) are collaborating on a project to evaluate the feasibility of siting renewable energy production on potentially contaminated sites. This effort pairs EPA's expertise on contaminated sites with NREL's expertise in renewable energy. The feasibility studies provide site owners and communities with a technical and economic assessment of installing renewable energy on a given site.

Site Description

The Refuse Hideaway Landfill is a former landfill located in Middleton, Wisconsin. The site is a 23-acre landfill on a 40-acre parcel and was operated by Refuse Hideaway, Inc. from 1974 through 1988. During its operation, Refuse Hideaway received approximately 1.2 million cubic yards of municipal, commercial and industrial waste and was placed on EPA's Superfund National Priorities List (NPL) in 1992. Ground water contamination at the site includes varying levels of volatile organic chemicals.

Community Goals

The Wisconsin Department of Natural Resources (WDNR) currently operates a groundwater remediation system. WDNR spends approximately $6,100 annually and uses 48,000 kilowatts (kW) a year operating the treatment building. WDNR funded a consultant and the purchase and installation of the solar photovoltaic (PV) equipment using money from the Wisconsin Environmental Fund. A 10-kW PV system was installed at the Refuse Hideaway Landfill in 2010; the system occupies approximately one percent of the available land that is feasible for a PV system and produces approximately 25 percent of the electricity required to run the pumps and fans related to the remediation system at the site. WDNR would like to expand the photovoltaic system PV to power the treatment building with the goal of reducing the treatment system's consumption of grid electricity to backup usage only.

Refuse Hideaway Landfill
Middleton, Wisconsin

Site Facts:

Site type: Superfund
Renewable technology: Solar

Contacts:

EPA Region 5
John Fagiolo
fagiolo.john@epa.gov
(312) 886-0800

EPA Headquarters
Adam Klinger
klinger.adam@epa.gov
(202) 566-0546
www.epa.gov/renewableenergyland

National Renewable Energy Lab
Gail Mosey
gail.mosey@nrel.gov
(303) 384-7356
www.nrel.gov

The information presented in this fact sheet is from the site's initial proposal, site visit(s), discussions with community stakeholders, and other information collected in preparation of the feasibility study. This fact sheet is for informational purposes only and may not reflect the site's current regulatory or remediation status.

Feasibility Study: Solar

NREL and EPA conducted a study on the potential for solar power generation on the Refuse Hideaway Landfill. The feasibility study evaluated the technical and economic opportunities and challenges at the site. The completed study:

- Identifies possible photovoltaic system size and type;
- Reviews the economics of the potential solar system; and
- Highlights financing options for the system.

The Refuse Hideaway Landfill is suitable in area to have a large-scale PV system and the solar resource in Middleton, Wisconsin is appropriate. Three different options were considered for this site; the largest was a 1,350 kW system. Given the remaining available acreage and onsite energy use, there is opportunity for expanding the solar energy generation beyond the existing 10-kW system. However, additional incentives may be required to improve the project economics. The findings from this report can also be applied to other landfills in Wisconsin.

For more information, visit www.epa.gov/renewableenergyland or contact cleanenergy@epa.gov

EPA

Study Published in August 2011