RE-Powering America's Land

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

Drums, Pennsylvania

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 Jeddo Tunnel was constructed in the late 1800s in the deep coal formations in the Middle Anthracite Region in Pennsylvania. It is a is a manmade water level drainage tunnel used to drain deep mines in four major coal basins covering nearly 33 square miles and averaging 40,000 gallons per minute or 60 million gallons per day. The local tributaries, including the Little Nescopeck Creek watershed, are severely impacted by contaminants from previous mining activities.

Community Goals

Remediation costs are estimated to be in the millions over the next 20 years for passive treatment. The community is interested in offsetting these costs through redevelopment uses for this area. The hydro-turbine could be used to offset power needs from nearby facilities, including a school, a senior home, and a water treatment plant, while helping to fund treatment. The hydro-turbine would also be used as an educational tool for the students at the school.

Feasibility Study: Solar

EPA and NREL conducted a study of installing hydro-turbine facility to distribute power to local facilities. The completed study:

- Provides a preliminary analysis of the economic and physical viability of the site;
- Assesses the hydro and thermal resource and makes hydro-turbine sizing recommendations;
- Reviews the economics of the proposed system(s); and
- Highlights financing options.

Both 25- and 40-kilowatt hydro-turbines were evaluated for the Jeddo Tunnel discharges. The hydroelectric project appears to be viable technically and economically. More onsite research is needed to determine the optimal height of the dam and verification of annual flow characteristics. Further study is recommended related to the environmental impacts of a potential hydropower development, as well as due diligence concerning the site's environmental conditions. The potential for selling the electricity through a virtual net metering structure is also recommended in order to further pursue development at this site.

Jeddo Tunnel
Luzerne County
Drums, Pennsylvania

Site Facts:

Site type: Brownfields
Renewable technology: Hydropower
Generation Potential: Community Scale

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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.

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

EPA

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