

# RE-Powering America's Land

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

Nitro, West Virginia

### 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

Nitro, West Virginia is a small, rural community in the Kanawha River Valley with a population of 7,178 (2010 U.S. Census). Nitro and the Kanawha River Valley once housed multiple chemical companies, formerly known in the chemical industry as the chemical capital of the world. Most of the chemical companies have either left the area or have significantly reduced operations, leaving many industrial properties vacant or severely underutilized.

### Community Goals

In 2007, Nitro received both petroleum and hazardous EPA Brownfields Assessment grants. A site inventory documented well over 800 acres of former industrial property that now sits vacant. Some of these properties have various degrees of known contamination, including dioxin, heavy metals, and volatile and semi-volatile organics.

In exploring re-use options for this area, solar power development was identified as the best option due to its lightweight design. Significant infrastructure is in place at the sites, including roads and utilities. Major electrical transmission lines are close to the entire industrial area in Nitro.

### Feasibility Study: Solar

EPA and NREL conducted a study on the potential for solar power generation located on the vacant industrial tracts of land in Nitro. The study builds on previous brownfields work and existing working relationships with the West Virginia Brownfield Assistance Center at Marshall University and the West Virginia Department of Energy. 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 proposed system; and
- Highlights financing options.

Eight sites in or near Nitro were considered, all of which were found suitable for photovoltaic (PV) systems. These sites could host up to 27.6 megawatts (MW) cumulatively. Not all eight sites would need to be developed at the same time; a small demonstration system and then increasing capacity in phases as funding and incentives became available may be the best fit. At the time of the study, there were not sufficient renewable energy incentives to make a system at this site cost-competitive with conventional fuel sources. Additional analysis is merited as market conditions evolve or incentives become available.

### Vacant Industrial Property Tracts Nitro, West Virginia

#### Site Facts:

**Site type:** Brownfield (800 acres)

**Renewable technology:** Solar

**Generation Potential:** Utility/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](http://www.epa.gov/renewableenergyland) or contact [cleanenergy@epa.gov](mailto:cleanenergy@epa.gov)



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