RE-Powering America's Land

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

Stations Across the Country

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

EPA estimates that there are over 200,000 petroleum brownfield sites across America. Many of these include former gas stations. Because these properties are often located near traffic intersections and other areas with high levels of automobile traffic, they may present opportunities to site or otherwise support the infrastructure for alternative fuel vehicles (i.e., vehicles powered by electricity, natural gas, hydrogen, ethanol, or biodiesel). Existing infrastructure and facilities suitable for reuse could be used to support station operations. Renewable energy resources, such as solar energy, could also help power operations and advanced vehicles.

Community Goals

Former gasoline stations that are now classified as brownfields can be good sites to sell alternative fuels because they are in locations that are convenient to vehicles. However, their success as alternative fueling stations is highly dependent on location-specific criteria, including access to existing infrastructure, gasoline prices, vehicle density among others.

Feasibility Study: Alternative Fuel Stations

EPA and NREL conducted a study to identify high potential petroleum brownfield sites which could be converted to alternative fuel stations. The feasibility study evaluated the technical and economic opportunities and challenges at these sites. The completed study:

- Develops criteria to evaluate former gas station properties as sites for alternative fuel stations
- Identifies the best locations for various alternative fuels based on traffic corridors and the supply and demand for each fuel
- Determines how to convert these former gas stations into alternative fuel stations

The study identified several regions of the country that appear to be great candidates for converting petroleum brownfields to alternative fuel stations, including sites located along: Highway 99 from San Francisco to Los Angeles; the I-5 Corridor from Seattle, Washington to Eugene, Oregon; the greater Chicago-Milwaukee area with expansion through Illinois, Iowa and Wisconsin; and Route 1 from Quantico, Virginia through New York.

Under closer investigation of the I-5 Seattle-Eugene Corridor, the EV recharging infrastructure proved to be a very promising niche for petroleum brownfield conversions. The study developed several tools specific to the Seattle-Eugene corridor, including a site evaluation checklist and guidelines for converting former gasoline stations into EV charging stations.

RE-Powering Former Gas Stations
Various Locations Across the Country

Site Facts:

Site type: Former Gas Station
Renewable technology: Alternate Fuel Stations

Contacts:

EPA Office of Underground Storage Tanks
Deb Steckley
steckley.deb@epa.gov
(703) 603-7181

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.

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

EPA

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