



## Going green isn't just for St. Patrick's Day anymore

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Having an Irish mother, I think it is very appropriate in the month of March, the month with St. Patrick's day, to talk about being wasted. Yes, I mean landfills and brownfields. Why, what were you thinking? It is a fact that there is no other species on the planet that creates garbage other than humans. But then again, no other species creates Guinness, corn beef sandwiches or 15 year old single malt scotch. You've got to take the good with the bad I guess. We generate a tremendous amount of waste and have chosen to pile it up and let a large percentage of it decompose near our urban areas. After a while we get a pretty large pile. Now what? Well, after we take the methane created by organic material decomposing and generate electricity with it, it is in the end, a big pile of trash on which you can build, almost nothing. Almost.

According to the Environmental Protection Agency (EPA) in their newly published report Best Practices for Siting Solar Photovoltaics on MSW Landfills, (MSW stands for Municipal Solid Waste, not Microsoft Word), there are approximately 11,000 old municipal landfills and contaminated sites covering nearly 15 million acres across the United States, "for suitability to site renewable energy generation facilities." This, class, is very good news. Why? Because 15 million acres is quite a lot of space across the country, and these sites are usually close to dense populations where land is valuable. However, they are also prohibitively expensive and time consuming to clean up. A developing trend has been to utilize this land to construct solar arrays on the surface. Brilliant! It is essentially useless land, but by constructing a solar PV cover on top, we can generate revenue through energy production. Proximity to the grid is paramount for many solar projects, and landfills are useful because they are close to populated areas where the energy is consumed. Green energy I might add.

The utility PSE&G is installing 4,000 solar panels on a six-acre site in Hackensack, N.J., that was once the home of a gas plant and then gas storage facilities. For this site and many others, cleaning up the land for traditional development is prohibitively expensive and time-consuming. "One of the real benefits of siting a solar farm on a brownfield site is that you may not need to do cleanup or extensive cleanup, and the reason is that you can use techniques where you contain the contamination within the property," U.S. EPA assistant administrator for the Office of Solid Waste and Emergency Response Mathy Stanislaus tells National Geographic. We couldn't agree more Mathy.

Below is a short list of landfill sites with or developing solar arrays over old landfills.

- \* Atlanta, Georgia has 10 acre landfill site with solar panels and the underground also collects methane gas, which is used for power production.
- \* A superfund site in Sacramento County, California, has six megawatts of solar constructed in 2010 where the energy powers the cleanup of the site.
- \* Chicago has a 10 megawatt solar installation also built in 2010

\* The Pennsauken Sanitary Landfill in New Jersey, a 2.6 megawatt site powers the daily operation of Aluminum Shapes.

\* A Madison County, New York solar project will generate energy from the eight acres of panels and that energy will be used to run the recycling center next door.

The EPA and U.S. Department of Energy are conducting feasibility studies to determine which sites should be developed. The math goes something like this: by installing solar power arrays on just one quarter of the possible 11,000 sites, we could produce a potential 212 gigawatts of clean energy, almost 500 times the solar energy produced in the U.S. in 2009 (425 megawatts). There is widespread application and opportunity for solar array landfill caps across the country. But if the cap is old (15-20 years) there could be requirements for a third-party environmental assessment that could make the process longer and more expensive. However, the truth is, we don't care, the societal and economic benefits far outweigh the effort involved in getting these projects developed.

If the U.S. plans to shift to more sustainable economy with a decreased reliance on fossil fuels, utility scale renewable systems like this will have to be part of the process. Until the country has a better control over our waste-steam, and encourages greater reuse and recycle, systems like this will become increasingly important.

So, like I said, if we as a country are going to get wasted, we might as well go green at the same time.

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