

Siting of Solar Energy on Former Municipal Landfills

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**May 4, 2009
New York Federation of Solid Waste Associations**

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LIPA Solar RFP

- **Long-term energy plan**
- **2008 Request for Proposals** for purchase of 50 megawatts of power and Renewable Energy Credits from utility-scale photovoltaic (“PV”) solar projects
- **Received 37 proposals** from 28 proposers
- **Several landfill proposals** among submissions
- **Evaluated benefits and challenges** of such projects compared to other potential sites
- **Explored requirements and procedures** for state and local permitting with regulators
- **Landfill project** among those selected, essentially as alternate

Types of solar energy projects

- Photovoltaic versus concentrating solar power
- Ground-mounted versus parking lot and rooftop installations
- Panels (fixed or tracking) versus thin-film

Brownfield and Landfill Solar

- Brockton, Massachusetts 460 kW “Brightfield” with ground mounted panels
- Nellis Air Force Base, Nevada 15 MW from tracking panels on old landfill
- Malagrotta, Italy: 998 kW from PV in landfill cap
- Republic Services, San Antonio, TX – solar demonstration project to incorporate PV membranes in landfill cap
- FPL’s 250 kW solar panel array on closed Bee Ridge Landfill in Eastern Sarasota Co., FL

Brownfield and Landfill Solar, cont'd

- New Jersey Meadowlands Comm. Proposal for 5 MW solar project on Erie Landfill
- FLS Energy to build and operate 1 MW PV array on closed landfill in NC
- Epuron PV array adjacent to G.R.O.W. Landfill owned by Waste Management in Bucks Co. PA

Federal and state technical and financial support

- Web tool to search EPA tracked sites with Google Earth: www.epa.gov/renewableenergyland
- Focus on western states in Programmatic EIS for solar on federal lands and in solar resource mapping.
- Federal financial incentives recently renewed and expanded, e.g., in American Recovery and Reinvestment Act (AARA) of 2009.
- State-by-state listing of state financial incentives at Database of State Incentives for Renewable Energy (DSIRE), at <http://www.dsireusa.org/>.
- Various NYS programs, including NYSERDA PV Incentive Program

Features of an attractive landfill site

- **Closed and capped** in accordance with requirements
- **Contents already settled** and able to bear weight of solar arrays
- **No federal CERCLA obligations** or other open compliance items
- **Large flat, graded, unshadowed** areas for maximum sun exposure
- **Methane extracted**
- **Transmission and interconnection** access (likely to exist if there has been methane capture)
- **No major contamination**, leaks, or groundwater intrusion
- **Receptive** site owner, local officials and neighbors

Challenges

- **Small size of some landfills** may require several sites, possibly in several different localities, to achieve economies of scale
- **Permitting criteria** for local and state discretionary approvals, including zoning requirements, are uncertain
- **Cost** of environmental review and discretionary approval process
- **Careful site evaluation** needed to avoid problematic sites and portions of sites
- **Community concerns**
- **Liability** must be allocated between site owner and project developer
- **Financial assurances** needed for project
- **Compliance record** should be clean

Benefits of siting solar energy on landfills

- Provides productive use and income to landfill owners and municipalities
- Stewardship of contaminated lands
- Aesthetic appeal of solar arrays compared to vacant landfill site
- Unintrusive footings that do not impact cap
- Can allow for larger scale installations

Other benefits of utility-scale solar

- Enhanced energy independence and fuel diversity
- Avoided carbon and other air emissions from fossil-fuel powered sources
- Solar energy production expected to coincide with periods of peak demand
- Installation and maintenance provide green jobs

Suggestions for promoting renewable energy on landfill sites

- **RGGI or NYSERDA funding** to make landfill-based solar economically competitive with other solar, other renewable energy or with emergency “peaking” units
- **Programmatic environmental review** by NYS DEC that sets forth criteria for permitting and best management practices to provide certainty and predictability
- **Closure plan modification process** and other applicable permitting procedures specified by NYS DEC
- **Local zoning** codes can specify areas suitable for renewable energy projects, with or without special permit
- **Survey of landfills** to identify sites with suitable characteristics and infrastructure (EPA only mapped EPA tracked sites)
- **Public support** if premium price required for landfill projects

Questions?

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