



Department of  
Environmental  
Conservation

# Solar Projects at Closed Landfills in New York State

Federation of New York Solid Waste Associations  
Spring Conference

May 4, 2015

# Solar Projects at Closed Landfills

No Part 360 Permit required

Rather,

Modification to Closure Plan & Post-Closure Care Manual

# Solar Projects at Closed Landfills

360-2.15(c) Final Closure Plan

(c)(ii): The plan must meet the requirements of subdivision (k) of this section, including the post-closure monitoring and maintenance operations manual prepared in accordance with paragraph (k)(7) of this section;



# Solar Projects at Closed Landfills

360-2.15(k) Post-closure Operation and Maintenance

(k)(7): A comprehensive post-closure monitoring and maintenance operations manual is required. This document shall provide all information needed to effectively monitor and maintain the facility for the entire post-closure period.



# Solar Projects at Closed Landfills

360-2.15(k) Post-closure Operation and Maintenance

(k)(3): Soil cover integrity, slopes, cover vegetation, drainage structures, and gas venting structures must be maintained during the period of post-closure monitoring and maintenance, or as required by the department.

# Solar Projects at Closed Landfills

360-2.15(k) Post-closure operation and maintenance

(k)(9): A description of the planned uses of the property during and after the post-closure period is required. **Use of the property shall not disturb the integrity of the final cover, liners, or any other components of the containment system, or the function of the monitoring or environmental control systems**, unless necessary to comply with the requirements of Section 360-2.20 of this Subpart. The department will approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.



# Solar Projects at Closed Landfills

DEC's Primary Areas of Concern:

- Protection of Final Cover
- Maintenance of Final Cover
- Protection of Landfill Gas System

# Things to Remember

Placement of Conduit/Foundations (surface, subsurface)

Low Ground Pressure Construction Vehicles

Stormwater/Cover Impacts: erosion, rutting of cover

Inverter/Transformer Location (On-cover, off-cover)

Separation from LFG vents/collection wells

Maintenance of Cover Vegetation





**Preferred method:**  
Surface placement  
of conduit and cell  
foundations







**Alternative method:  
Subsurface  
placement:**

Regularly (~ 20 ft)  
verify depth to  
geomembrane





**Low ground pressure  
construction vehicles**  
- 5 to 10 psi per axle



## Stormwater impacts:

- SPDES as necessary
- Ensure no rutting or erosion of cover soils
- Properly designed access roads





**Precipitation +  
Equipment =**

**Any other  
problems here?**



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## Inverter/Transformer Location:

- Preferred off-cover
- If on cover, proper foundation to distribute load



**Landfill Gas System**  
Appropriate separation  
of LFG vents from  
equipment



## Cover Vegetation - Health



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## Cover Vegetation

- Mowing



## Madison County Landfill



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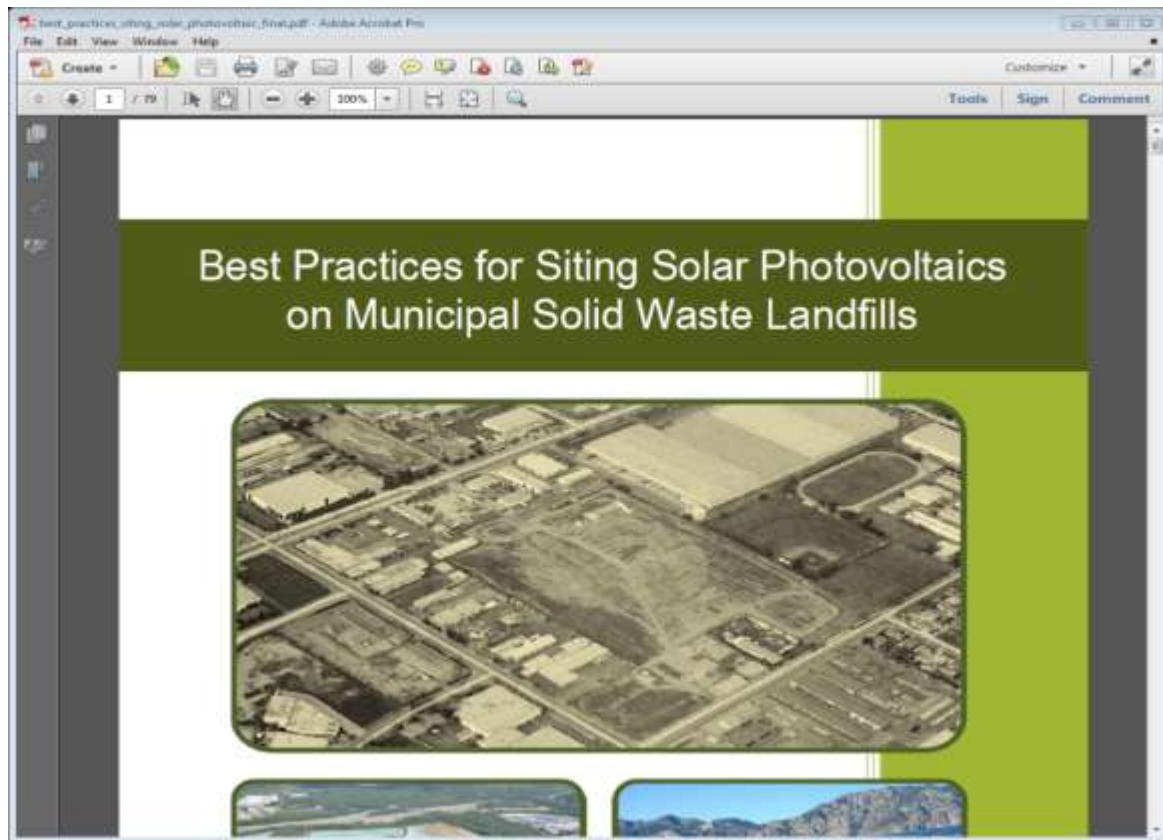
# EPA: RE-Powering America's Land

Siting Renewable Energy on Potentially Contaminated Lands, Landfills, and Mine Sites

<http://www.epa.gov/oswercpa/>

The screenshot shows the EPA website page for 'RE-Powering America's Land'. The page features a navigation bar with 'LEARN THE ISSUES', 'SCIENCE & TECHNOLOGY', 'LAW & REGULATION', and 'ABOUT EPA'. The main heading is 'RE-Powering America's Land' with a sub-heading 'Siting Renewable Energy on Potentially Contaminated Lands, Landfills, and Mine Sites'. Below the heading is a large image of wind turbines. A paragraph of text explains the program's goal: 'EPA is encouraging renewable energy development on current and formerly contaminated lands, landfills, and mine sites when it is aligned with the community's vision for the site. This initiative identifies the renewable energy potential of these sites and provides other useful resources for communities, developers, industry, state and local government or anyone interested in reusing these sites for renewable energy development.' The page is divided into two columns: 'Mapping and Screening Tools' and 'Technical Assistance and Support'. The 'Mapping and Screening Tools' column lists 'RE-Powering Maps', 'National Maps', and 'Site Screening' (with sub-links for 'RE-Powering Screening Dataset (RSDS)', 'Site Decision Tree (SDT)', 'DQ, DQ, DQ, DQ, DQ', and 'DQ, DQ, DQ, DQ, DQ'). The 'Technical Assistance and Support' column lists 'EPA / RSDS Feasibility Studies', 'Solar', 'Wind', and 'Geothermal'. On the right side, there is a 'Subscribe' section for 'EPA's RE-Powering Database', a 'Highlights' section with links to 'RE-Powering Database', 'RE-Powering Sites - RSDS', 'RE-Powering Tracking Matrix (RTM)', 'RE-Powering Action Plan 2.0', 'RE-Powering Eligibility Reference Guide', and 'Sector Study - Solar'. Below this is a 'Why Use Renewable Energy Projects on Contaminated Lands?' section with an image of a solar farm and text stating 'Formerly contaminated lands, landfills, and mining sites offer developers a unique value proposition for renewable energy development.'

# EPA Guidance



Google it



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# EPA Solar Screening Study

EPA R2 is very supportive of Landfill/Solar projects

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212-637-4346

Vince Pitruzzello: [Vince.Pitruzzello@gmail.com](mailto:Vince.Pitruzzello@gmail.com)  
914-606-0103





# EPA Solar Screening Study

- Background research on site
- Site-specific screening assessment of solar potential
- NYSERDA & PSC contacts
- Transmission/Utility Resources
- Estimated PV System Size and Costs
- Summary of Applicable Incentives



# EPA Solar Screening Study

Similar assessments are also available for municipalities with Phase 1 or Phase 2 Brownfields

# Conclusion

DEC's Primary Areas of Concern:

Protection of Final Cover

- Maintenance of Final Cover
- Protection of Landfill Gas System

Guidance under development

# Thank You

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