

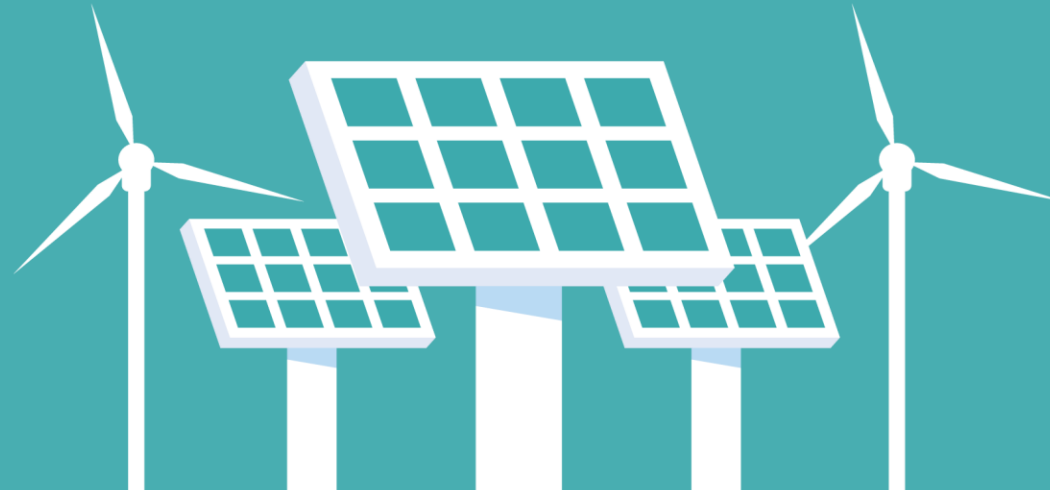
# Coal Ash Disposal Sites and Opportunities for Solar Photovoltaic Development

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*Team Leader, RE-Powering America's Land Initiative*

Presentation to USWAG

*November 3, 2023*



# Today's Presentation

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**Introduction**

2

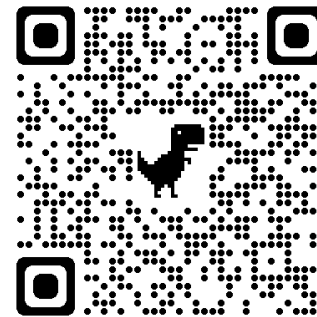
**Coal Ash Solar Report**

3

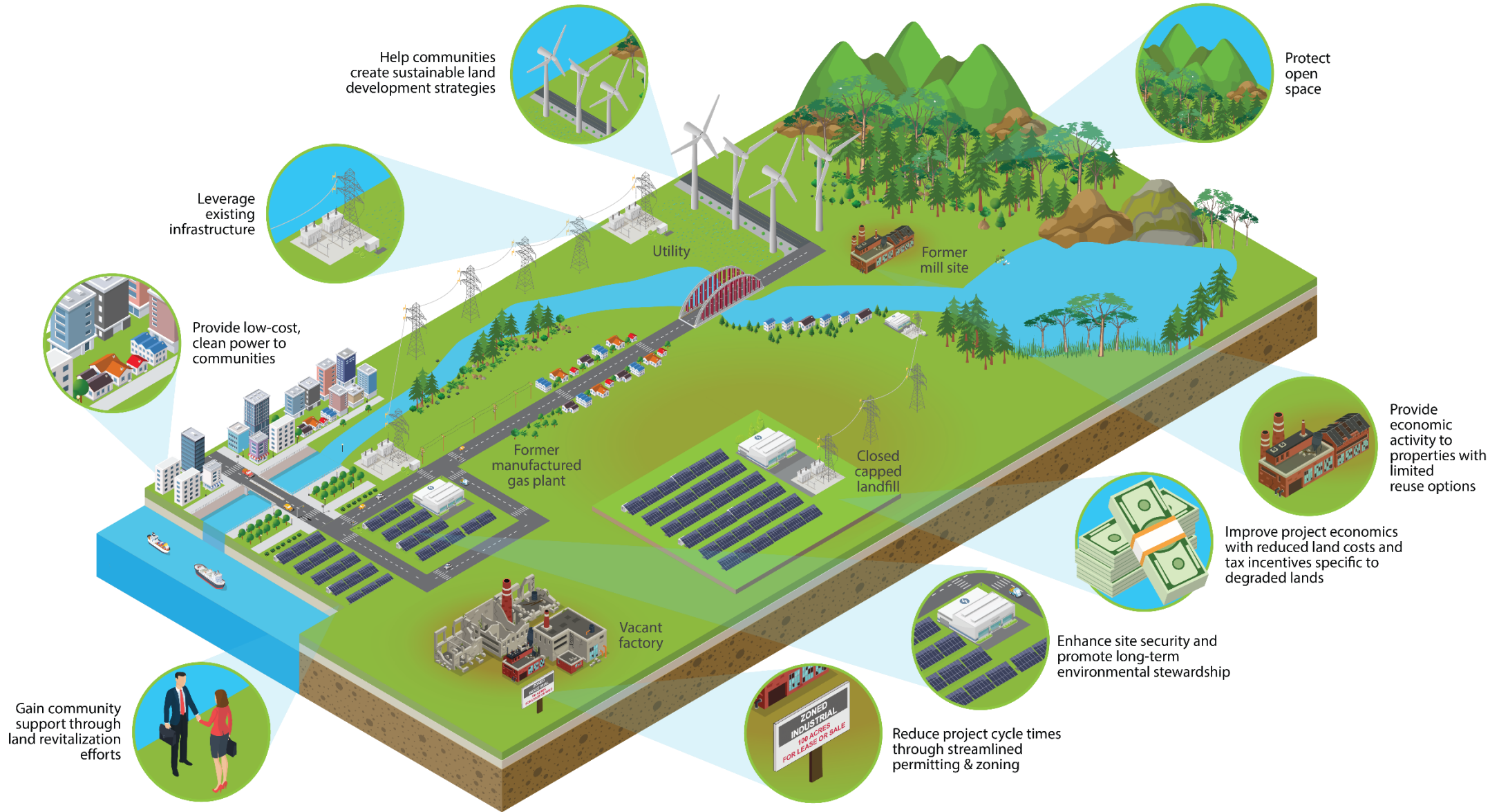
**Project Examples**

4

**IRA and Other Considerations**



# Why Renewables on Potentially Contaminated Lands?



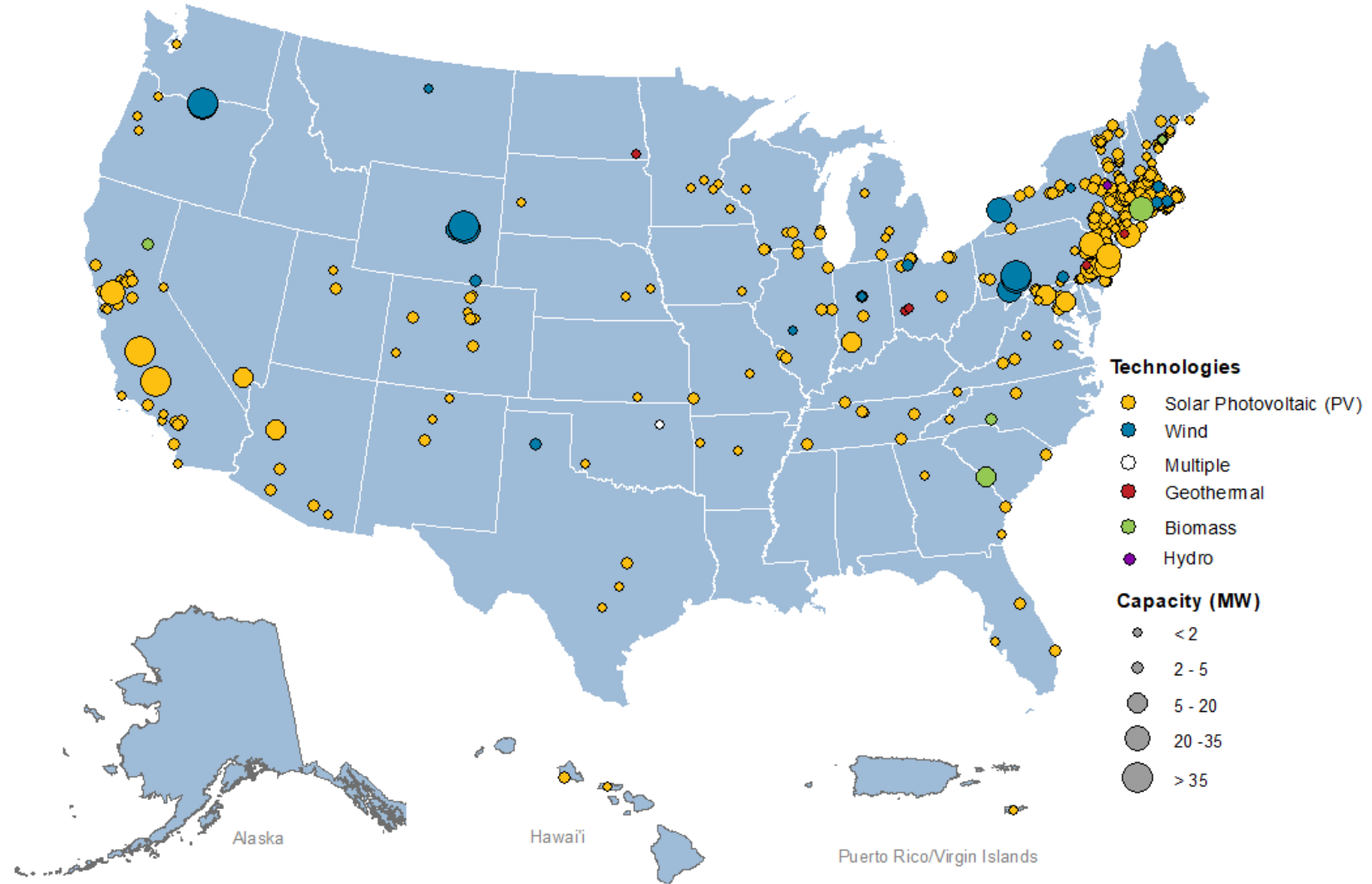
# RE-Powering America's Land Initiative

- Encourages the reuse of formerly contaminated lands, landfills and mine sites for renewable energy development, when such development is aligned with the community's vision for the site.
  - Raises awareness, creates connections and outreach
  - Disseminates success stories and best practices
  - Develops mapping and screening tools to identify contaminated properties and renewable energy potential
  - Provides technical and programmatic assistance
    - Liability questions
    - Renewable energy feasibility studies with NREL – National Renewable Energy Lab
  - Articulates benefits – environmental, economic and community



# Completed Projects on Contaminated Lands

*502 Renewable Energy Projects, Over 2.4 Gigawatts Installed Capacity*



# Site Types

- Landfills are most frequent site type developed with solar installations
- Utilities both own and develop RE-Powering sites
- Coal ash sites -
  - Seven coal ash repositories have solar installations
  - An additional four more coal ash sites are planned for future solar installations

## NUMBER OF INSTALLATIONS BY SITE TYPE

Solar and wind projects on Landfills	<b>303</b>
Renewable energy projects on brownfield sites	<b>111</b>
Renewable energy projects on Superfund sites	<b>85</b>
Renewable energy projects on current/former federal facilities	<b>28</b>
Renewable energy projects on RCRA corrective action sites	<b>22</b>
Renewable energy project on mine sites	<b>26</b>

<https://www.epa.gov/re-powering/re-powering-tracking-matrix>



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# Coal Ash Disposal Sites and Opportunities for Solar

- In June 2023, EPA and NREL released the report: ***Coal Ash Disposal Sites and Opportunities for Solar Photovoltaic Development***
- EPA recognizes CCR landfills have potential to
  - Use otherwise vacant land
  - Connect directly with grid
  - Manage costs of post-closure care
  - Generate revenue for utility and local government
  - Help meet Administration goals including Executive Orders on revitalizing coal-based communities



The Orlando Utility Commission's (OUC) Community Solar Plant on a site that includes a coal ash landfill.

*Photo courtesy of OUC*





## Site List

- EPA conducted desktop analysis of hundreds of CCR Sites
  - Units reviewed include regulated under 2015 CCR rule
  - Identified closed units as best situated to move forward w solar projects
- Findings positive for solar at all 64 coal combustion residuals (CCR) landfills and surface impoundments
  - Close to transmission
  - Size of site
  - Solar resource
  - Other favorable renewable energy project development criteria
- Site list may not include all CCR sites suitable for solar
- EPA recognizes there maybe other older units suitable for solar – one example is the OUC CCR site



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# RE-Powering Case Study

## Alliant Energy's Rock River Solar Plant

- The Alliant Energy Rock River Solar project is in Beloit, WI and commissioned in 2016.
- In the next presentation you will hear more about this project from Alliant Energy.



# RE-Powering Case Study

## Orlando Utility Commission's Community Solar Plant

- The Orlando Utility Commission (OUC) project is in Orlando FL and was commissioned in 2017.
- The project is a 13-MW community solar project partially located on a 24-acre CCR landfill.
- The developer sells power to the OUC to support a community solar subscription tariff with a portion of the output supplying city government.
  - The project helped the City of Orlando municipal operation to procure renewable energy without siting projects on rooftops.
- Solar panels on the CCR landfill portion of the project ballasted to minimize cap impact.



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# Inflation Reduction Act (IRA) Changes

The IRA has extended tax equity benefits until 2032 and created new monetization options beyond traditional third-party tax equity project finance partnerships.

## Before IRA Passage

- ITC expiring
- Difficult to monetize tax credits
- Complex storage eligibility
- Complex tax equity project financing structures

## After IRA Passage

- ITC extended to 2032
- Storage ITC is explicit now through 2032
- PTC option through 2032 now for solar can help larger projects
- ITC/PTC transferability options
- Adders for domestic content, prevailing wages, low income and energy communities
- Direct pay for NFPs, municipalities, Schools, churches
- Utilities owning renewable energy can now monetize incentives on par with developers



# Suggested Next Steps

- Next Steps for your consideration
  - Examine our Report
  - Examine Site List
  - Identify your utility's portfolio of CCR and other sites for solar
    - Apply Key Factors to sites
    - Compare your utility's sites to the examples and the sites on the Site List
  - Discuss with other key departments at your utility: legal, regulatory, generation development and other teams
  - Engage with EPA as needed



**Thank you!**

**[Strine.lora@epa.gov](mailto:Strine.lora@epa.gov)**

**Please use the QR code to access today's webinar materials:**





# Appendix



# Installed Capacity

*Overall capacity of renewable energy on contaminated lands has increased consistently over time since 2007. Renewable energy capacity includes solar, wind, biomass and geothermal.*

