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BROWNFIELDS

REDEVELOPMENT

Building Sustainable Communities

CONVERSION OF BROWNFIELDS TO RENEWABLE GREENFIELD ASSETS

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Brownfield to Greenfield – Renewable Asset Conversion

- **EPA Office of Solid Waste and Emergency Response (OSWER) Center for Program Analysis (OCPA),** *Siting Clean and Renewable Energy on Contaminated Lands and Mining Sites Initiative*
- **Evaluation of contaminated sites (Superfund, RCRA, Brownfields, and abandoned mine sites) for renewable resource potential**

- **Community wind energy - Wind power class of 3 or greater.**
- **Utility scale wind energy - Wind power class of 4 or greater.**
- **Utility scale Concentrating Solar Power (CSP) - 6 kWh/m2/day or greater.**
- **Utility scale Photovoltaic solar energy (PV) - 5 kWh/m2/day or greater.**
- **Biopower facility - Biomass resources of 140,000 metric tons/year or greater within 50 miles.**
- **Biorefinery facility - Crop residues of 333,000 metric tons/year or greater within 50 miles.**

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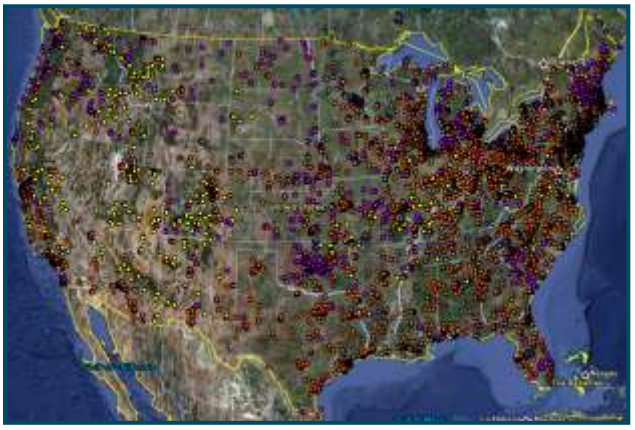
EPA's OSWER Database

- Approximately 480,000 sites totaling over 15 million acres tracked by the EPA



- Cleanup goals agreed and controls in place for nearly 850,000 acres

EPA Tracked Sites
- Abandoned Mine Land
- Brownfield
- RCRA
- Federal Superfund
- Non-Federal Superfund

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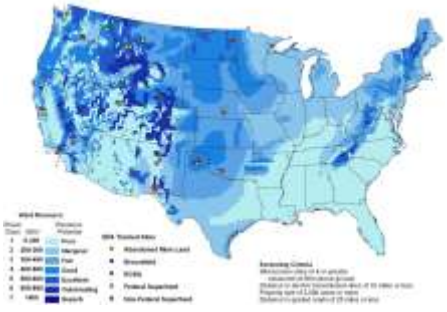
Utility-Scale Solar and Wind

EPA Tracked Sites with Utility Scale Wind Energy Generation Potential



EPA Tracked Sites with Utility Scale Photovoltaic (PV) Solar Energy Generation Potential

- EPA works directly with the DOE National Renewable Energy Laboratory (NREL) to identify sites with wind, solar, and biomass efficacy
- EPA supports pilot projects at many of the potential sites for preliminary evaluation purposes

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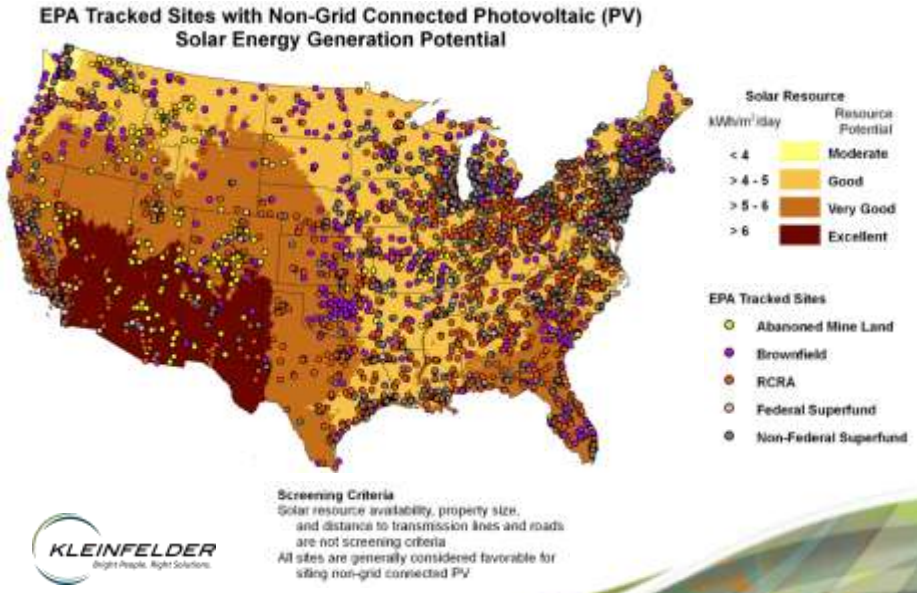
Distributed Generation…Looking Better



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Why Brown to Go Green (Renewable)?

Lets go down the list:

- ✓ **Less likely to be met with aesthetic opposition**
- ✓ **Proximal transmission with available capacity**
- ✓ **Other critical infrastructure and zoned appropriate for use**
- ✓ **Lower overall transaction cost**
- ✓ **Less competition for development than greenfield property**
- ✓ **Potential to reintroduce jobs at closed operations**
- ✓ **Willingness of agency coordination and corroboration**
- ✓ **Backing of influential community stakeholders**

"The Crux of the project is managing the opposition."

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Harbor Sunrise Industrial Wind Project

- **Provides clean energy to up to 11,000 homes for a community-scale development**
  - ✓ **Reliable coastal wind resources**
  - ✓ **Construction on an earthen levee surrounding an active dredged material placement area (DMPA) with continued DMPA operation**
  - ✓ **Economic benefit through local job creation and increased tax base**
  - ✓ **Anticipated minimal impact to wildlife (including birds and bats) due to existing and prolonged industrial activities**
  - ✓ **Reduced development cost due to Port access**

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Strip Mine Reclamation Wind Project

- **Commercial-scale 60 MW wind energy facility located on an abandoned coal strip mine in central Pennsylvania**
  - ✓ **Reliable proven wind resources**
  - ✓ **Provides economic benefit to rural communities with minimal tax base**
  - ✓ **Re-use of previously abandoned properties**
  - ✓ **Available infrastructure from previous mining activities (roads, buildings, power, etc)**

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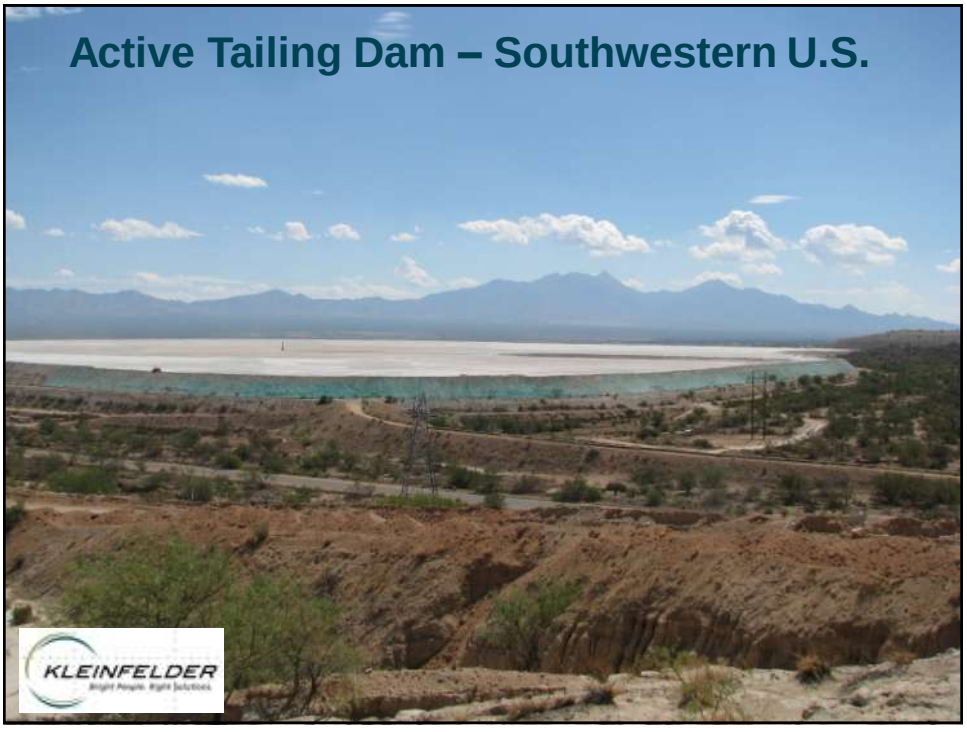
Active Tailing Dam – Southwestern U.S.
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New Dam
Old Dam
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Just About "Dam" Perfect for Solar
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APS Power Line
Tailings Dams - 6800 acres
69 kV Incoming Substation
If only ½ of the available land was suitable it would support at least 350 MW of PV or CSP solar, and possibly up to 650 MW
Waste Rock Piles - 4200 acres
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THANK YOU

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