

Through its RE-Powering America's Land Initiative, the U.S. Environmental Protection Agency (EPA) encourages renewable energy development on current and formerly contaminated lands, landfills, and mine sites when aligned with the community's vision for the site.

Building on an existing tool, the RE-Powering Initiative expanded screening to more than 80,000 EPA- and state-tracked sites, comprising over 43 million acres. Using screening criteria developed in collaboration with the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL), each site was screened for the potential to develop solar, wind, biomass and geothermal facilities at various scales.

### What is wind energy?

Wind energy is captured by wind turbines with propeller-like blades mounted on a tower. The force of the wind causes the rotor to spin and the turning shaft spins a turbine to generate electricity. Wind technology is scalable; based on site conditions, different turbine designs can be used to meet different electricity needs. The following types of wind production were evaluated:

- **Utility scale** – Uses large turbines at the multi-megawatt (MW) scale on sites with the greatest resource and acreage availability. Electricity generated is typically exported to the grid.
- **Large scale** – Represents sites with less acreage than utility scale wind sites, potentially using smaller or fewer turbines. Electricity generated may be distributed to the local area through the distribution system, often serving adjacent properties.
- **1-2 Turbine sites** – Represents sites with limited acreage, potentially using a range of turbine sizes. Electricity generated may be distributed to the local area through the distribution system, often serving only adjacent properties.
- **Off-grid**– Uses smaller and fewer turbines on a much smaller scale, typically to power the energy needs of a single property when interconnection to the grid may not be feasible.

### What are some examples of wind facilities being successfully sited on contaminated land?

The Pantex site, located in Amarillo, Texas, is the only federal nuclear assembly and disassembly facility in the United States. The site includes an 11.5-MW wind installation, dubbed the [Pantex Renewable Energy Project](#), or PREP, on 1,500 acres overlying a portion that contains contaminated groundwater. The wind farm helps Pantex meet nearly all of its renewable energy goals by providing more than 60% of the plant's annual electricity needs, while making use of a contaminated property currently under the authority of Superfund and the Resource Conservation and Recovery Act. Ongoing remedial actions target restoration of the perched aquifer to protect the underlying Ogallala Aquifer.

For more information on completed wind and other renewable energy projects on contaminated lands, landfills, and mine sites, check out the [RE-Powering Project Tracking Matrix](#).

### How much wind potential exists on contaminated sites?

#### Utility Scale – 3,556 sites

- Wind speed measured at 80 meters above ground  $\geq 5.5$  m/s
- Acreage  $\geq 100$  acres
- Distance to transmission lines  $\geq 10$  miles
- Distance to graded roads  $\geq 10$  miles

#### Large Scale – 5,594 sites

- Wind class measured at 80 meters above ground  $\geq 5.5$  m/s
- Acreage  $\geq 40$  acres
- Distance to transmission lines  $\leq 10$  miles
- Distance to graded roads  $\leq 10$  miles

#### 1-2 Turbine – 10,669 sites

- Wind class measured at 50 meters above ground  $\geq 5.5$  m/s
- Acreage  $\geq 2$  acres
- Distance to transmission lines  $\leq 1$  miles
- Distance to graded roads  $\leq 1$  miles

#### Off-Grid – 13,948 sites

- Wind class measured at 50 meters above ground  $\geq 5.5$  m/s
- Acreage  $\geq 0.25$  acres

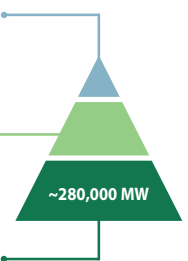
### Estimating Total Technical Potential

#### Wind Technical Potential for EPA Tracked Sites: More than 280,000 MW

**Market potential** – The portion of the economic potential that could be achieved given current costs, policies and technical constraints.

**Economic potential** – The portion of the technical potential that is economically viable, but requires additional policies to break down market barriers.

**Technical potential** – Potential that is technically possible, without consideration of cost or practical feasibility.



### Technical potential estimates renewable energy development at various percentages of total acreage screened using the RE-Powering Mapper

10% OF ACRES	25% OF ACRES	50% OF ACRES	100% OF ACRES
OVER 28,000 MW	OVER 70,000 MW	OVER 140,000 MW	OVER 280,000 MW

For more information, visit [www.epa.gov/renewableenergyland](http://www.epa.gov/renewableenergyland) or contact [cleanenergy@epa.gov](mailto:cleanenergy@epa.gov)