

Renewable Energy Facility Decommissioning: Industry Recommendations



Background

Renewable energy¹ provides significant benefits to the United States and host communities, with over 415,000 jobs spread across all 50 states. Wind and solar projects paid \$2.0 billion annually in state and local taxes and landowner lease payments. Renewable energy project developers prioritize being good neighbors and long-term partners with host communities. Since wind, solar, and storage projects will operate for 25 years or more, developers recognize and understand the need to address concerns about what happens to wind turbines, solar panels, or batteries once they reach the end of their useful life. **It's crucial to know that landowners and host communities are never responsible for the costs associated with removing a renewable energy facility's equipment once they've reached their end of life cycle.**

Before a project is built, developers create a plan for removing equipment and restoring landowners' property to a useful condition similar to preconstruction conditions when the project is no longer operational. This process is called decommissioning. Many local municipalities and state governments require decommissioning plans as a permitting condition.

The following are industry recommendations for key provisions of decommissioning plans or rules and specific measures that reasonably balance community and industry interests.

Core Elements of Decommissioning

Decommissioning Plan Development

- Prior to the construction of a new project, during the permitting phase or prior to construction of a new project, a developer prepares a Decommissioning Plan that becomes part of the lease agreement or condition of the project permit.
- A Decommissioning Plan is updated periodically over the life of a renewable energy facility to account for new technologies and processes for decommissioning, salvaging, or repowering a renewable energy facility.

Decommissioning Requirements

- The Decommissioning Plan describes the removal of a renewable energy facility's above-surface facilities and infrastructure that have no ongoing purpose or value, and underground facilities to a minimum depth of three feet from a landowner's property at the end of the renewable energy facility's operational life.
- The Decommissioning Plan includes a detailed blueprint to return the property to a useful condition, similar to preconstruction condition.
- In some cases, instead of removing all project equipment, a property owner and renewable energy facility owner may also reach an agreement concerning alternative restoration of buildings, roads, or any other associated facilities, such as transmission or collection lines.

¹ Renewable energy is a term being used to describe multiple different renewable energy generation technologies, most commonly wind energy, solar energy, and battery storage.

Costs

- The Decommissioning Plan typically includes an estimated cost for decommissioning the project and restoring the landowner's property, which is paid for by the renewable energy facility owner/operator (refer to Financial Assurance below).
- Costs include disassembly, removal, and disposal of renewable energy facility components and restoration of the land.
- The cost should also include a credit for the salvage value of renewable energy facility wind turbine components. Most of the material in solar panels, batteries, and wind turbines, have substantial salvage value and are recyclable. Wind turbine blades require different strategies (See [Wind Turbine End-of-Life Strategies factsheet](#)).

Financial Assurance

- Financial assurance for decommissioning a wind farm is typically equal to the estimated decommissioning cost minus salvage value and provided to the beneficiary within the timeframe defined in the land agreement(s) or permit.
- Financial assurance may be in the form of a performance bond either as, or in combination with, a surety bond, irrevocable letter of credit, self-guarantee, or parent company guarantee.

Decommissioning Implementation Timeframe

- If a renewable energy facility has not produced electricity for a specific amount of time as defined in the lease agreement or permit conditions, or for a maximum period of 24 consecutive months, the renewable energy facility is considered to be at its end-of-life and will be decommissioned as outlined in the Decommissioning Plan.
- Decommissioning typically begins within 18 to 24 months of the end of operations of the facility and is typically completed within 12 to 24 months of the commencement of removal.
- Alternative strategies for end-of-life renewable energy facility planning may include updating the above ground equipment (e.g., wind turbines, solar panels or batteries) by either replacing older equipment with new, more productive turbines or replacing the original turbine parts with new, more efficient technologies. This is often called "repowering" the facility to continue its commercial operational life, providing clean, efficient, low cost energy.

