

## Process Checklist

# Brownfields Renewable Energy Siting

The following checklist provides a flexible guide for integrating renewable energy activities into the brownfields assessment, cleanup, and reuse process. Site-specific conditions may lead to implementing some key considerations during steps that differ from those specified below.



## Step 1: Screen Site and Environmental Conditions

### Is my site large enough for renewable energy?

The [RE-Powering Mapper](#) is a useful resource to identify favorable site-specific conditions for renewable development. Several brownfield sites are smaller than two acres, below the typical size threshold of five acres for utility-scale renewable energy development. However, other options for small brownfield sites include small community-scale projects that serve nearby development or disadvantaged neighborhoods, or renewable energy that provides just for on-site electricity needs. The [RE-Powering Tracking Matrix](#) has examples of Brownfields sites used for small-scale projects, where less than 300 kilowatts of solar were developed and projects typically required less than two acres.

### Are the local solar or other energy resources sufficient to support renewable energy development?

The brownfield site should be screened for basic renewable energy resource potential before it can be considered for renewable development. Some sites or renewable uses, such as biomass or geothermal energy projects, may require more in-depth analysis for renewable energy potential. The National Renewable Energy Laboratory (NREL) maintains useful energy resource maps with national-scale data to evaluate [solar](#) and [wind](#) resources.

### Is cleanup needed on the site? Who is the lead cleanup agency?

**Some potentially contaminated or underused properties will require little or no cleanup** after undergoing an environmental assessment. Others will require minimal to more substantial cleanup before the sites can be returned to productive reuse.

With brownfields, the state agency or Tribal entity is typically the lead cleanup regulatory entity and sites are addressed [under state or Tribal-led Response Programs](#). EPA partners with states and Tribes to provide resources and funding opportunities to brownfield properties. Coordinate with property managers at the state and Tribal level to keep up to date with current site conditions and environmental assessment process. The RE-Powering Mapper contains point-of-information contacts for each site in the Mapper.

**☐ Have you confirmed the willingness of site owners and the community to consider renewable energy development? Are there any local moratoriums on new renewable energy projects?**

It is critical that the reuse of a site matches both community priorities for redevelopment and remains protective of human health and the environment in the long-term. Discuss the potential development with site managers or project officers, the community, and local government to confirm willingness to consider renewable energy on site and work to integrate renewable energy into local redevelopment planning efforts.

**☐ Identify potential non-contaminated areas based on sampling results and confirm site suitability for renewable energy.**

[Brownfield sites](#) are assessed via Phase I and Phase II Environmental Site Assessments (ESAs), often just referred to as a Phase I or Phase II. Once a Phase I ESA and if necessary, a Phase II ESA, have been completed, use site sampling results to identify potential contamination, sources, and best locations for renewable energy development. Areas that have been sampled and are ready for reuse without cleanup actions may be considered immediately for renewable energy development.

Consider the site terrain conditions and climate concerns that may impact the long-term protectiveness of a remedy and the operations and maintenance of the renewable facility. Are there site preparation concerns, such as shading or leveling the ground, that could be considered during the cleanup phase of the Brownfields process that would benefit renewable energy feasibility?



Brownfields Phase I and Phase II ESAs are key steps in the information gathering process for cleanup. Many brownfield sites are plagued by the perception of contamination, rather than actual contamination on site, and can be ready for redevelopment immediately. However, for Brownfields with contamination, renewable energy developers should understand how long remedial investigations are expected to take at their sites when establishing a site control strategy. This will help ensure that site control options or other contract mechanisms extend sufficiently long and will help avoid undue financial commitments by the developer before the investigation phase is complete.

**☐ Have you evaluated the project economics of a renewable project on site? What are the approximate local wholesale and retail prices for electricity?**

A renewable energy project's economic feasibility can depend on many factors, including permitting requirements, transmission or distribution interconnection locations, technology and complexity, local electricity prices. The economic feasibility needs to incorporate costs related to the site's environmental conditions, including necessary cleanup costs and timeline. Incorporate the findings of the Phase I and Phase II ESA reports into the renewable energy development timeline and the impacts to the renewable energy cost analysis.

## Step 2: Integrate Renewable Design, Cleanup, and Reuse Planning

### Incorporate Renewable Energy into Cleanup and Reuse Planning

Conduct a detailed analysis on ways to incorporate renewable energy design requirements into cleanup process in collaboration with appropriate state, Tribal, or local officials as needed (e.g., solar panel integrated landfill caps). Coordinate discussions about reuse of the site with community members and local government staff to ensure renewable energy is a desired outcome, all zoning and land use considerations required by the local government are adhered to, and fits with the reuse plans for the site.

### Have you considered any Institutional Controls or other limitations required by cleanup into renewable design?

Take note of any engineering or institutional controls (ECs and ICs) required on site. Consider these controls in the renewable energy design, including soil grading/disturbance, slope, cap or cover design, stormwater management, soil stability, and anchoring.

Confirm the design, operations, and maintenance of the renewable energy facility will not interfere with any remedial activities (e.g., groundwater monitoring sampling, extraction well operation, remedy operations and maintenance), ICs, and/or ECs in place. Ensure that ECs and/or ICs comply with renewable energy leases or other agreements.



As noted above, there may be no cleanup required on your brownfield site, depending on the ESA results. This step provides an opportunity to incorporate renewable energy reuse options on areas of the property where cleanup is not taking place or as a future use for the property when the cleanup is complete.

### Continue Stakeholder Engagement Activities

As the cleanup and reuse planning and design activities of the renewable energy project continues, invest time in community meetings and other public outreach with local governments to keep stakeholders informed and involved as appropriate. Many projects require land use review by local departments such as planning review boards or other permitting bodies and projects should consider the necessary approvals and timeline when estimating project periods and associated risks.

Consider opportunities to participate, as appropriate, in public meetings held during the brownfield or local reuse planning process to respond to any community concerns as they arise on the integration of renewable energy into the cleanup.

### Identify Renewable Energy Specific Budget and Process Approvals and Permits

With the final cleanup plan in hand, finalize the design for the renewable energy project based on site understanding. Gather final cost information on constructing a renewable energy facility separate from the cleanup budget. Determine long-term site ownership with state and local partners and decide the ownership structure for the renewable energy project.

Assist the renewable developer to determine what permits are necessary and what environmental, engineering, or other studies are recommended. Permits, such as land use, environmental, siting, building, or other permits, may be required. Review applications for interconnection and net-metering agreements to the appropriate local utility.

### Step 3: Implementing Cleanup and Renewable Energy Project

**Are you actively coordinating construction activities across the cleanup and renewable energy teams?**

Hold meetings between the cleanup team (e.g., state or Tribal brownfields team, EPA, other contractors) and the renewable energy development team to examine ways to coordinate construction activities. Consider including community or local government stakeholders to minimize the impacts of construction activities on communities.



Renewable energy development can begin at this stage progressively as areas complete cleanup activities. During cleanup, renewable energy development should not interfere with the implementation and protectiveness of the brownfields cleanup process.

**Have you confirmed that ECs and ICs are in place?**

Inspect cleanup and renewable energy infrastructure to ensure the cleanup protectiveness is not compromised during any construction. Confirm that the ECs and ICs for the site are in place and are being followed. Some voluntary cleanup programs may require third-party installation inspections to ensure that ECs and ICs are adhered to during the renewable energy development process.

### Step 4: Operate and Maintain

**Ensure Remedy Protectiveness is Intact**

Inspect cleanup infrastructure to ensure the protectiveness of the cleanup is not compromised by renewable energy development activities.

**Have you checked that ECs and ICs are in place and being adhered to?**

Ensure that ECs and ICs are being adhered to as the renewable energy site operates, that energy facility operations and maintenance do not interfere with any other monitoring activities, and that site access and cooperation agreements are in place for all relevant parties.