Know Before You Go...

...to the Brightfields Market

Frequently Asked Questions When Planning for Brightfields Procurement

Installing clean energy on a brownfield — also known as a "brightfield" — can be a great way for communities to reactivate contaminated sites and meet their renewable energy goals or offset growing power demand. However, procuring clean electricity for a brownfield can have unique challenges. Below are a few frequently asked questions with market-based lessons from RMI's **Brightfields Accelerator** and four energy developers with experience building brightfields to help communities navigate the planning and procurement process.

Why should I consider siting clean energy on a brownfield or closed landfill?

Deploying clean energy on brownfields to convert them into "brightfields" is an often overlooked, under-discussed opportunity that offers a few core benefits:

- Clean energy (typically solar, though sometimes wind and battery storage) can safely reactivate a site often without requiring major cleanup (compared to other potential reuses).
- Clean energy is one of the few cost-effective reuse options for brownfield sites like former mines and closed landfills.
- Brownfields are often located in areas with existing electrical infrastructure and transportation access that could be repurposed to support clean energy projects.
- Larger industrial brownfields are not as often located near residential areas so there are fewer aesthetic concerns and public support is typically greater for siting on brownfields compared to greenfields.
- When a brightfield is planned in or near a residential area, the project — likely solar — can help reactivate parts of a neighborhood without changing a neighborhood's character.
- In some cases, deploying clean energy on these types of underutilized, hard-to-redevelop sites can generate modest local tax revenue or other lease payments to reinvest in communities.

Project Snapshot

At the former Bethlehem Steel site in Lackawanna, NY – the largest steel plant during World War II – CleanCapital installed 35 megawatts (MW) of wind, followed by 15 MW of solar. Because of the facility's previous use, there was ample existing electrical capacity at a nearby substation. CleanCapital was able to utilize the existing infrastructure on-site and meaningfully reduce the energy development costs typically associated with new electricity infrastructure.

Can this be done safely?

Yes! According to the **US Environmental Protection Agency**, in the United States as of October 2024, there are over 624 brightfields in the United States, and over 338 of those are on closed landfills (or landfill buffer areas). Multiple states now have specific guidelines and processes to permit such projects, and an increasing number of energy developers now have experience building these projects responsibly. We recommend that anyone considering building a brightfield specifically evaluate proposals for relevant qualifications and experience. See competitive procurement discussion below for additional details.

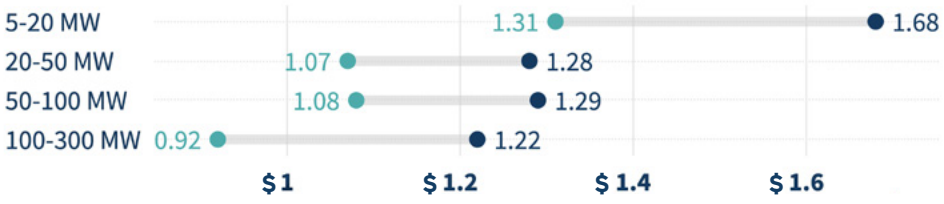
Project Snapshot

A family-run auto junk yard in Morrisville, VT, was struggling to meet its annual compliance requirements. The owners wanted to redevelop the closed portions of their junkyard to meet the requirements and cover some costs. Understanding their priorities, Encore Renewable Energy designed a 2.1 MW solar project so that the business would receive lease payments for hosting the renewable energy and selling the electricity generated to the Vermont Public Power Supply Authority. This allowed the business to leverage their land to add another revenue stream.

How large should my site be to host a brightfield?

- Consider sites with at least 5 acres of developable area. As a rule of thumb, 5 acres can support approximately 1 MW of solar. Developable area typically means unobstructed or clearable land that is relatively flat or moderately sloped. If the estimated acreage is under 5 acres, we generally recommend stopping here and exploring another site unless this site would be of high value to the community.
- In certain markets or circumstances, adding a battery may make the site more economically viable.
- Appropriately sizing your project is important: a project should only be as large as the local grid capacity can cost-effectively support and the energy buyer — or offtaker — needs.
- In general, larger projects benefit from economies of scale. The larger the project, the lower the cost is per watt (W) of power. For example, recent installed costs for utility-scale solar show a meaningful drop in price for projects larger than 20 MW.

Median and 20th Percentile Installed Costs in $/W (2022)



Source: Lawrence Berkeley National Laboratory, "Utility-Scale Solar, 2023 Edition"

Who buys the electricity produced from the project on my site?

Developers particularly look for “MUSH” offtakers — municipalities, universities, schools, hospitals. Longer project contract durations allow for ample time to finance upfront costs and benefit from low operational expenses, so companies and organizations with little risk of going out of business are your best options. While this is not necessary at the site redevelopment stage, developers will be particularly inclined to respond to a proposal if potential “MUSH” offtakers are proposed or identified. In states where it is enabled, a community solar "aggregator" may be another compelling energy buyer. Individual homeowners, renters, and businesses without adequate land or roof area for solar can then subscribe to a community solar program to receive the benefits of solar energy generation.

If I need to do a competitive procurement, should I do an RFQ or RFP?

- Whether you release a Request for Qualifications (RFQ) or a Request for Proposals/Pricing (RFP) depends on the complexity and readiness of your site and project.
- For more complex projects, your goal should be to find a partner. Consider using an RFQ so you can rate the proposals based on qualifications, including, but not limited to, previous experience, financial capacity, and references. Ultimately, you will be working with the developer over the next few years, and you want to choose a developer you are comfortable with. In these more complex cases, it is highly unlikely that a developer will be able to give you an accurate quote in a proposal years before construction starts. That said, you can design the process to still have negotiating power later down the line when the developer determines the price.
- If you think you have a more straightforward site, your goal should be to find a qualified partner and get a quote. Consider issuing an RFP (or joint RFQ-RFP), so long as you include qualifications as a meaningful score (or eligibility threshold) to ensure you are reviewing proposals from qualified respondents for your site and needs.

Project Snapshot

The Township of Old Bridge, NJ, wanted to bring clean energy to a closed landfill but faced challenges like an unclear land title and a backlog of property liens. The Township selected AC Power, a developer specializing in brownfields, to help them navigate the process, resulting in a 2.8 MW community solar project on the Superfund site. The project allowed the Township to start generating revenue from a Payment in Lieu of Taxes agreement, provided discounted power to low-to-moderate income (LMI) communities, and supported a workforce development program with the local community college.

When should I bring in a developer?

Developers often appreciate being part of the planning early on so they can weigh in on necessary cleanup, if any landfill cap or site repairs are required before project construction, energy offtaker discussions, and/or what other partners might be necessary. If you’re unsure, feel free to reach out to RMI’s Brightfields Accelerator team for specific technical assistance prior to approaching the brightfields market.

What makes a developer more likely to respond to your request?

Green Flags (More Likely to Respond)	Red Flags (Less Likely to Respond)
The site owner offers developers creativity and flexibility in project execution. This helps developers understand whether they will have options for working around unexpected project- or site-related challenges that may arise.	**The site owner has a lack of understanding of the regulatory environment or the site conditions** and they want the developer to be able to figure everything out on their own. The site owner should do their best to determine site conditions in advance and have an understanding of how the state will approve a permit for the site.
The site owner identifies a customer with strong credit to buy the power generated at the site – ideally a MUSH customer – municipality, university, school, or hospital.	**The RFP is only focused on the site with no identified customer or electricity buyer.** It's not required that the site owner figure out all the details of who will buy the electricity, but they should, at a minimum, develop a list of options.
The procurement document clearly communicates the project priorities and goals. This helps the developer shape the project to best fit the needs of the community.	**The site owner sets unrealistic expectations about project costs or revenue generation.** Instead, if generating revenue is a priority, the site owner should state this and any additional context clearly in the request.
The site owner demonstrates evidence of collaboration with state or federal agencies and/or knowledgeable technical assistance providers. This shows the developer investment and commitment to the project.	**The site owner expects the developers to clean up contaminated sites.** Site cleanup can sometimes be included in the developer's work at a cost but typically the site owner is responsible for cleanup.

Project Snapshot

Montgomery County, MD, wanted to redevelop their closed landfill to generate clean energy for the county and provide low-cost energy to low- to moderate-income (LMI) communities. They issued a short, clean RFP, and listed their goals and specifications clearly in the request, including, but not limited to:

- "The County is specifically seeking a third party to design, install, own, operate and finance a solar energy project hosted on the County's Oaks landfill…"
- "All vendors can presume that the system will be ballasted or floating on the landfill cap with no penetrations or digging within the capped areas."

Ameresco was selected by the County to develop the 6 MW project. The County was the offtaker of one-third of the capacity, enabling the remaining two-thirds of the capacity to serve LMI communities with a bill discount.

RMI would like to thank the following energy developers for sharing their experience and insights: Annika Colston, AC Power; Paul Curran, Clean Capital; Cassidy Ellis, Ameresco; and Chad Farrell, Encore Renewable Energy.