

From Brown to Green

Responsible Solar Development on Brownfields

Jake Hirsch

As the global push for renewable energy gains momentum, solar power has emerged as a promising path toward a cleaner future. Repurposing brownfield sites—previously used, often contaminated lands—into thriving solar energy projects provides a duality of opportunity: revitalizing neglected lands while fostering sustainable energy sources. However, these sites are often laden with legal hurdles, which, when taken with the fluid regulatory status of the renewable energy space, require specialized expertise, additional resources, and strategic planning to overcome. Here, we will explore some of the key legal considerations involved in developing solar energy projects on brownfield sites and provide insights on how to navigate them. As the additional cost of brownfield redevelopment often poses one of the most significant obstacles, we will also briefly explore the landscape of financial incentives tied to brownfield solar development that can transform development barriers into gateways for green innovation.

What Is a Brownfield?

In general terms, a “brownfield” is any property with a previous commercial or industrial use that has a history of contamination or potential contamination, including sites such as landfills, retired coal or chemical plants, and state and federal Superfund sites. However, the definition of a brownfield may vary depending on whom you ask, and in many cases the answer will impact whether a solar project will qualify for federal and/or state brownfield redevelopment incentives.

Perhaps the most widely recognized definition of a brownfield is the definition provided by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), codified in 42 U.S.C. §§ 9601 *et seq.* CERCLA defines a brownfield as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence

or potential presence of a hazardous substance, pollutant, or contaminant.” *Id.* § 9601(39)(A). CERCLA limits this relatively broad definition through a number of exceptions. For example, a closed landfill may be excluded from the brownfield definition under CERCLA if the landfill facility is (1) listed on the National Priorities List (the list of hazardous waste sites in the United States eligible for long-term remedial investigation and cleanup financed under the federal Superfund program), (2) subject to the jurisdiction of a federal government department or agency, or (3) the subject of corrective action under the Resource Conservation and Recovery Act (RCRA). *Id.* § 9601(39)(B). Thus, determining whether or not a particular site qualifies as a CERCLA brownfield necessarily involves an in-depth legal analysis of environmental reports, Phase I environmental site assessments (Phase I ESA), sampling results, applicable site permits, and anything else that might affect the site’s regulatory status or potential for contamination. While sometimes the answer may seem straightforward, oftentimes the analysis can be quite complex—especially for sites with nuanced regulatory histories or for those with other complicating circumstances.

Revitalizing contaminated properties through solar redevelopment seems like a beneficial proposition regardless of regulatory qualifications. However, the CERCLA definition is important because in the context of renewable energy development, determining whether a site meets these brownfield standards can significantly impact the financial viability of a project. When Congress passed the Inflation Reduction Act in 2022, it created federally backed investment tax credit benefits for renewable energy projects located in what the statute termed “energy communities.” Pub. L. No. 117-169, 136 Stat. 1912 (Aug. 16, 2022). These energy communities include areas historically reliant on employment from the coal, oil, and natural gas industries; census tracts with recently retired coal mines

and coal-fired electric generating units; and communities with blighted brownfield properties with limited opportunities for redevelopment. Indeed, a solar project qualifies for a 10% bonus investment tax credit when it is sited on a brownfield property, as defined by CERCLA. Qualifying for this bonus credit can provide a significant boost in value for the solar project, which, depending on the size of the solar array, can translate to tens of millions of dollars in additional value based on the 10% tax credit alone.

In many cases, developers can and should opt to mount their solar panels on concrete ballasts to avoid penetrating the topsoil or impermeable cap of the brownfield site.

Some states have their own policies to incentivize renewable energy development on brownfield properties, separate from and in addition to the federal program discussed above. The New York State Energy Research and Development Authority (NYSERDA), for instance, offers developers an additional \$0.15/watt for solar electric systems sited on landfills or other brownfields. To be eligible, the incentive typically requires the EPA or the New York State Department of Environmental Conservation (NYSDEC) to have approved solar as an end use for the brownfield property, unless the site is already enrolled in New York's state-run brownfield cleanup program. N.Y. State Energy Rsch. & Dev. Auth., *NY-Sun Upstate + Long Island Program Manual* § 1.4.8.3 (Ver. 18, Apr. 2024). Thus, while developers may not need to sift through a broad range of statutory exclusions for brownfield status at the state level—as they do under the federal investment tax credit framework—developers must collaborate with the governing agencies to ensure solar is an approved end use for the property in question.

In all cases, a baseline understanding of what constitutes a brownfield for purposes of federal law and state policy is essential for all solar developers and their counsel. It is crucial for developers to engage with these questions early in the development process to accurately evaluate and maximize project value.

Leases and Risk Management

Siting solar on brownfields typically garners far less pushback from local communities than projects on untouched greenfield properties and agricultural land, due to the limited options for redevelopment on brownfields. Of course, developing a commercial solar system on a brownfield brings a certain level of

risk with it—certainly more risk than is typically associated with greenfield solar development. Whether it be a potential release of hazardous substances, slope failures, flooding, or associated cleanup costs, placing heavy solar modules and electrical wiring on brownfield properties exposes stakeholders to additional liabilities, causing landowners and developers alike serious concerns about a solar project exacerbating preexisting environmental conditions. Developers can mitigate these risks by designing their solar facilities in a responsible manner and by negotiating robust lease agreements with brownfield landowners to appropriately allocate risk among all interested stakeholders.

The reality is that developers can meaningfully limit the risk of a contaminant release, slope failure, or other negative development event through careful planning in the facility design process. Brownfield developers must conduct detailed slope stability and veneer analyses to determine whether the property can support the weight of the solar modules and other equipment required to build the facility. Moreover, in many cases, developers can and should opt to mount their solar panels on concrete ballasts to avoid penetrating the topsoil or impermeable cap of the brownfield site. By resting the solar facility on top of the brownfield site, developers eliminate any need to disturb the land, thus minimizing the risk that the contaminants, pollutants, or other hazardous substances are released.

Additionally, many brownfield sites have permits or approvals associated with them that were issued by a governing federal or state agency, limiting the permissible uses for the property. Developers may need to engage with the governing agencies to modify such permits or approvals to make solar a permitted use for the site in question. As part of that sometimes-painstaking process, the agencies will impose certain conditions on their approval of a site use modification to help ensure the solar facility is constructed, operated, and maintained responsibly and consistent with site constraints. Developer compliance with these restrictions, in itself, helps to mitigate the environmental and legal risk of the brownfield solar project.

Securing a suitable lease agreement with a brownfield landowner that aligns all parties in accordance with the regulatory, permit, and maintenance requirements for a brownfield site is also a critical step in mitigating risk. The lease should consider factors such as access to the site, duration, rent, liability, and termination clauses. The lease must also provide clarity and safeguards to protect the project and the interests of all stakeholders, including landowners, potentially responsible parties (PRPs), and the surrounding community.

Indemnification provisions, in particular, are a crucial mechanism for developers and landowners to mitigate their risks in connection with a brownfield solar project. Unlike greenfield properties, indemnification provisions in brownfield development leases can be difficult to negotiate because of the aforementioned risks—i.e., potential releases of contaminants, slope failures, cleanup costs, etc. It is important to note that a developer should never agree to assume all risks associated with its redevelopment efforts. A well-crafted lease indemnification provision should hold the landowner responsible for preexisting environmental conditions at the brownfield site,

while holding the developer responsible for exacerbating any of those conditions as a direct result of the work performed in connection with developing the solar project. In this way, the landowner retains the same responsibility it would otherwise have for its property notwithstanding the solar project, and the solar developer's risk is limited to the harm or damages it causes as a result of its own development activities. Thus, lease language plays an important role in risk management.

Environmental Liability: Evaluation, Mitigation, Retention, and Transfer

Environmental liability is the core risk at the heart of all brownfield redevelopment. In addition to the lease language, therefore, a developer's environmental due diligence to determine the scope of environmental risk associated with the brownfield site is crucial. Once part of the chain of title for a brownfield property, any party is potentially liable for past environmental events. The risk associated with such liabilities often deters developers and their financial backers lacking the right legal and environmental due diligence expertise.

The journey begins with a thorough environmental due diligence process, crucial for understanding the site's conditions. To successfully identify environmental risk, developers or their contractors should conduct a Phase I ESA, which is a report that identifies potential or existing environmental contamination liabilities based on the current and historical uses of a property. Should concerns surface during this process, developers will often conduct a Phase II environmental site assessment (Phase II ESA)—a more detailed investigation involving soil and groundwater sampling—to determine if any hazardous substances in fact exist on site. Through these analyses, developers can accurately assess whether a solar end use is compatible with the brownfield site in question and whether the environmental risk can be mitigated or otherwise avoided.

After a developer identifies risks for a particular property, the developer should take all necessary actions to qualify as a bona fide prospective purchaser (BFPP). Generally, when a prospective landowner purchases property with knowledge of contamination, the would-be landowner can obtain a defense to liability under CERCLA by satisfying certain requirements. While the BFPP defense traditionally applied to purchasers of land, Congress amended CERCLA in 2018 to specifically allow lessees of contaminated property to achieve the same protections. *See U.S. Env't Prot. Agency, Bona Fide Prospective Purchasers* (Sept. 15, 2023). To do so, brownfield solar developers must perform all appropriate inquiries (AAI) before leasing the property. Completing a Phase I ESA in accordance with the current American Society for Testing and Materials (ASTM) standard is just the first step in securing this protection. A developer that wishes to assert BFPP status also must meet certain continuing obligations under CERCLA, which include exercising appropriate care with respect to hazardous substances found at the property by taking "reasonable steps" to stop any continuing release and to prevent any threatened future release. By taking these precautions throughout the development process, solar developers can avoid liability under CERCLA arising out of a release or threatened release of

hazardous substances as long as the developer did not contribute to the release or impede the resulting remedial response. This is an important layer of protection from environmental liability that developers can maintain throughout the life of their solar project.

In addition to the lease language, . . . a developer's environmental due diligence to determine the scope of environmental risk associated with the brownfield site is crucial.

Some states have similar policies for environmental liability protection under state law. The Michigan Department of Environment, Great Lakes, and Energy (EGLE), for instance, has its Baseline Environmental Assessment (BEA), which can offer additional safeguards for developers by partially shielding lessee liability for cleanup costs, provided proper pre-lease site assessments and disclosures are made. Natural Resources and Environmental Protection Act, Mich. Comp. Laws §§ 324.20101 *et seq.* (Act 451, pt. 201 (1994), as amended). The Maryland Department of the Environment, pursuant to its Voluntary Cleanup Program, may certify a developer as an "Inculpable Person" if the developer did not cause or contribute to the contamination of an eligible brownfield property. The program protects a certified Inculpable Person from liability arising out of preexisting on-site contamination, as long as the Inculpable Person does not exacerbate those preexisting conditions or create new contamination on the property. Md. Code Ann. Env't §§ 7-501, 7-505. Additionally, Virginia law provides similar BFPP protections pursuant to its Brownfield Restoration and Land Renewal Act. Va. Code Ann. §§ 10.1-1230 *et seq.* It is therefore essential that developers (1) research what state environmental liability protection measures may exist and (2) take preemptive steps to qualify for any such protections whenever considering a new project in an unfamiliar jurisdiction.

Cooperation with Potentially Responsible Parties


Some brownfields come with more historical baggage and ongoing operation and maintenance requirements than others. In the context of Superfund sites, PRPs play a huge role in ensuring that a Superfund site remedy is properly put into place and maintained. A PRP is any individual or organization that is potentially responsible for, or has contributed to, a spill or other form of contamination at a Superfund site. Because the EPA requires PRPs to clean up these sites and because CERCLA

holds these PRPs financially responsible for damages caused by the on-site contamination, PRPs are heavily invested in maintaining safe, controlled conditions on the sites for which they are responsible.

Ballasted solar arrays offer a low-impact end use for these sites that aligns with the PRPs' obligations to manage and maintain site remediation, as the arrays require very little maintenance over the life of the solar system. The solar modules themselves rest on top of special-purpose concrete slabs to avoid penetrating the Superfund site cap and disturbing other remedial features on the property. As a result, this type of productive, minimally invasive solution to repurposing contaminated properties can often be attractive to PRPs. While they do not necessarily own the land, PRPs typically need to approve a developer's access to the site. Therefore, it is essential that solar developers looking to develop arrays on Superfund sites engage with PRPs early in the development timeline. Ideally, the developer and the PRPs negotiate an agreement that sets forth the terms of how both sides will communicate and coexist throughout the life of the solar project. A thoroughly

negotiated "cooperation agreement" should outline how exactly a solar developer can build its facility while adhering to any and all consent decrees, judicial restrictions, or other site limitations.

Transforming Obstacles into Opportunities

Developing solar energy projects on brownfield sites offers a compelling opportunity to transform contaminated lands into clean energy hubs. While legal and development hurdles can be daunting, thorough planning, collaboration with relevant stakeholders, and expert legal guidance can help overcome these challenges. By thoughtfully negotiating liability language in lease agreements, understanding PRP dynamics, and evaluating financial incentive strategies early in the development process, developers can help all interested stakeholders successfully navigate the maze of risks and liabilities, transforming obstacles into an opportunity for a cleaner, more sustainable future. 

Jake Hirsch is general counsel at AC Power, LLC based in New York City. He may be reached jake@acpowerllc.com.