Equitable Brownfields to Brightfields Projects: Research Findings Memo

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Introduction: Opportunities and Challenges

This memo summarizes research undertaken between 2020 and 2021 by Groundwork USA and the Metropolitan Area Planning Council (MAPC), with support from EPA's Brownfields and Land Revitalization Program, to understand the landscape of and opportunities for equitable "Brownfields to Brightfields" (B2B) projects in the U.S. The concept of B2B has great potential to revitalize polluted land, to promote solar energy, and to advance equitable community development. B2B projects repurpose brownfield sites – land with known or potential hazardous substances, pollutants, or contaminants – with solar energy installations on ground-mounted arrays, building rooftops, or canopy structures. The U.S. Environmental Protection Agency (EPA) has reported more than 450,000 estimated brownfields nationwide, but only 415 renewable energy installations on brownfields as of 2020.[1] As solar achieves new economies of scale and land use and equity concerns increase in intensity, there is a vast untapped potential market for B2B projects that create local benefits – especially in low-income communities and communities of color that disproportionately suffer from industrial pollution, disinvestment, and vacancy; lack access to clean energy resources; and face severe climate change impacts and risks.

While solar presents an attractive option for brownfields redevelopment, especially in cases where a site is too contaminated to be repurposed for direct human use (e.g., a park, housing, or other physical use), challenges remain in bringing B2B to scale. Most B2B projects to date have been developed on landfills or other large-scale industrial sites, which are often located at the periphery of urban, suburban, and rural communities. Solar opportunities on infill sites closer to urban cores become more attractive as solar panel efficiency and financial viability of smaller projects improve, but these sites near population centers often face competing development pressures for direct human use. In addition to project size and location, high project costs,

[1] This number is current as of October 2020 based on EPA's Project Tracking Matrix.

liability concerns, and the overall complexities of the brownfields redevelopment process all present hurdles to B2B projects.

Even successful B2B projects that overcome these barriers do not necessarily advance equity and community benefits. While increasing the amount of clean energy in the grid and reducing greenhouse gas emissions are certainly good for society as a whole, B2B projects (and solar projects more generally) often miss more targeted opportunities to build wealth in environmental justice communities, to reduce energy costs for low-income utility customers, and to provide job training and career pathways for communities of color and low-income populations. Community-shared solar models (described further below) can address some of these issues by providing avenues for local ownership and utility cost savings for low-income subscribers as part of B2B projects.

More broadly, addressing the equity imperative calls for active engagement among diverse stakeholders, including local residents and community organizations, municipal staff, public agencies, and solar energy developers. Collaboration among these parties also builds political momentum for B2B projects and helps overcome the technical and logistical challenges around brownfields redevelopment. In instances where a ground-mounted solar array is not feasible or conflicts with other desired land uses, B2B goals can still be achieved through the construction of rooftop solar arrays or solar canopies as an additional use on a site – a “solar-accessorized” approach. Strong public and stakeholder engagement helps ensure that solar aligns with resident visions for land reuse and that local communities benefit from B2B projects, including via formal Community Benefits Agreements. These models for equitable B2B projects (equitable engagement, community-shared solar, community benefits agreements, solar-accessorized sites) are described further in the memo sections that follow.

Baseline Project Considerations

Depending on whether B2B projects are sited on public or private brownfield sites, different incentive opportunities are available for municipalities, landowners, and developers. Projects on public lands may be more conducive to providing community revitalization benefits than projects on private lands. When brownfield sites are publicly owned, government agencies have broad latitude to pursue pre-development activities (including site assessment and clean-up) and to create requests for proposals (RFPs) for B2B projects that explicitly incorporate equity and public benefits. Public agencies can also actively market sites they control to developers and indemnify those developers against potential liability. Privately owned sites do not enable agencies to set RFPs and may require that agencies work directly with landowners to bring B2B projects to fruition. Grant funding can potentially help incentivize private landowners to create B2B projects that provide broader public benefits.

State solar policy incentives also play a strong role in determining the viability of B2B projects. Policies can be designed to provide targeted support for projects on smaller urban infill sites or on brownfield sites more generally. Specific incentives can also help spur the development of B2B projects that benefit low-income utility customers or advance community solar models.

Whether focused on the site or the end-use benefit, policies that increase revenue for and value the benefit of equitable B2B projects can help unlock this market's potential.

Regardless of land ownership or policy context, liability concerns around brownfield sites can present a significant obstacle to developing B2B projects, as public and private parties alike may be risk averse in dealing with site contamination. Addressing these issues can require significant upfront work before financing and development activities for redevelopment can begin. State and federal agencies like the EPA can play a strong role in helping parties manage liability concerns around site contamination, as well as site leasing and ownership.

Models for Equitable B2B Projects

Groundwork USA and MAPC's research points toward four models for centering equity in B2B projects: equitable engagement, community-shared solar, community benefits agreements, and solar-accessorized sites. Several of these models can be used at the same time.

Equitable Engagement

An equitable B2B project will offer an inclusive and accessible engagement process that involves neighboring community members in decisions made about how to remediate and use a brownfield site and how to structure a project developed on the site. Ensuring that community members who live near brownfield sites have voice and agency in the redevelopment processes is a central tenet of equity and restorative environmental justice. Involving community members early on is important for identifying needs and priorities that a brownfields redevelopment could help provide. For example, community members may prefer to have more open green space in their neighborhood, which a brownfield redevelopment could provide depending on the type of contamination on the site. Or residents may be burdened by high housing costs and interested in a solar redevelopment that can help lower their energy bills, particularly if the site is not safe for direct human use.

What is ultimately developed on a site will also depend on who owns the land, what is viable given the site's contamination, and what is economically feasible. Making community engagement a key and dedicated part of the process can open new possibilities for a site and lead to a redevelopment that better serves the needs of residents who have been historically impacted by a site's contamination. Groundwork USA has tools and guidance available for equitable brownfields planning. MAPC's community engagement team offers resources on community engagement strategies, meeting design, and virtual engagement best practices.

Community-shared Solar

If community engagement points towards solar development as a good option for a brownfields site, community-shared solar (CSS) offers a project model that can directly benefit neighboring residents and/or residents from other communities burdened by brownfields sites. CSS projects

in Massachusetts use virtual net metering[2] to allow participants to subscribe to a project and receive credits for a portion of the energy generated on their utility bill. CSS gives community members a way to participate in solar and save money on their energy bills, even if they are renters or do not have access to a rooftop that can host solar panels.

There are different pathways for making a CSS project equitable. A common model is developing a subscription-based CSS project where some or all of the energy generated is credited towards low-income residents at no upfront cost, particularly those residents who live close to the brownfield site. MAPC has more detailed guidance on subscription-based CSS models, as well as ownership and cooperative models. The Institute for Local Self Reliance's Equitable Community Solar guide offers multiple options for embedding equity into CSS programs.

To reduce barriers to entry, CSS project managers and developers may consider using alternative screening criteria to credit scores for subscribers. There are also opportunities in CSS project development to support minority and women-owned businesses through procurement and contracting processes (e.g., adding evaluation criteria or priorities to an RFP to encourage bids from diverse businesses). Projects should take consumer protection into consideration, offering clear contract terms and easy opt-outs for customers. More on consumer protection examples is available in the Low-Income Solar Policy Guide co-developed by GRID Alternatives, Vote Solar, and the Center for Social Inclusion.

Community Benefits Agreements

In cases where the site is privately owned and/or CSS is not possible, and particularly for larger projects on former large-scale industrial or landfill sites, a model that could center equity is a strong community benefits agreement (CBA) with the site developer. A CBA is an agreement between the project developer and community members impacted by the project that provides local benefits to the community as part of the solar development project. CBA's can be developed as legally binding contracts and are often negotiated with support from municipal and state government. CBAs related to solar development can include workforce training, local hiring commitments combined with living wage terms, remediating and setting aside a portion of the site for community benefit (such as a park), or setting up a revenue stream for other community use (such as a recreation center or educational programming). The Department of Energy's Advancing Opportunities for Community Development through Energy Project Development guide outlines process steps and examples of CBAs for energy projects.

Solar-accessorized Sites

Community engagement processes may uncover other redevelopment priorities for a brownfield site, particularly if remediation of the site for direct human use is possible. In these cases, solar

[2] Virtual net metering gives credit for energy produced by a solar installation to customers who subscribe to the project, but do not directly receive that power.

development can be an accessory to other uses on the site or serve as a dual use on the site. In an equitable model, the solar project and the corresponding direct human use are designed to benefit residents who have lived with the brownfield burden in their community. Mounting solar installations on rooftops or elevated canopy structures, as opposed to ground-mounted arrays, can be an effective strategy to ensure that solar does not inhibit or preclude direct human uses (especially on smaller sites). Examples of solar-accessorized projects may include a community garden or park with a common building or outdoor lighting powered by solar. Such projects may also include an affordable housing development with solar on the roof that offers CSS credits to residents, or whose energy cost savings support resident programming or support services.

Key Roles for Municipalities

There are many opportunities for municipalities to support the development of equitable B2B projects alongside community-based organizations and residents. These can include:

- **Engagement and Convening:** Early and consistent engagement of community members around a brownfield site is critical to ensuring that community needs are heard and centered in the development process. Municipalities and community-based organizations can use their convening role to bring residents and stakeholders together to meet with project developers early and throughout the process. They can also gather feedback and initiate a B2B project on a municipally owned or privately held site.

- **Zoning:** A brownfield site may not be zoned appropriately to allow for solar as a primary or accessory use on a site. When identifying potential sites and areas for redevelopment, zoning changes may be required. Proactively allowing solar development on brownfields sites will reduce barriers, such as time and costs, that may come with requiring a special permit.

- **Site Identification and Feasibility Assessment:** This role involves early investment in identifying viable B2B project sites, either municipally or privately owned, and determining their feasibility for hosting solar based on site contamination, solar viability, and community priorities. This step can be used as a precursor to the Site Preparation and/or Procurement and Site Aggregation steps described below.

- **Site Preparation:** A municipality can make initial investments in remediating a brownfield site's contamination so it is suitable for solar development or other uses. Taking this step can lower the financial barriers that make B2B projects in urban areas challenging to pencil out.

- **Procurement and Site Aggregation:** A municipality that owns multiple brownfield sites can aggregate them into a portfolio and put them out in an RFP to solar developers to achieve economies of scale. By including specific criteria in the RFP, the city or town can prioritize equitable B2B models and community benefits. This portfolio-based approach can lower some of the barriers to developing projects on individual or smaller-

scale urban sites, particularly when combined with some level of site assessment or preparation.

- **Permitting:** Municipalities can offer developers of equitable B2B projects streamlined permitting to lower the soft costs of development. Solar soft costs are the expenses to develop solar beyond the physical hardware and often make up a significant portion of the cost to install.

- **Interconnection:** When a community is served by a municipal light plant (MLP), the MLP can offer early and clear guidance on connecting the project to the electricity grid, reducing project uncertainties and making timelines clearer. If a community is served by an investor-owned utility (IOU), the municipality can use its position to encourage a utility to move interconnection for the project forward in a timely manner and to offer clear and consistent information.

- **Project Negotiation:** When a B2B project is moving forward, municipalities and community-based organizations can help broker agreements between community members and a project developer about what a site will look like and what community benefits will be provided.

- **Workforce Development:** Municipalities can help identify minority and women-owned businesses who are ready to work on B2B projects via a Request for Qualifications (RFQ) or a Request for Information (RFI) to build a preferred or recommended vendor list. A municipality can also include solar installation training for residents as a component to a project developed on municipal land to help support new entrants to the profession.

Next Steps

Groundwork USA and MAPC's research points towards exciting potential for B2B projects to help advance equity for communities burdened by brownfields sites, but also barriers to realizing these projects in terms of cost and project scale, site contamination and remediation needed, and land ownership. Municipalities and community organizations can help make more equitable B2B projects possible by centering and supporting inclusive and robust community engagement to identify priorities and needs for sites and by supporting project models using the strategies outlined in this memo.

Find more information from a B2B workshop Groundwork USA and MAPC held on May 20, 2021: Brownfields to Brightfields: Unlocking Solar Energy and Equitable Community Development.

Potential B2B sites in Massachusetts are mapped on this online tool, alongside equity data to support community engagement processes and decisions about brownfield site reuse.

Nationwide sites that may be viable for B2B projects are mapping on EPA's RE-Powering America's Land tool. The RE-Powering website also provides additional guidance, training, and resources on B2B projects.

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