

Clean Energy Finance: Green Banking Strategies for Local Governments

GREEN BANKING OVERVIEW

Green banks are financial institutions that can leverage public funding to attract private capital for clean energy projects (including energy efficiency, renewable energy, and other distributed energy resources), as well as other “green” investments. They can assist states and communities in partnering with private lenders and investors to mobilize capital, alleviate perceived risks, and design attractive financial instruments to support these investments.

While several states have established green banks, local governments are also exploring this innovative clean energy financing opportunity. The New York City Energy Efficiency Corporation (NYCEEC) and the Montgomery County Green Bank in Montgomery County, Maryland, were the first local green banks in the United States, established in 2010 and 2016, respectively. Washington, DC, passed legislation in July 2018 to create the third local U.S. green bank.

Green banking can help local governments pursue their environmental, energy, and economic priorities.

In addition to establishing their own green banks, there are multiple ways in which local governments can support “green banking.”

Examples include working with state green banks or local finance agencies to help residents and businesses access financing, or establishing local nonprofit entities that attract private capital for clean energy investments by providing services similar to those offered by green banks. As such, local governments can pursue green banking opportunities that align with their own needs, abilities, resources, and operating contexts.

This paper provides a basic explanation of green banks, the benefits they offer, issues local governments might consider when deciding whether to create a green bank, and several case studies. It also provides information on other green banking opportunities for local governments.

WHAT ARE GREEN BANKS?

Although there is no single green bank model, a green bank is generally defined as an institution that leverages limited public dollars to attract additional private investment in clean energy or other “green” investments, such as green infrastructure projects. Green banks typically use their funds to support energy efficiency upgrades, renewable energy projects, and other proven clean energy technologies. The types of projects that they support vary depending on the local context (see the examples provided at the end of this document).^{i, ii} To date, more than 75 percent of all green bank investments in the United States have been for renewable energy projects.ⁱⁱⁱ

Depending on state and local priorities and financing needs, green banks typically support projects in targeted sectors or with specific customer profiles, such as commercial property and business owners, residential homeowners, nonprofits, rental property owners, institutions, and government agencies.

WHAT ARE THE BENEFITS OF GREEN BANKING?

Local business owners and residents are increasingly interested in clean energy as a means to reduce energy consumption and costs, increase comfort, and protect the environment. While clean energy technologies are becoming more economically viable, the growing demand for these technologies has not always aligned with access to reasonably priced, appropriately targeted, and

sustainable financing. Private investors often perceive this market segment as risky. In addition, external funds that are sometimes used to supplement local budgets, such as funds from the state or federal government or charitable foundations, may not always be available. As a result, local governments are interested in attracting more capital to this market to support clean energy investments in their communities and to help advance their environmental, energy, and economic priorities.

Green banks can help address this financing gap since they use their funds to reduce the risks and administrative burdens for private investors, making it easier for the private market to finance clean

Green banks can help mobilize private capital by *increasing demand for clean energy financing* and *reducing perceived risks for investors*.

energy projects. By attracting more private investment into the market, green banks can help local governments increase the accessibility of

affordable financing for clean energy projects that is independent of external sources of funding.^{iv} This support can help local governments achieve other economic objectives, such as enabling the growth of local businesses that provide clean energy products and services. This section describes several of the primary benefits that green banks and other green banking opportunities offer.

Generating and Aggregating Demand for Financing

Some clean energy projects, such as home energy efficiency upgrades or residential rooftop solar, are typically small and decentralized. Financing many small and decentralized projects individually involves higher administrative and transactional costs than financing a few larger, utility-scale projects. As a result, financial institutions may be less likely to underwrite loans or provide other financial instruments for these projects, which

would otherwise be technologically and economically viable.

Green banks can help raise customers' awareness of financing opportunities available for clean energy projects, thus increasing the overall demand for financing. Green banks can also aggregate this demand for local clean energy project financing, and use various techniques to reduce administrative costs, such as warehousing and securitization (described on page 4), making projects more attractive to lenders.

Addressing Knowledge Gaps to Reduce Perceived Risks

Although many clean energy technologies are well-established, there may be instances where they are used in new configurations or locations, often referred to as "first of its kind" applications. Financial institutions might view these projects as too risky to finance, especially without a payback history for similar projects. Green banks can help address this challenge by sharing information about the energy savings potential and other data associated with similar projects, and by raising financial institutions' awareness of clean energy technologies and benefits generally. They can also support demonstration projects that substantiate claims of the viability of clean energy projects, thus mitigating investors' perceived risks.

Mobilizing Private Capital to Meet Demand

Green banks can be effective at mobilizing private capital in several ways. As described above, they help reduce administrative and transactional costs associated with small, decentralized projects that are otherwise viable; and they help address knowledge gaps about the benefits of financing these projects. In addition, green banks can provide institutional backing that mitigates the risk of investing in energy technologies outside of a private investor's typical purview, such as projects that involve large capital expenditures and long payback periods. For example, green banks can include loan

loss reserves or loan guarantees. Loan loss reserves can be used to cover losses incurred by a financial institution on clean energy loans up to a predetermined amount. In this way, these reserves can reduce financial risks, such as those associated with potential loan payment default. In the case of loan guarantees, the green bank assumes the borrower's debt if the borrower defaults, again reducing the financial risks for private investors.

Mobilizing Capital

Through 2017, U.S. green banks had mobilized more than \$2.6 billion of clean energy investments.^a This is enough capital to install a 5-kW photovoltaic system (the most common size for residential projects) on approximately 230,000 roofs.^b

^a Based on an EPA review of green bank financial data.

^b Based on information available from the Solar Action Alliance: www.solaractionalliance.org/residential-solar-panel-cost.

Using Public Funds Efficiently

Green banks leverage limited public funds to attract private investments to address financing gaps. This approach allows public dollars to be recycled through financing with repayment structures, and lessens total public expenditures over time. In contrast, grants and rebates are one-time outlays of public funds.

Supporting the Local Economy

Because green banks generate demand for clean energy and assist in mobilizing capital for projects to meet that demand, they can create substantial economic benefits at the community level. Green banks also tend to function as “one-stop shops” for lenders, borrowers, energy service providers, and other parties, making collaboration easier. This can lead to robust green economies built around green bank-cultivated partnerships. These partnerships can contribute to local economic benefits, such as job creation. The Connecticut Green Bank, for example, estimates that its activities supported the creation of more than 5,000 direct and 8,000 indirect jobs in the first six years of its operation.^v

Addressing Specific Financing Needs

Green banks can also fill sector- or market-specific gaps in local clean energy project financing and access. For example, private financing options for residential rooftop solar installations often involve higher interest rates and credit measurement requirements that make them inaccessible to lower-income households. In such instances, a green bank could offer low-interest loans or lease financing for rooftop solar installations that are targeted at low-income households, alongside energy efficiency upgrades financed through energy savings agreements. Other options might include allowing customers to use their bill repayment history as proof of creditworthiness, rather than more traditional measures like FICO[®] scores.

WHAT FINANCING MECHANISMS DO GREEN BANKS OFFER?

Green banks can use an array of financing mechanisms to support clean energy investments for a variety of customers, including businesses, homeowners, institutions, and others. These mechanisms include:^{vi}

- *Loans:* Green banks can facilitate access to market-rate or below market-rate loans. Loans may be senior or subordinated to other capital providers and can help attract private investors by protecting them from a portion of the risk. Revolving loan funds use an initial source of capital to make direct loans to borrowers. As loans are repaid, the proceeds are returned to the fund and become available for additional loans.
- *Co-investment:* Green banks can directly invest in a project alongside a private investor, reducing the investor's financial risk. Green banks can also facilitate participation loans by recruiting multiple lenders to contribute funds toward one combined loan issued by the green bank. In this way, green banks can help other lenders gain experience with clean energy investments.

- *Credit enhancements:* Green banks often use their funds to alleviate some of the perceived risks of loans or investments in clean energy technologies. Examples include offering loan loss reserves and loan guarantees.
- *Bonds:* Green banks can issue bonds, depending on their structure, to capitalize clean energy initiatives. These can include green bonds, environmental impact bonds, and social impact bonds designed to promote clean energy.
- *Warehousing and securitization:* Green banks can use these two techniques to bundle loans and sell them to the private sector (see text box below).

Warehousing and Securitization

Green banks can directly underwrite loans for clean energy projects as they are developed and warehouse them. Warehousing refers to the practice of storing loans until there is a sufficiently large bundle to sell in a secondary market. Green banks can then sell bundled loans to private investors through various methods:

- *Private placement of the loans.* Loans are sold through a private offering, typically to a small number of selected investors.
- *Securitization.* Securitization is the process of pooling together low-capital loans and selling them to investors as interest-bearing securities.

If a green bank sells all of the loans it underwrites, it would effectively replace its initial public funding with private capital. The green bank could thus be self-sustaining without drawing on additional public funds.^a

^a Coalition for Green Capital. 2015. *Growing Clean Energy Markets with Green Bank Financing*. Available: <http://coalitionforgreencapital.com/wp-content/uploads/2015/08/CGC-Green-Bank-White-Paper.pdf>. Accessed 9/20/2018.

Green banks can serve as administrators for other clean energy financing programs, such as Property Assessed Clean Energy (PACE) and on-bill repayment programs. PACE refers to arrangements where property owners secure energy upgrade loans through benefit assessments tied to PACE loans on their properties and repay them through their local

property taxes. Green banks can help attract private capital to support PACE loan programs. On-bill repayment programs allow utility customers to pay off financing for clean energy projects over time through their utility bills. Green banks can work with utilities to mobilize capital for these projects, or serve as third-party administrators for the programs.

WHAT IS INVOLVED IN ESTABLISHING AND ADMINISTERING A GREEN BANK?

Local governments can design green banks to suit their particular fiscal, economic, political, and institutional circumstances. The processes for establishing and administering green banks – described below – can involve considerable financial, technical, and human resources.

Legalization

In general, the two main steps involved in establishing a green bank are legalization and capitalization.ⁱⁱ Legalization is the process by which a green bank is established and made a legal entity. This can involve several types of actions. For example, a local government could (1) use legislative action through a county or municipal governing body to create a new green bank, including as an independent entity separate from government; (2) establish a green bank as a new entity within existing institutional frameworks; or (3) adapt existing entities or funding sources (e.g., revolving loan funds) and repurpose them in the form of a green bank.

The governance structure of the green bank is an important factor to consider during the legalization process since it will determine the local government's level of engagement in the bank's operations and direction. For instance, a local government that establishes a green bank as a nonprofit entity might specify in the charter that members of the bank's board of directors will be appointed by the mayor. Alternatively, the local government might establish the green bank as an

independent nonprofit that has the autonomy to select its own board members.

Capitalization

Local governments can capitalize (provide initial funding for) green banks using public and/or private funds. Green banks may be capitalized with a combination of funds to allow for large infusions of start-up capital and sustained funding sources for longer-term projects.

- *Public funds* are the most common source of initial capital for a new green bank. Governments may choose to either provide one upfront infusion of capital or set up the bank to receive funds over time from a dedicated stream of revenues, including regular budget funds, tax revenues, municipal bonds, or municipal utility surcharges.

Capitalizing with one large, initial infusion of public funding may limit a green bank's ability

Local governments can capitalize green banks using a **combination of public and private funds** that come from a variety of sources.

to offer long-term loans due to the need to recapture those funds in a shorter timeframe.

Having periodic

injections of public funds from dedicated streams can address these challenges and enable the green bank to take on investments that require longer payback periods. However, a large initial infusion of public funds can help raise investors' perceptions of the bank's potential impact, which could lead to increased private capital.

Regardless, it is important that green banks have effective strategies for recapitalizing themselves so they can continue to offer new financing in the marketplace.

- *Private funds* can supplement initial public funding for a green bank. Private funds may come from private investors and financial institutions. Market investors are typically

attracted to potential market-based returns on their investments, and the reduced risks associated with local government-backed financing. Philanthropic organizations and socially minded investors may be another option. These potential funders may offer less than market-based returns in exchange for the benefit of a project's social outcomes.

- *Other funds* can include proceeds from carbon trading, renewable energy certificate sales, and legal settlements. As described in the case studies at the end of this document, the Montgomery County Green Bank was capitalized with an investment of funds the county received as a result of a utility merger.

Administration

For green banks to be effective at mobilizing private capital, they need the capacity to:

- *Conduct outreach to customers to raise awareness of the green bank's products and offerings.* Customer awareness is necessary to generate sufficient demand to justify the bank's activities (e.g., warehousing loans).
- *Develop partnerships.* Green banks rely on sustained funding from the private sector. To ensure that funding, green banks work closely with lenders, service providers, and other partners to align funding and structure products to meet local needs.
- *Communicate with lenders to help address knowledge gaps and perceived risks.* Knowledge gaps and perceived risks present a significant barrier to clean energy project financing. Green banks can help address this barrier by sharing data and information about project benefits and payback periods, and supporting demonstration projects.
- *Administer loans and other instruments.* Green banks are typically staffed by financing experts with experience working with the finance

community to design and deliver products to customers.

OTHER GREEN BANKING OPPORTUNITIES

In addition to establishing green banks as municipal entities, local governments can pursue other green banking opportunities based on their own needs, abilities, resources, and operating contexts. This section provides several illustrative examples.

Working with Existing Local Entities

Local governments can work with existing entities to incorporate green banking features into their operations. For example, local governments can work with community development financial institutions (CDFIs) to provide financing for clean energy projects. CDFIs are organizations that receive federal funding to support economic growth in distressed communities. A number of CDFIs, such as the Florida Solar and Energy Loan Fund, offer financial support for clean energy projects.^{vii}

Green Bank Consortium

There is a growing demand for green banking opportunities outside the jurisdictions where green banks currently operate. The Coalition for Green Capital, a nonprofit providing technical assistance on green banks, is working with a range of partners to launch a Green Bank Consortium. The consortium will be a membership network made up of green banks, lenders, developers, nongovernmental organizations, and other key stakeholders. It will provide best-practices, technical assistance, and product assistance to help green banks and related entities mobilize more capital in local markets, while also leveraging economies of scale to more quickly deploy financing across the country.

For more information on the Coalition for Green Capital, see: coalitionforgreencapital.com.

Establishing Independent Nonprofits

Local governments can establish independent nonprofit organizations to provide financing for clean energy projects. This process typically does not require the legislation and authorization needed

to establish a green bank as a municipal entity. Independent nonprofits can be capitalized with both public and private funds. They may help mobilize capital from lenders who may view independent green banks as attractive for their potential flexibility and stability relative to green banks established as local government agencies. The New York City Energy Efficiency Corporation (NYCEEC) and the Montgomery County Green Bank are examples of independent nonprofit green banks. See the case studies at the end of this document for more information on these examples.

Working with State Green Banks

Several states have established green banks, including California, Connecticut, Hawaii, New York, and Rhode Island. Local governments can either directly access financing from state green banks for municipal projects or facilitate financing for local residents and businesses by raising awareness of the state green bank's offerings. See the case study on the Connecticut Green Bank at the end of this document for more information on how one state's green bank works with local governments.

IS A GREEN BANK RIGHT FOR MY COMMUNITY?

For some communities, establishing a green bank can be an effective means of mobilizing private capital for clean energy. Local governments can consider the following questions to determine whether establishing a green bank is right for their community. Answering "No" to a question does not necessarily preclude a local government from establishing a green bank. However, it may indicate that other green banking opportunities – such as working with a state green bank – may be more appropriate:

- *Does the local government have a priority market (e.g., distributed solar) for which financing is not readily available due to perceived risks or other barriers? Priority markets focus a green bank's investment*

priorities, providing clear direction to investors. However, green banks do not necessarily need to focus on specific target sectors or populations.

- *Is there sufficient demand to warrant creating a green bank?* If not, local governments might consider other small-scale financing mechanisms to support projects, or collaborate with other communities to aggregate demand. Local governments can also work to generate demand through outreach and awareness campaigns.
- *Is there enough public capital to capitalize the bank and attract private investors?* If not, local governments might consider engaging with other sources, such as philanthropic organizations or state governments.
- *Are private investors reluctant to invest in clean energy even if they have the capacity to do so?* Green banks help reduce perceived and real risks for private investors, and thereby stimulate private investment.
- *Does the local government have the capacity and financial expertise to establish and administer the green bank?* If not, local governments can still consider contracting with a private entity to serve as a green bank administrator. Alternatively, local governments can help businesses or residents access other sources of financing, such as state-operated green banks. For example, a bike share operator in New York City obtained a \$50 million loan from the state's green bank to help expand its program to low-income communities; the program is implemented in partnership with the local government.^{viii}
- *Does the local government have the legal authority and political support needed to establish a green bank?* If not, local governments can consider partnering with their state's green bank or other green banking opportunities.

Key Resources

- EPA's Clean Energy Finance Toolkit: www.epa.gov/statelocalenergy/clean-energy-finance-tool
- Green Bank Network Website: greenbanknetwork.org
- National Renewable Energy Laboratory Green Banks Website: www.nrel.gov/technical-assistance/basics-green-banks.html

- i Coalition for a Green Capital. 2015. Growing Clean Energy Markets with Green Bank Financing. Available: <http://coalitionforgreencapital.com/wp-content/uploads/2015/08/CGC-Green-Bank-White-Paper.pdf>. Accessed 9/20/2018.
- ii Natural Resources Defense Council, Coalition for Green Capital, and Climate Finance Advisors. 2016. Green & Resilience Banks: How the Green Investment Bank Model Can Play a Role in Scaling Up Climate Finance in Emerging Markets. Available: <https://www.nrdc.org/sites/default/files/green-investment-bank-model-emerging-markets-report.pdf>. Accessed 9/20/2018.
- iii Green Bank Network. 2017. Green Bank Network Impact through June 2017. Available: <https://greenbanknetwork.org/gbn-impact/>. Accessed 9/20/2018.
- iv Coalition for Green Capital. 2017. The Value of Public Investment in Green Banks. Available: <http://coalitionforgreencapital.com/2017/05/02/value-public-investment-green-banks/>. Accessed 9/20/2018.
- v Connecticut Green Bank. 2017. 2016 Fiscal Year Report. Available: <https://ctgreenbank.com/wp-content/uploads/2017/12/5b.-Connecticut-Green-Bank-2016-CAFR.pdf>. Accessed 9/20/2018.
- vi Coalition for Green Capital. 2016. Green Bank Product and Activity Overview. Available: <http://coalitionforgreencapital.com/wp-content/uploads/2016/06/CGC-Green-Bank-Product-Activity-Overview.pdf>. Accessed 9/20/2018.
- vii Solar and Energy Loan Fund. 2014. SELF Website. Available: <http://cleanenergyloanprogram.org/>. Accessed 9/20/2018.
- viii New York Green Bank. 2017. Governor Cuomo Announces Major Milestone. Available: <https://www.governor.ny.gov/news/governor-cuomo-announces-major-milestone-reached-ny-green-bank-27-million-profits>. Accessed 9/20/2018.

Example Green Banks



Montgomery County Green Bank (Montgomery County, Maryland)

- Established: 2016
- Capitalization: Merger set-aside
- Sectors: Commercial, industrial, nonprofit, multi-family

The Montgomery County Council designated its green bank in 2016 as a publicly chartered, independent 501(c)(3) nonprofit organization. To capitalize the green bank, the County Council committed up to a \$14.1 million set-aside that became available through the merger of the local utility company (Pepco) with Exelon Corporation. The Montgomery County Green Bank uses its capital to partner with lenders and attract their capital for loans or other investments. With its first product, the Commercial Loan for Energy Efficiency and Renewables (CLEER), the green bank has attracted approximately \$20 million in private capital with a green bank funding investment of only \$1 million for a loan loss reserve. CLEER finances energy efficiency and renewable energy projects for commercial, industrial, nonprofit, and multi-family properties.

For more information, see: mcgreenbank.org.



New York City Energy Efficiency Corporation (New York, New York)

- Established: 2010
- Capitalization: Federal grants from the American Recovery and Reinvestment Act and New York City funds
- Sectors: Multi-family, commercial, retail, healthcare, industrial, hospitality, nonprofit

NYCEEC is a 501(c)(3) nonprofit corporation that was established in 2010 to help New York City meet its energy and climate goals. NYCEEC offers financing products to help buildings invest in energy efficiency and reduce greenhouse gas emissions. Initially established as a nonprofit corporation and an affiliate of the New York City government, NYCEEC was restructured in 2013 to operate as a fully independent nonprofit that maintains a close working relationship with city and state governments. This restructuring helped ensure NYCEEC's longevity and eased its ability to attract resources from private organizations.

NYCEEC offers direct loans to building owners and project developers, typically in amounts ranging from \$100,000 to several million dollars. NYCEEC also offers small-scale pre-development loans in amounts ranging from \$3,000 to \$40,000 for affordable housing properties. Loans can be used for purchasing and installing equipment, financing energy service agreements and power purchase agreements, and funding pre-development activities. Rates typically range between 6-8 percent, and terms are generally 10 years or shorter. In addition to issuing loans, NYCEEC has provided credit enhancements in the form of loan loss reserves. NYCEEC had financed over \$145 million in clean energy projects in New York City and beyond.

For more information, see: www.nyceec.com.



Connecticut Green Bank

- Established: 2011
- Capitalization: Regional Greenhouse Gas Initiative funds, utility bill fees
- Sectors: Residential, commercial, local governments

The Connecticut Green Bank was the first green bank in the United States, established in July 2011 by legislative action from the Connecticut General Assembly. The bank has raised an additional \$6 of private capital for every \$1 of public funds used. It offers numerous opportunities to cities and towns, including pooling their demand for clean energy projects and helping them market clean energy finance products to local residents and businesses. Local governments can use the bank's financing to establish commercial PACE programs in their jurisdictions. In addition, the bank provides financing and technical assistance to help local governments enter into power purchase agreements at reduced rates, or to engage in no-money-down methods of hosting solar projects on certain public buildings.

The Connecticut Green Bank recently announced the formation of a 501(c)(3) nonprofit organization called Inclusive Prosperity Capital, which will provide capital for clean energy investments in low- and moderate-income communities and other underserved market segments. In establishing the organization, the bank envisioned an entity that could support markets outside Connecticut.

For more information, see: www.ctgreenbank.com and www.inclusiveprosperitycapital.org.