



Beyond Financing: A Guide to Green Bank Design in the Southeast

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Review

This primer has not undergone a formal review process, but has been reviewed by some experts in the field. It is intended to inform a discussion on emerging opportunities in clean energy finance.

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Summary

Green banks use funds to reduce the risk for private investment to support energy efficiency and clean energy. As local governments and corporations across the Southeast make progress on ambitious clean energy goals—including some with 100 percent renewable energy targets by as early as 2025—demand is growing for financing to make those goals attainable.

Green banks support consumers and businesses in the area of clean energy. Green banks also facilitate market development by educating consumers, centralizing administration for originators and lenders, and connecting capital supply to customer demand. Because green banks are capitalized from a diverse mix of public and private funds, they reduce risk to private lenders and induce participation in emerging markets.

As of September 2018, most American green banks were located in the Northeast and West. However, their structure and design can be replicated to meet the needs of any state or city in the Southeast.

This primer outlines the design elements of a green bank and explores how a green bank might leverage limited public funds in the Southeast and create a robust market for clean energy investment. It concludes that green banks have proved to be catalytic in the Northeast and West and could be what is needed to jump-start investment in the Southeast. With a properly designed green bank, Southeast states may be able to better take advantage of clean energy investment to accomplish their policy goals, stimulate economic development, and support energy equity.

INTRODUCTION

In 2018, funds for a weatherization grant program in Memphis ran dry in a matter of months. A new solar rebate program in North Carolina hit its annual 20-megawatt residential cap in two weeks. Local governments and corporations across the Southeast announced ambitious clean energy goals, including some with 100% renewable energy targets by as early as 2025. Demand is growing in the South for energy efficiency and clean energy and for financing to make these resources available to all.

States and utilities are investing in programs to meet this demand, but the gap between current and potential funding and financing remains enormous. Targeted investment is needed to overcome the region's high poverty rates, high rental rates, poor housing stock, and utility rate structures that discourage energy savings. These factors pose steep hurdles for building owners attempting to access public or private capital for clean energy projects.

Green banks can overcome these barriers and bring investment to scale. They might leverage limited public funds to attract private investment and make money available to consumers and businesses at low cost. Green banks also facilitate market development by educating consumers, centralizing administration for originators and lenders, and connecting capital supply to customer demand. And because green banks are capitalized from a diverse mix of public and private funds, they reduce risk to private lenders and induce participation in emerging markets.

In just a few years, six major U.S.-based green banks have invested over \$2 billion in clean energy projects. These projects meet state and local government objectives such as spurring job creation and economic development, supporting energy equity, and improving local air quality.¹ For example:

- **Employment.** In 2016, the Connecticut Green Bank's \$240 million investment in residential solar resulted in nearly 60 megawatts of installed residential solar and the creation of over 936 direct and 312 indirect and induced job-years.²
- **Economic development.** Since 2014, the New York Green Bank has helped nine New York companies expand operations and seven other companies grow their footprint in the state.³
- **Equity.** In 2018, the Hawaii Public Utilities Commission tapped the state's green bank to launch an energy efficiency on-bill financing program for renters and low- to moderate-income families.⁴
- **Clean energy investment.** In 2017, the Nevada General Assembly directed the Governor's Office to establish the Nevada Clean Energy Fund to accelerate investment in rooftop solar and energy efficiency (an estimated \$3.5 billion investment opportunity).⁵

As of September 2018, most American green banks were located in the Northeast and West. However, their structure and design can be replicated to meet the needs of any state or city in the Southeast. This primer outlines the design elements of a green bank and investigates how a green bank might be designed to leverage limited public funds in the Southeast and create a robust market for clean energy investment.

¹ Coalition for Green Capital, "U.S. Green Bank Transactions Exceed \$2 Billion Mark," February 24, 2017, <http://coalitionforgreencapital.com/2017/02/24/us-green-bank-transactions-exceed-2-billion-mark/>.

² "Evaluation Framework, Societal Perspective, Economic Development Fact Sheet," Connecticut Green Bank, https://www.ctgreenbank.com/wp-content/uploads/2018/03/CGB_DECD_Jobs-Study_Fact-Sheet.pdf. A "job-year" is the equivalent of one job for one year. Direct jobs are full-time positions directly created by the investment. Indirect or induced jobs are created by businesses that come into existence due to the economic growth resulting from the investment or are created by increased spending by households benefiting from the investment.

³ NY Green Bank, "Governor Cuomo announces major milestone reached by NY Green Bank with \$2.7 million in profits," June 22, 2017, <https://greenbank.ny.gov/News-and-Media/In-The-News/2017-06-22-Governor-Cuomo-Announces-Major-Milestone>.

⁴ Hawaii Public Utilities Commission, Docket No. 2014-0135, Order No. 35415, "Conditionally approving the establishment and implementation of an on-bill repayment mechanism," <https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A18D23A85549D00057>. An on-bill financing program enables customers to repay clean energy loans each month on their utility bills.

⁵ Coalition for Green Capital, "Nevada Governor Signs Green Bank Bill," June 6, 2017, <http://coalitionforgreencapital.com/2017/06/06/nevada-governor-signs-green-bank-bill-clean-energy-fund/>.

BACKGROUND (GREEN BANK 101)

A green bank is a market-based approach to boost investment in renewable energy and energy efficiency. It may be a public, quasi-public, or independent private institution dedicated to financing the deployment of these and other green infrastructure projects in partnership with private lenders. Most leverage public dollars to attract the private capital needed to accelerate clean energy market growth, but one can seed a new bank with money from an existing green bank, an institutional investor, or private philanthropic funds. Green bank funds are primarily dispersed as credit enhancements, grants or strategic investments—often low-interest loans—that encourage private lenders to enter the market. These investments give energy consumers much-needed access to capital, enabling them to invest in new energy technologies or energy efficiency at little or no upfront costs and to repay the loans with net energy savings.

Despite the name, a green bank is not a traditional financial institution and does not accept deposits. A green bank's purpose is to catalyze private investment in clean energy and energy efficiency by providing credit enhancements and strategic investment into targeted sectors. Because investment is done in partnership with private lenders, green banks are not subject to state and federal banking regulations. They do, however, have a board of directors to ensure the green bank is meeting a state's clean energy objectives.

Gaps and Barriers in Existing Clean Energy Markets

A green bank is typically developed to overcome financing gaps and barriers, including:

- **Large upfront costs.** Energy projects are capital intensive and require a large investment upfront.
- **Split incentives.** Landlords pay for energy updates while tenants receive the energy savings.
- **Limited understanding of the value proposition.** Many energy users do not understand the long-term value of clean energy projects.
- **Conflicting time horizons.** The payback period for a conventional loan often exceeds the consumer's short-term needs.
- **Risk aversion of lenders.** There is a limited track record of performance and payment history for clean energy and energy efficiency financing.
- **Undeveloped secondary market.** Non-standardized financial products and low volume of loans make it challenging to securitize loans.

In the Southeast, these gaps and barriers can be even more pronounced. For example, every Southeastern state has a poverty rate above the national three-year average of 13.7% and two (Louisiana and Mississippi) have poverty rates exceeding 20%.⁶ Poverty, coupled with the region's higher than average energy bills⁷, contributes to high energy burdens (the percentage of income spent on energy) for a population that does not have the disposable income to invest in weatherization or distributed energy resources or the credit history to borrow from traditional financing entities.

Benefits of Deploying Green Bank Financing

When green banks connect consumers to financing, they make projects possible, standardize projects to bring them to scale, and create a market for private lenders. Well-designed green banks can coordinate cross-agency efforts to stimulate clean energy investment and facilitate a collaborative approach to stakeholder engagement and consumer education across utilities and state and local governments. Moreover, green banks generate positive spillover effects. As noted above, green banks drive local job creation and could support an economic or workforce development strategy.

⁶ U.S. Census Bureau, "Income and Poverty in the United States: 2016," Sept. 12, 2017, Percentage of People in Poverty by State Using 2- and 3-Year Averages: 2013-2014 and 2015-2016, <https://www.census.gov/library/publications/2017/demo/p60-259.html>.

⁷ U.S. Energy Information Administration, "2016 Average Monthly Bill—Residential," https://www.eia.gov/electricity/sales_revenue_price/pdf/table5_a.pdf.

Other benefits include:

- **Reduced reliance on incentives and subsidies.** Through a green bank, states can transition away from grants and incentives to a more sustainable, long-term financing model.
- **Increased investment in renewable energy.** This is particularly critical in the Southeast, where state mandates do not drive this investment (only North Carolina has a mandate in the region).
- **Lower energy bills (residential sector).** Although the Southeast states rank among the lowest in average electricity rates, they rank among the highest in annual energy bills.⁸ Green banks can facilitate private sector financing for energy efficiency upgrades to lower energy costs.
- **Increased cash flow (commercial and industrial sectors).** Green banks can overcome payback period barriers by making transactions net cash flow positive from the start.

For elected officials, state agency staff, and organizations hoping to make clean energy and energy efficiency more affordable for all while stretching public dollars and driving economic development, a green bank could be what the Southeast needs.

Green Bank Examples

Green banks can be customized to meet the unique needs and policy goals of states or communities. The banks can be established by law, executive order, or utility commission order as state funds, limited liability corporations, or nonprofit organizations, or they can be launched by purely private entities. They may receive support and funding from taxpayers, rate-payers, judicial settlements, private investors, or charitable contributions from businesses, nonprofit organizations and foundations. They can focus on local interests (e.g., building efficiency, solar installation, or alternative transportation) or particular segments of the community. Interest rates and repayment timetables may be uniform, or they may be tiered to meet the needs of different categories of consumers.

Existing Programs in the Southeast Could Benefit from a Green Bank

Memphis, Tennessee, is home to some of the highest poverty rates and an aging housing stock, driving some of the largest energy burdens in the country—with households paying as high as 26 percent of their income for energy bills.^a With help of community organizations, Memphis Light, Gas and Water (MLGW) launched the **Share the Pennies Program** in January 2018 to help reduce the energy bills for some of their most vulnerable members.

The program, which offers grants of up to \$4,000 for weatherization to qualifying households, is entirely funded by a voluntary “round up” program for all MLGW customers.^b As of this writing, applications were closed due to capacity constraints.

A similar program funded by a green bank could attract private capital and result in longer term sustainability. Established by North Carolina’s Governor Cooper in 2018, **Hometown Strong** was created to champion rural communities and drive economic growth through a partnership between state agencies and local leaders. The effort will leverage state and local resources, identify ongoing projects and community needs, and implement plans to boost the economy, improve infrastructure, and strengthen North Carolina’s hometowns.^c A green bank could assist in the revitalization of rural communities, targeting investments that would improve rural housing stock, reduce energy bills for the rural poor, and create local jobs.

^a A. Drehobl and L. Ross, American Council for an Energy Efficient Economy, *Lifting the High Energy Burdens in America’s Largest Cities: How Energy Efficiency Can Improve Low-Income and Underserved Communities*, April 20, 2016, <https://aceee.org/research-report/u1602>.

^b Memphis Light, Gas and Water website, accessed 7/6/18, <http://www.mlkw.com/sharethepennies>.

^c Hometown Strong website, accessed 6/18/18, <https://hometownstrong.nc.gov/about-hometown-strong>.

⁸ U.S. Energy Information Administration, “Today in Energy: Electricity Prices are Highest in Hawaii but Expenditures are Highest in South Carolina,” Feb. 13, 2018, <https://www.eia.gov/todayinenergy/detail.php?id=34932> (indicating many Southern states have among the highest residential electricity expenditures of any state in the US).

Although green banks are relatively new in the U.S., a family of innovative public interest funds have been used for years to accomplish other conservation goals. Below are brief descriptions of existing green banks, as well as other funding vehicles, to illustrate their diversity in form and function. In the next section, we use these and other examples to describe the range of options available across ten design elements to build a green bank that will work for your Southeastern state or city.

For additional background information on the history and purpose of green banks, please visit the Coalition for Green Capital’s website at <http://coalitionforgreencapital.com>.

Table 1: Summary of existing U.S. Green Banks and other innovative public interest funds

Name	Sources of Capital	Uses of Funds	Funding Mechanisms
Alabama Forever Wild Trust	Trust income earned on the Alabama Trust Fund (oil and gas payments)	Acquire lands for recreation and ecological purposes	Grants to the state agency purchasing lands
California CLEEN Center (*)	State appropriations, service fees, interest on investment	Provide financing to municipalities, universities, schools, and hospitals for greenhouse gas reduction, water conservation, and preservation	Loans, bonds
Connecticut Green Bank (*)	Systems benefit charges, Regional Greenhouse Gas Initiative, private investment, federal funding (American Recovery and Reinvestment Act), other	Invest in residential, municipal, small business, and commercial clean energy projects	Subsidies (grants and incentives), loans and leases, credit enhancements
Dade County (Florida) Freshwater Wetlands Mitigation Trust Fund	Developer impact fees, county funds, state and federal grants, private donations	Acquire, restore, enhance, manage and monitor county wetland properties	Grants
Florida Solar and Energy Loan Fund	U.S. Department of Energy, Energy Efficiency and Conservation Block Grant Program	Finance clean energy programs for “underserved residents, small businesses, and communities”	Loans
Hawaii Green Infrastructure Authority (*)	Green infrastructure fee (invested in bonds)	Finance residential and commercial solar plus storage, energy efficiency, and community solar (with a focus on low-income renters)	Loans, on-bill financing
Montgomery County (Maryland) Green Bank (*)	Utility merger settlement, private contributions	Support energy efficiency for residential (including low-income), small business and multifamily buildings	Loans
Maryland Climate Action Fund (*)	Social impact capital	Underwrite community solar projects benefiting low-income residents	Loan guarantee
New York Green Bank (*)	Systems benefit charges, Regional Greenhouse Gas Initiative, private investment, existing state funds	Offer construction/post-construction financing and investment, financing to aggregate smaller distributed assets into portfolios at scale	Subsidies, loans, credit enhancements, warehouse loans

continued

Name	Sources of Capital	Uses of Funds	Funding Mechanisms
North Carolina Clean Water State Revolving Loan Fund	Federal appropriations, 20% state matching funds	Fund construction, upgrades of wastewater treatment facilities, and nonpoint source pollution reduction projects	Low-interest loans, principal forgiveness loans, zero interest loans for Green Projects, local government rehab projects.
Oregon Energy Trust	“Public purpose” charge on electric ratepayer bills	Fund cost effective local energy conservation projects, above-market costs of new renewable energy, new low-income weatherization	Grants
Rhode Island Infrastructure Bank (*)	Systems benefit charges, Regional Greenhouse Gas Initiative, existing state funds, federal funding (American Recovery and Reinvestment Act), private investment, other	Infrastructure projects (water and sewer, road and bridge, energy efficiency, renewable energy, brownfield remediation, and stormwater and climate resiliency)	Loans, bonds
Tennessee Heritage Conservation Trust Fund	State appropriations, timber leasing. In addition, the fund can request and receive contributions, bequests, and grants	Permanently conserve land in Tennessee to promote tourism and recreation, conserve/restore historical and environmental resources, and preserve working landscapes	Grants, loans

* Existing U.S. Green Banks

DESIGNING A GREEN BANK

Green banks can be structured in different ways, depending on a state’s goals, community priorities, clean energy partners, and potential funding sources. Across the different models, successful green banks are sustainable and adaptable. They should be designed so that the interest and return on investment can cover operating expenses (including losses) and sustain the bank in perpetuity or until the clean energy market can operate without green bank support. Green banks must also be nimble to take advantage of new funding sources, emerging technologies, and shifting community priorities.

Green Bank design fits ten categories: bank creation; public/private partnerships; initial funding sources; types of programs; objectives and the selection of projects; long-term sustainability; board and governance; staffing; measurement and verification; and sunseting of funds. For each category, we suggest options for states, local entities, and stakeholders to consider based on state and local factors.

1. Bank Creation

Governments can create green banks and other public funds by constitutional amendment, statute, local ordinance, or executive order. Constitutional funds are the most permanent, protecting a fund from the political winds, but they may be less adaptable. State or local laws may establish specific funds or general funds that agencies can later repurpose. Green banks can also be established by private entities.

a. State constitutional amendment or legislative mandate

The most durable state funds—including Alabama’s Forever Wild Trust⁹—are created by constitutional amendment. Writing the fund into a state constitution protects the fund from short-term political battles. However, the process for amending state constitutions is challenging and, once established, can make a fund impervious to needed change. Alabama addressed this second concern by building in a sunset provision—only the voters could extend the fund’s life, which they did in 2012—and enabling the fund’s board to adapt the fund over time.

⁹ Ala Const., amend. 543.

Alternatively, legislatures may establish funds, as they did in Connecticut and Rhode Island. In 2011, the Connecticut General Assembly repurposed an existing public fund to become the Connecticut Clean Energy Fund, housed in the newly created Clean Energy Finance and Investment Authority (CEFIA).¹⁰ In 2016, the legislature created the Connecticut Green Bank as a “successor agency” to CEFIA and expanded its authority.¹¹

The Rhode Island Infrastructure Bank (RIIB) was first established as the Clean Water Financing Agency by the Rhode Island General Assembly in 1989. In 2015, the legislature adopted the bank name and expanded its mandate to include a broad variety of infrastructure projects including renewable energy and energy efficiency projects.¹²

Tennessee’s Heritage Conservation Trust Fund¹³ and Nevada’s Clean Energy Fund¹⁴ were also created by statute. Similarly, at the local level, the Montgomery County Green Bank¹⁵ and Dade County’s Freshwater Wetlands Mitigation Trust Fund¹⁶ were created through county legislation.

b. Governor executive order or other executive action

In some instances, a governor or state agency has repurposed an existing fund to create a green bank. In 2013, the New York Public Service Commission established the New York Green Bank as a division of the New York State Energy Research and Development Authority (NYSERDA).¹⁷ NYSERDA had petitioned the Public Service Commission to launch a bank with funds reallocated from existing utility-funded programs.¹⁸ In 2014, California’s Governor Jerry Brown created the California Lending for Energy and Environmental Needs (CLEEN) Center out of the existing Infrastructure Bank created by the legislature ten years earlier¹⁹ and housed in the governor’s office.

A governor or state agency might be able to rely on general authorities set forth in the state constitution or granted by the legislature to create a fund. However, public funding is unlikely without legislative action.

c. Private creation

Some funds are not established by government. Private individuals established The Conservation Fund in 1985, to partner with agencies wanting to acquire land to “create parks, community green spaces, and wildlife habitat.”²⁰ The Conservation Fund, in turn, launched the Great Lakes Revolving Fund with funding from the Charles Stewart Mott Foundation.²¹ While these private entities support public land purchases, they are not bound to do so. In 2013, the Connecticut Green Bank partnered with a solar crowdfunding platform and Sungage Financial to offer solar financing. After two years, the pilot attracted major backing by Digital Federal Credit Union. At that point, the venture spun out of the Connecticut Green Bank and became entirely private.²²

2. Types of Public/Private Investment Partnerships

A green bank may be established as a government-run fund or administered as a quasi-public incorporated entity or nonprofit organization. These legal structures offer different benefits and drawbacks. A purely governmental fund is subject to state procedural and ethical requirements; these funds do not pay taxes and may require the state to guarantee loans or otherwise assume liability. The state has the most control over the public fund’s management and policy direction. Quasi-public entities are subject to some state requirements but operate more independently and may be able to enter into contracts, acquire intellectual property rights, and negotiate more innovative financing arrangements. Their liability may be

¹⁰ Conn. Public Act 11-80 (July 1, 2011), Section 99 (substituting Section 11-245n of CT General Statutes).

¹¹ Conn. Public Act 16-212 (May 27, 2016) (substituting Section 11-245n of CT General Statutes).

¹² See RI Gen L § 46-12.2-1 (2016), at <http://webserver.rilin.state.ri.us/Statutes/TITLE46/46-12.2/46-12.2-1.HTM>.

¹³ Tenn. Heritage Conservation Trust Fund Act of 2005, Tenn. Stat. § 11-7-103(f).

¹⁴ Nev. Senate Bill No. 407 (2017).

¹⁵ Montgomery County Code Sec. 18A-44 et seq.

¹⁶ Dade County Ordinance § 24-37(2)(a).

¹⁷ See New York Public Service Commission Order Establishing New York Green Bank and Providing Initial Capitalization (Dec. 13, 2013), Case 13-M-0412 (NYPSC Order Establishing New York Green Bank).

¹⁸ See id.

¹⁹ See Cal. Gov’t Code, Title 6.7, § 63021 et seq.

²⁰ The Conservation Fund 2016 Form 990, https://www.conservationfund.org/images/resources/TCF_2016_IRS_FORM_990_-_Public_Copy.pdf, at 2.

²¹ “Innovative Fund Protects Natural Assets in the Great Lakes Basin,” Oct. 17, 2017, Charles Stewart Mott Foundation, <https://www.mott.org/news/articles/innovative-loan-fund-preserves-natural-habitat/>.

²² U.S. Dep’t of Energy, “Energy Investment Partnerships: How State and Local Governments are Engaging Private Capital to Drive Clean Energy Investment (Dec. 2015), at 26-28.

limited to the assets they hold. Nonprofits under federal tax law must meet federal requirements and refrain from advocacy but may access additional sources of funding.

a. Entirely public/governmental fund

The Dade County fund is operated as a completely public (governmental) fund. The county's finance director maintains the fund as a trust for the Miami-Dade County Board of County Commissioners to keep the fund segregated from other county funds.²³ Similarly, the North Carolina Clean Water State Revolving Fund is an account within the state's Water Infrastructure Fund, a special revenue fund invested by the state treasurer and overseen by the Department of Environmental Quality.²⁴

The Tennessee legislature established the Heritage Conservation Trust Fund as a "special agency account" in the state general fund.²⁵ The fund was intended to receive only governmental funds.²⁶ However, the trust fund was authorized to "create or establish a nonprofit organization" which would then be eligible to receive funding from nongovernmental entities.²⁷

b. Quasi-public fund

As noted, the New York Green Bank is a division of NYSERDA.²⁸ In 1975, the legislature created NYSERDA as a public benefit corporation.²⁹ All board members are state officials or appointees of the governor,³⁰ and the authority is considered a state agency for purposes of hiring and promotions.³¹ In addition, NYSERDA must submit private bond sale terms to the comptroller³² and budget requests to the governor for approval.³³ However, NYSERDA may enter into contracts, borrow money, or sue and be sued,³⁴ and the state of New York is not liable for NYSERDA bonds or notes.³⁵

Similarly, the 2011 Connecticut statute establishing CEFIA made this entity "a quasi-public agency."³⁶ Staff and directors were subject to state ethics rules;³⁷ on the other hand, the Investment Authority was granted "all the privileges, immunities, tax exemptions and other exemptions of the corporation." Moreover, CEFIA was liable for its actions, up to the limit of its assets, and the state did not guarantee its bonds.³⁸ Yet the legislature directed CEFIA's board to cap the rate of return CEFIA could promise investors, to remove the private-sector incentive to trend to higher-risk projects.³⁹

As the successor to CEFIA, the Connecticut Green Bank performs "an essential public and governmental function" but is not a "department, institution or agency of the state."⁴⁰ It is listed as a "quasi-public agency" elsewhere in the code, subject to agency public notice, auditing, and reporting requirements.⁴¹ It retains the same corporate privileges as before⁴² and is now authorized to, for instance, exist in perpetuity, borrow money, enter into contracts, hire staff, hold intellectual property rights, invest its funds, and negotiate joint ventures with public and private entities.⁴³

²³ Dade County Ordinance Section 24-37(4) (2012).

²⁴ N. C. Gen. Stat. § 159G-20 to 22 (2018).

²⁵ Tenn. Acts § 11-7-103 (2005).

²⁶ *Id.*, at § 11-7-103(h).

²⁷ *Id.*, at § 11-7-103(f).

²⁸ See NYPSC Order Establishing New York Green Bank, *supra* n. 21.

²⁹ NYSERDA Act, Tit. 9 of Article 8 of the Public Authorities Law (1975).

³⁰ *Id.*, at § 1852.

³¹ *Id.*, at § 1857.

³² *Id.*, at § 1960.

³³ *Id.*, at § 1867.

³⁴ *Id.*, at § 1855.

³⁵ *Id.*, at § 1866.

³⁶ Conn. Gen. Stat. § 16-245n(d)(1) (2011).

³⁷ Conn. Gen. Stat. § 16-245n(d)(1) (2011) (referencing, *inter alia*, Chapter 10).

³⁸ Conn. Gen. Stat. § 16-245n(d)(1) (2011).

³⁹ Ken Berlin, Reed Hundt, and Devashree Saha, "State Clean Energy Finance Banks: New Investment Facilities for Clean Energy Deployment," Brookings-Rockefeller Project on State and Metropolitan Innovation (Sept. 2012), at 9 (citing Conn. Gen. Stat. § 16-245n(d)(2)(A)).

⁴⁰ Conn. Gen. Stat. § 16-245n(d)(1)(A) (2016).

⁴¹ Conn. Gen. Stat. § 1-20 et seq. (2018).

⁴² Conn. Gen. Stat. § 16-245n(d)(1)(C)(2016).

⁴³ Conn. Gen. Stat. § 16-245n(d)(1)(D)(i), (ii), (iv), (v), (vi), (vii), (ix).

c. Private, nonprofit organization

A number of state and local laws have established or directed agencies to establish nonprofit funds. By law, the Montgomery County Green Bank's articles of incorporation "must provide that the corporation is a tax-exempt nonprofit corporation; not an instrumentality of the County; and incorporated for the sole purpose of serving as the County's Green Bank."⁴⁴ The nonprofit must comply with the law establishing the bank, and the Council reserves the right to suspend or revoke the corporation's charter. So long as the corporation remains in place, however, it is authorized to issue bonds, notes or other obligations and to assume liability for those obligations.⁴⁵

In 2017, the Nevada General Assembly directed the Governor's Office of Energy to establish an independent, nonprofit corporation as the Nevada Clean Energy Fund, to support qualified clean energy projects. The bill also created a nine-member board of directors to administer the fund.⁴⁶

Private entities may also establish a public benefit corporation or nonprofit organization with public purposes. A Governor's office or public agency may broker discussions to launch a private organization, although once formed, the organization is generally not obligated to submit to agency oversight or implement government policies. An exception is the community development financial institution (CDFI) model. These institutions—including credit unions or venture capital providers—are certified by the federal government as having a "primary mission of promoting community development." St. Lucie County, Florida, contributed a \$2.9 million grant from the U.S. Department of Energy to a local CDFI, which used the funds to launch the Solar and Energy Loan Fund.⁴⁷

The Energy Trust of Oregon (ETO) offers another interesting model. ETO is a private nonprofit established after the legislature authorized Oregon's Public Utility Commission to run ratepayer-funded energy efficiency programs through a private party.⁴⁸ The Utility Commission brokered a grant agreement with the ETO that requires the nonprofit to achieve stated goals, submit a strategic plan and budget to the state, and seek approval for long-term contracts.⁴⁹ Similar agreements might be possible to insert public oversight onto a private green bank. However, absent public funding, it may be more difficult to convince the private entity that such an agreement is in their interest.

3. Funding Sources

Fund capitalization is typically generated from reallocation of a state's existing sources. For example, the Connecticut Green Bank was initially funded in part from an existing public benefit charge, the New York Green Bank from older utility-funded programs, and the Alabama fund from interest earned on oil and gas revenues collected in another state fund. Going forward, states, communities, and stakeholders might consider additional sources to diversify funding streams, including infrastructure fees, proceeds from carbon auctions and renewable energy credits, utility-funded settlement agreements, and investment from private lenders and foundations.

a. Public (system) benefit charge or infrastructure fee

A public benefit charge is a state-mandated surcharge for all kilowatt-hours (kWh) sold that may cover costs of services in the public interest such as energy efficiency, education and outreach, and low-income energy assistance programs. The Connecticut Green Bank is partially funded by a surcharge on all Connecticut utility bills of \$0.001 per kWh, reaching \$20 to \$25 million per year.⁵⁰

U.S. Climate Alliance Collaboration with New York Green Bank Capital Source

In September 2017, New York Gov. Andrew Cuomo announced the New York Green Bank would raise at least \$1 billion of private capital to stimulate clean energy investment outside of New York across U.S. Climate Alliance states and beyond, and to provide resources and capacity to newly established Green Banks.^a

^a United States Climate Alliance website, accessed 7/29/18, <https://www.usclimatealliance.org/greenbanks/>

⁴⁴ Montgomery County Code Section 18A-48 (2015). The Council committed to issuing a resolution, subject to County Executive approval, to establish a nonprofit corporation to operate as the Montgomery County Green Bank. *Id.*, at 18A-46(a).

⁴⁵ *Id.*, at 18A-46(c)–(e).

⁴⁶ Nev. Senate Bill No. 407 (2017).

⁴⁷ Energy Investment Partnerships, *supra* n. 26, at 29-30.

⁴⁸ Oregon S.B. 1149 (1999), Ch. 865, § 3(3)(d).

⁴⁹ Grant Agreement Between Energy Trust of Oregon, Inc. and Public Utility Commission of Oregon, Dec. 1, 2005.

⁵⁰ Conn. Gen. Stat. § 16-245n (2018).

A green bank can also be funded through a flat fee on customer utility bills. Hawaii's Green Energy Market Securitization (GEMS) program, part of the Hawaii Green Infrastructure Authority, is funded entirely by a \$1.29 monthly "green infrastructure fee" on residential utility customers' bills that was used to securitize a \$150 million rate reduction bond. This fee is accompanied by a reduction to the previously charged public benefits fund surcharge to limit the overall impact to customers.⁵¹ The Energy Trust of Oregon is also funded this way.⁵²

b. Sale of emission allowances/carbon tax

Although generally not the primary source of funding, additional investment can be provided from proceeds from the sale of emission allowances through the Regional Greenhouse Gas Initiative (RGGI) or other forms of carbon pricing. For example, electric power generators in the nine northeast RGGI states purchase CO₂ allowances at regional auctions. Proceeds from the auctions can be used by states for energy efficiency and to accelerate the deployment of renewable energy technologies.⁵³

The New York Green Bank received a portion of its initial capitalization from RGGI auction proceeds and continues to receive approximately \$25 million each year through 2025.⁵⁴ The Connecticut Green Bank also receives funding from RGGI auction proceeds as well as from the sale of renewable energy credits from state-financed projects.

c. Utility-funded settlement agreements

Utility rate cases and merger proposals brought before public utility commissions provide an opportunity for utility-state-stakeholder settlement agreements that include green bank funding. The Montgomery County Green Bank received \$14 million from the state utility commission's 2016 settlement agreement over the Exelon-Pepco merger.⁵⁵ Similarly, large tax windfalls—like the excess deferred income tax resulting from the Tax Cuts and Jobs Act of 2017—and other utility cost recovery overage settlements can be used as a funding source for a green bank for the future benefit of all rate payers rather than for a one-time decline in rates.

d. Mission-driven private funding

Some green banks receive funding from philanthropic grants and program-related investments (PRI) which are made to further a specific cause (e.g., community solar or low-income programs). Initially, Connecticut's fund contained only public dollars; in 2011, however, the fund was authorized to receive private investment.⁵⁶ Recently, the Connecticut Green Bank received \$3 million in PRI-support from Kresge Foundation. Similarly, the Montgomery County Green Bank received a small private foundation grant to staff the \$50 million fund. The Tennessee and Dade County funds are eligible to receive private philanthropic donations, as well.

e. State and federal funding

The North Carolina Clean Water Revolving Fund receives funding from federal Clean Water Act programs, as well as matching state appropriations.⁵⁷ Similarly, state or federal funding opportunities may be used to create or sustain a green bank. These can include federal Community Development Block Grants, weatherization grants, and funds from DOE State Energy Programs. The New Jersey Energy Resilience Bank was capitalized with \$200 million from Community Development Block Grant-Disaster Recovery Funds allocated to New Jersey in the wake of Hurricane Sandy. The Florida Solar and Energy Loan program was capitalized through a DOE grant received by St. Lucie County.⁵⁸

⁵¹ Hawaii Green Infrastructure Authority, "GEMS Financing Program," <http://gems.hawaii.gov/learn-more/>.

⁵² Oregon S.B. 1149 (1999), Ch. 865 § 3.

⁵³ "The Regional Greenhouse Gas Initiative," <https://www.rggi.org/program-overview-and-design/elements>.

⁵⁴ New York Green Bank. "Public Service Commission Order Approving Clean Energy Fund Including Full \$1 Billion Capitalization for NY Green Bank," Jan. 21, 2016, <https://greenbank.ny.gov/Resources/Public-Filings>.

⁵⁵ County Council for Montgomery County, Resolution No. 18-763, April 4, 2017, https://www.montgomerycountymd.gov/COUNCIL/Resources/Files/res/2017/20170404_18-763.pdf.

⁵⁶ Conn. Gen. Stat. 16-245n(d)(2)(c)(vi) (2011).

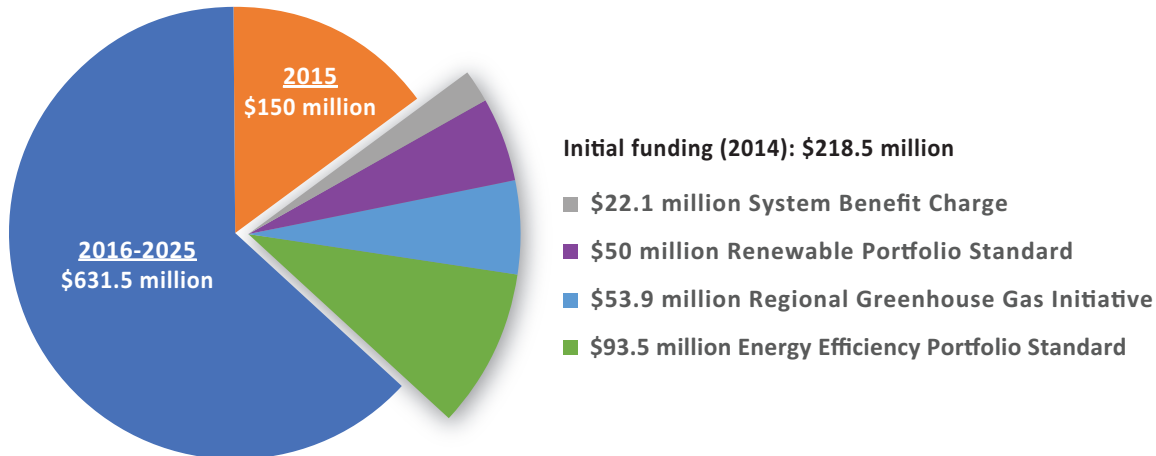
⁵⁷ N.C. Gen. Stat. § 159G-21 (2018).

⁵⁸ "Solar and Energy Loan Fund (SELF) Program Overview," DSIRE, <http://programs.dsireusa.org/system/program/detail/4977>.

f. Institutional investors and private capital

The option to use institutional investment or private capital from large commercial banks can be explored in combination with public and philanthropic sources of funding. For instance, the Connecticut Green Bank partnered with a crowdfunding platform and a financial institution to pilot a rooftop solar financing program; a bank then committed \$100 million to the venture, enabling the partners to privatize the program.⁵⁹

Figure 1: Initial funding sources for New York Green Bank



Source: State of New York Public Service Commission, Order Approving Additional Capitalization with Modification for New York Green Bank, July 17, 2015.

4. Types of Financial Products

The choice of financial product is an important decision for a green bank in that it establishes the investment partnership with private lenders and the mechanisms for repayment. In some cases, the green bank will directly assist private lenders by offering products that reduce the financial risk associated with the loans. In others, the green bank is the lender and plays an aggregating role in the financial process. In all cases, the financing mechanism selected should fill a gap in the financing landscape and result in a reasonable return on investment for the public dollars invested. A green bank may offer several products, based on what will best match the circumstances of each investment opportunity.

a. Credit enhancements

Public funds can be used as credit enhancements—including loan loss reserves and loan guarantees—to reduce the default risk for private lenders. These can be quite useful when offering loans to credit-constrained consumers or when the financial terms are nonstandard (i.e., longer than the useful life of the asset). While the return on these types of investment are lower (typically a fee charged to the participating lender), the leveraging effect in the short term can be quite large—sometimes up to ten times the amount of the enhancement.

b. Direct loans

Direct lending of public funds to consumers can jump-start a market or technology that might be commercially viable, but is unproven in the financial marketplace and therefore unable to compete with other, more mainstream, clean energy projects. It can also be used to attract senior (priority) debt investors into new markets like storage, fuel cells, or new technologies that have not yet gained a long-term repayment performance record.

c. Co-investment loans

Public funds can also be used in partnership with private funds. In these arrangements, the co-invested debt acts both as a direct lending mechanism as well as a credit enhancement. For example, a green bank might offer subordinated (or secondary) debt for 20% of the financed cost of a project and assume the first loss position in the event of a default. This reduces the risk of the private investor's 80% portion and leverages the public fund's 20% investment.

⁵⁹ See, *supra*, at 7.

d. Warehouse loans

For smaller loans that can be standardized (e.g., residential energy efficiency loans), a green bank can aggregate loans for sale on the secondary market. This offers a way to reduce the costs per loan and achieve a reasonable return on investment. A green bank would finance a standardized set of projects directly, then warehouse the portfolio until a sufficient scale is reached to attract a private investor. In this type of lending scenario, the green bank receives 100% of its investment back, which can be used for the next tranche of funding.

e. Specialized loan programs

Other more specialized loan programs can be utilized depending on the laws of the state.

Property Assessed Clean Energy (PACE)

financing programs are collateralized by a senior lien on the property and repaid through annual property tax payments. This reduces the nonpayment risk for a public or private lender. However, a state must have PACE-enabling legislation before this program can be developed. A green bank could act as either the direct lender (as the CT Green Bank does) or offer a credit enhancement to encourage private lenders to enter the market.⁶⁰

Similarly, an on-bill financing program provides clean energy financing that is repaid on customer utility bills. Because they are paid on the utility bill, these loans generally have lower default rates, eliminate credit barriers, and, when tied to the utility meter work for both property owners and renters. An on-bill program can be done in partnership with utility programs (using a credit enhancement like a loss reserve) or a direct loan program repaid through the utility bill (like the Hawaii Green Infrastructure Authority's GEMS program).⁶¹

AlabamaSAVES

The AlabamaSAVES Program offers a hybrid financial product that pairs up public funds with loans from third-party banking partners. It uses funds from the U.S. Department of Energy State Energy Program (SEP) through the Energy Division of the Alabama Department of Economic and Community Affairs to acquire a participating interest in a third-party loan made to fund qualifying energy conservation measures. This participating interest is subordinated in the event of default to the third-party loan's remaining principal and carries an interest rate 2% below the rate of the third-party loan, thereby acting as both a credit enhancement (subordinated debt) and a subsidized direct loan.^a

^a The AlabamaSAVES Program is administered by the Abundant Power Group and its specialty finance affiliate, CleanSource Capital, out of Charlotte, North Carolina. For additional information, visit <http://www.alabamasaves.com>.

5. Setting Objectives/Selection of Projects

To fully capitalize on public investment and achieve the expected benefits, the initial design of a green bank should align with other state programs and policies. The bank should fill policy gaps, focus on projects that meet the objectives of the key internal and external stakeholders, and match the size of the clean energy market.

a. Establish a coordinated coalition of internal and external partners

Most states have public and private clean energy and energy efficiency programs. To fully understand where programs overlap and to identify gaps that a green bank could fill, the process should be informed by a coalition of stakeholders, including state agencies, financial institutions, nonprofit organizations, renewable providers, utilities, consumer advocates, project developers, and energy service companies. Documents establishing the green bank should articulate a general purpose; then, the green bank can consider stakeholder viewpoints to identify investment priorities and ensure these are coordinated and consistent with existing programs.⁶²

b. Understand the market potential

The state or community considering a green bank should conduct a market sizing analysis, to estimate the maximum market potential for clean energy development. This analysis should identify opportunities for investment for particular customer classes (industrial, commercial, agriculture, residential) and sectors (e.g., energy efficiency, solar photovoltaic, storage, onshore/offshore wind, combined heat and power, biomass, or emerging technologies). This analysis will help to determine the role of the green bank and the lending programs and projects it should support.

⁶⁰ Because of first lien requirements from residential senior debt providers like Fannie Mae and Freddie Mac, the majority of PACE programs in existence are for commercial buildings. Only three states currently offer PACE programs: California, Florida and Missouri. PACENation website, accessed June 27, 2018, <http://pacenation.us/pace-programs/>.

⁶¹ GEMS Financing Program website, accessed June 21, 2018, <http://gems.hawaii.gov/participate-now/for-homeowners/>.

⁶² A board that represents broad stakeholder interests can facilitate these conversations; see section 7, below.

c. Develop a list of green bank project offerings

Once the market potential and target markets have been identified, green bank project offerings can be developed. Many green banks choose to focus on projects that are economically viable, but currently not financially feasible. These can include:

- Smaller commercial and industrial projects (less than \$1 million) where an Energy Savings Company (ESCO) doesn't currently invest
- Projects needing longer terms to match limited cash flow (for low-income or small business borrowers)
- Credit-constrained borrowers
- Projects facing a split incentive (commercial and multifamily landlords and tenants)
- New technologies that are viable, but unproven in the market
- Commercially accepted technologies yet to achieve broad acceptance, including electric vehicle infrastructure, EV fleet conversion, solar-plus-storage installation, anaerobic digester gas systems, offshore wind, and fuel cells
- Long-term power purchase agreement needs (offshore wind; other large-scale renewables)

Many green banks choose to focus on a select group of projects and then adapt as circumstances change. While the Hawaii GEMS program originally targeted underserved markets for low-cost residential solar financing, it shifted in 2017 to address market trends for solar+storage technologies and commercial energy efficiency.⁶³ If adaptability is important to a state or community, the founders should draft the green bank's organizational documents to enable this flexibility. For instance, rules implementing the North Carolina Clean Water Revolving Fund allow the Department of Environmental Quality to deviate from annual plans in emergency situations.⁶⁴

6. Long-term Sustainability

One of the greatest benefits of a green bank is the transformation of a one-time expendable grant or incentive into a long-term clean energy investment vehicle. With a sustainable repayment strategy, a green bank can operate indefinitely without additional capital infusion. This "recycling effect" enables a state to maintain its commitment to clean energy without repeatedly seeking additional public funding. Organizational documents should explicitly outline the sustainable levels of return on investment that will replenish the fund and cover operating costs including any risk of default or nonpayment.

a. Revenue from lending activity

Green banks are designed to achieve a reasonable financial return on investment (ROI) that exceeds the estimated operating and administrative costs plus a margin for potential defaults. The target ROI will depend on the type of program, the associated risk, and the customer's sensitivity to fees. For direct loan programs, the bank should set goals for loan originations at an interest rate sufficient to cover its costs. In some cases, the interest rate is standard for all loans (e.g., Connecticut's Smart-E loan energy efficiency program), while larger capital investments base the interest rate on established credit, financial considerations, and risk/return considerations for each transaction.

In specified cases, a fund's disbursement and repayment policies can be flexible to better realize investment priorities. For instance, the RIIB's Efficient Buildings Fund is designed to provide below-market interest rates and subsidies to government entities for state-defined priority projects. At the discretion of the RIIB board, financially distressed local government units can receive additional subsidies or assistance for these projects as long as this does not have an adverse effect on the fund or the partnering financial institutions.⁶⁵ The North Carolina Clean Water Fund can increase loan commitments by up to 10 percent, so long as adequate funds are available.⁶⁶

⁶³ Hawaii Green Infrastructure Authority, Annual Plan, Fiscal Year 2017, <https://gems.hawaii.gov/wp-content/uploads/2016/06/GEMS-Annual-Plan-for-2017.pdf>.

⁶⁴ 15A N.C. Admin. Code 01N.0201.

⁶⁵ Rhode Island Infrastructure Bank, Efficient Buildings Fund, Policies and Procedures, 2015, https://www.riib.org/sites/default/files/Policies-&-Procedures_EBF.pdf.

⁶⁶ 15A N.C. Admin. Code 01N.0703.

For credit enhancements and loan loss guarantees, revenue is obtained via servicing or administration fees that are directly charged to the borrowers. In a warehousing loan program, revenue is received after the sale of the loans on the secondary market.

b. Operating costs

Because of the lag in revenue from loan repayment or origination fees, most green banks are not self-sufficient from the outset and must lay out a timeline for establishing how and when the programs will be self-sustaining. The administrative budget for the Hawaii GEMS program was originally \$1 million; the Hawaii Green Infrastructure Authority requested a \$500,000 increase in 2017 to facilitate the additional deployment of \$145 million in loans. The Authority anticipates future administrative costs (FY18 and beyond) will be paid by revenue from loan repayments.⁶⁷

In addition to administrative costs, a bank's operating costs can include an allowance for loan losses. Most green banks establish an allowance for loan losses that covers the possible defaults or uncollectable accounts. This reduces the risk to the bank and ensures long-term sustainability.

c. Protection from annual budget process

Legislatures may include language to protect a fund from the annual budget process. This may be done by creating a quasi-public or private institution to handle the funds. Alternatively, laws may need to characterize the funds that remain in a fully public account beyond a fiscal year as continually obligated to avoid raiding of these funds to balance the state budget.⁶⁸ It may also help to state that the fund may only be used for the fund's purposes.

Including these types of provisions will not prevent future legislatures from changing course. Some legislatures have required a future supermajority to overturn or raid a fund; however, several state supreme courts have ruled that statutes may not require a supermajority vote when the state constitution authorizes laws to be passed by simple majority.⁶⁹ Nonetheless, statutory language operates to constrain uses of the fund unless a future legislature overturns the law.

d. Investment of funds

Green banks invest undisbursed cash to generate additional revenue to cover annual operating expenses. The New York Green Bank investments are subject to an investment policy approved by its parent company, NYSERDA. It invests its excess cash primarily in U.S. Treasury bills.⁷⁰ Similarly, RIIB invests excess cash in U.S. agency securities including the Federal Home Loan Mortgage Corp., as well as guaranteed investment contracts.⁷¹

Montgomery County's Green Bank may generate and spend earnings from investments in "clean energy technologies backed by the Green Bank."⁷² Other banks authorized to hold rights in intellectual property may generate revenues from these holdings as well.⁷³

7. Board and Governance

Many state green banks and conservation funds have boards that oversee the management and disbursement of funds. A board may also develop spending or investment priorities, report on outcomes, or build political support. If the green bank's fiscal management and investment strategy is overseen by the state treasurer or an executive director, care should be taken to delineate responsibilities and coordinate between the board and these other actors. If the green bank is established as a nonprofit organization, a board of directors will be required. Legislatures may describe the makeup of the board.⁷⁴

⁶⁷ Hawaii Green Infrastructure Authority, Annual Plan, Fiscal Year 2017, <https://gems.hawaii.gov/wp-content/uploads/2016/06/GEMS-Annual-Plan-for-2017.pdf>.

⁶⁸ For example, the Pennsylvania Supreme Court has held that if funds are clearly "continuing appropriations," committed and encumbered beyond a fiscal year, they are not "surplus funds" under the constitution and may remain unavailable for appropriation in future years. *See Stilp v. Comm.*, 601 Pa. 429, 446-47 (2009).

⁶⁹ *See, e.g., League of Ed. Voters v. State*, 176 Wash. 2d 808 (2013); *Alaskans for Efficient Gov't, Inc. v. State*, 153 P.3d 296 (Alaska 2007); *Falcke v. Douglas Cty.*, 119 Nev. 277 (2003).

⁷⁰ NY Green Bank, 2017 Audited Financial Statements, March 31, 2017, <https://greenbank.ny.gov/Resources/Public-Filings>

⁷¹ Rhode Island Infrastructure Bank, Basic Financial Report, June 30, 2017, page 21. <https://www.riib.org/sites/default/files/Rhode%20Island%20Infrastructure%20Bank%206-30-17%20FINAL.pdf>

⁷² Mont. County Code § 18A-49(e)(3).

⁷³ *See, e.g., Conn. Gen. Stat. §245n(d)(1)(D)(v)*.

⁷⁴ *See, e.g., Nev. Senate Bill No. 407* (2017).

Usually, one or more trustees represent state agencies. California's Infrastructure Bank board includes the state treasurer, the secretary of Transportation, and the director of the Department of Finance; Connecticut's Green Bank board includes the state commissioner of Energy and Environmental Protection and the commissioner of Economic and Community Development. The governor appoints one or more citizen board members for California's Infrastructure Bank and the Tennessee Heritage Fund.⁷⁵ Alabama's constitution requires that the state university system, the governor, the lieutenant governor, and the speaker of the house each appoint several trustees to the Forever Wild Trust Board.⁷⁶

Other key constituencies should be represented as well. Connecticut requires board members from a residential or low-income group, and an environmental group.⁷⁷ Nevada requires representatives from the state real estate administrator.⁷⁸

Funds often require board members to have specific skill sets; finance, energy, or accounting expertise might be particularly helpful. Connecticut requires one Green Bank board member to have experience in investment fund management. Montgomery County's Green Bank board includes an officer from the Connecticut Green Bank, a certified public accountant, an officer from a socially responsible investment fund, and energy experts.⁷⁹

8. Administration and Staffing

Once a board of directors is in place, the next step is to hire one to two key staff members with the skills necessary to set up and run the bank. The critical skills include commercial banking, business development, energy and communications/marketing knowledge. In the initial stages of the bank, some of these skillsets can be provided by partners or by a voluntary advisory committee. Some funds enable state agencies to offer in-kind staff support to these funds.⁸⁰

a. Executive director

The executive director reports to the board of directors and is responsible for the day-to-day management of the green bank, including financial, operational, and relationship management. Strong leadership, strategic thinking, analytical and public or corporate governance skills are highly valued. A degree in finance, accounting, economics or a related field is strongly preferred.⁸¹ In some cases, the governor may appoint the executive director.⁸²

b. Key staff members

Green banks are often initially staffed by banking, finance or communications personnel that can assist with the administrative start-up of the programs. The communications person should lead business development, sales, partnership building, government relations and business development. The finance person should focus on product design, deal flow management, and underwriting.⁸³ As specific types of projects are defined (see section 5), additional staff can be hired to meet the technology or market needs of the program. For example, the Hawaii GEMS program initially hired only an executive director. It then increased its staffing in 2017, to include two associates and one analyst as their finance programs were defined and capital was deployed.⁸⁴

c. Advisory committee

In addition to a board of directors, some green banks tap voluntary advisory committees to assist the management team with guidance outside of the staff's expertise. This can include individuals with expertise in project management, venture capital, utility infrastructure, technology and real estate. The NY Green Bank utilizes an advisory committee to advise on matters including business planning, strategy, business development, market

⁷⁵ See, e.g., Cal. Gov. Code § 63021.5(a)(4); Tenn. Stat. § 11-7-104(b).

⁷⁶ Ala. Const., Amend. 543, Sec. 4.

⁷⁷ Conn. Gen. Stat. §16-245n(e)(1).

⁷⁸ Nev. Senate Bill No. 407 (2017).

⁷⁹ See Mont. County Code § 18A-47.

⁸⁰ See, e.g., Mont. County Code § 18A-49; Cal. Gov't Code § 63024.

⁸¹ A sample executive director job description can be found on the Rhode Island Infrastructure Bank's website, accessed June 27, 2018. <https://www.riib.org/sites/default/files/Executive%20Director%20and%20CEO.pdf>.

⁸² See, e.g., Cal. Gov't Code § 63021.

⁸³ Coalition for Green Capital, "The Massachusetts Green Bank Opportunity and Business Plan" (Oct. 2017), at 28. <http://coalitionforgreencapital.com/wp-content/uploads/2017/10/MA-Green-Bank-Business-Plan.pdf>.

⁸⁴ Hawaii Green Infrastructure Authority, Annual Plan, Fiscal Year 2017, at 16, <https://gems.hawaii.gov/wp-content/uploads/2016/06/GEMS-Annual-Plan-for-2017.pdf>.

intelligence, and product development.⁸⁵ Similarly, the Hawaii Green Infrastructure Authority created a volunteer Credit Committee comprised of experienced banking officers from major financial institutions in the State in order to better assess credit risk and advise upon best practices in lending.⁸⁶

9. Measurement and Verification

Once the green bank is established, mechanisms are needed to evaluate whether it is achieving its purpose, and whether the trustees are properly managing fund investment and disbursement/lending decisions. Reporting is critical to ensure fund integrity, foster transparency, and build a solid track record of success. Some states also require regular audits of the fund and funding recipients.⁸⁷ Other states require fund managers to report how funds have been and will be spent.⁸⁸ Usually, reports and audits are directed to the Governor and the legislature. This information could be shared more broadly, for instance through a fund website. At a minimum, information should be available upon request.

a. Annual plans and audited financial statements

Most green banks are required by statute to file annual plans to the state. As part of its statutory requirements, the Hawaii Authority submits an annual plan for review and approval no later than ninety days prior to the start of each fiscal year. This plan includes an operational budget for the succeeding fiscal year.⁸⁹ The California Infrastructure Bank submits an annual report of revenues and expenditures from the previous fiscal year, and a projection of the bank's needs and requirements for the coming year, to the Governor and the legislature.⁹⁰ Connecticut, New York, and Rhode Island Green Banks also prepare audited financial statements annually.

b. Metrics plan

The New York Green Bank is also required to submit quarterly and annual metrics reports to the Commission to provide updates on the program impacts based on the stated investment criteria and plan deliverables. The NY Green Banks Annual Financial Metrics Report tracks an Impact Evaluation and a Market Evaluation to further support the goals of that Green Bank. The Impact Evaluation validates the overall energy and environmental and economic impacts obtained through investment of funds, using industry standard approaches to remain consistent with other rate-payer funded programs:⁹¹

- Estimated gross lifetime and first-year clean energy generated (megawatt-hours)
- Estimated gross clean energy generation installed capacity (megawatts)
- Estimated gross lifetime and first-year GHG emission reductions (metric tons)

The Market Evaluation measures the impact of the investments on market change: how they address barriers, raise awareness and increase end user knowledge about clean energy projects.

10. Sunset of Funds

Some funds include termination provisions that end the fund by a certain date or require some action to extend the fund.⁹² Alabama's Forever Wild program was due to sunset after twenty years, absent another amendment to the constitution. The measure was put to the voters in November 2012; 75% of voters supported continuation of the fund.⁹³ In other cases, states repurpose funds when their initial use becomes moot or obsolete; as noted, the Connecticut and New York Green Banks grew out of repurposed funds.

⁸⁵ New York Green Bank Organization Plan Filing for the Public Service Commission February 18, 2014, p. 6.

⁸⁶ Hawaii Green Infrastructure Authority, Annual Plan, Fiscal Year 2017, at 16, <https://gems.hawaii.gov/wp-content/uploads/2016/06/GEMS-Annual-Plan-for-2017.pdf>.

⁸⁷ See, e.g., Conn. Gen. Stat. tit. 1, ch. 12 (requiring semiannual audits of quasi-public agencies).

⁸⁸ See, e.g., NYSERDA Act, Sec. 1867; Cal. Gov't Code § 63035; Ala. Const., Amend. 543, Sec. 5(d).

⁸⁹ See "Decision and Order No. 32318," filed in Hawaii PSC Docket No. 2014-0135 on September 30, 2014, at 1, 33.

⁹⁰ See Cal. Gov't Code § 63035.

⁹¹ NY Green Bank, Metrics, Reporting and Evaluation Plan, Version 3.0, Case 13-M-0412, June 20, 2016. <https://greenbank.ny.gov/Resources/Public-Filings>.

⁹² ALA. CONST.; Amend. 543.

⁹³ Ballotpedia; "Alabama Forever Wild Land Trust Amendment, Amendment 1 (2012)" (reporting that 75% of the voters in Alabama voted to extend the land trust).

ADDITIONAL DESIGN CONSIDERATIONS

Although the ten design elements outlined above define the heart of successful green bank creation, there are other design considerations that states should consider, especially those with specific economic, environmental or policy objectives. In the Southeast, these additional elements may be critical in order to jump-start a statewide clean energy or energy efficiency program.

1. Driver of Workforce and Economic Development

The economic impact of jobs created from green bank investment can be quite substantial, especially in states with unrealized potential in renewable energy and energy efficiency. In Connecticut, employment in the solar industry grew by approximately 30% since its creation.⁹⁴ Local job creation, and the associated workforce development training, can be used as a factor in determining where green bank dollars should be invested.

2. Centralized Source for Clean Energy Information

In states without a coordinated approach to clean energy investment, it can be difficult for businesses and consumers to find unbiased information to inform their investment decisions. Green banks can serve as a one-stop shop for information about statewide clean energy and energy efficiency programs. The Connecticut Green Bank utilizes two websites—*EnergizeCT* and *GoSolarCT*—to facilitate program coordination, standardize data, provide contractor training, and streamline the customer experience.⁹⁵

3. Energizing Carbon Markets

As part of the measurement and verification of impacts, most green banks calculate the amount of greenhouse gas (carbon dioxide and equivalents) reductions associated with their program investment. The NY Green Bank estimates that their investments to date have resulted in 7.4 million metric tons of greenhouse gas reductions in the state.⁹⁶ These verified carbon reductions can be monetized and used in carbon markets including the sale of Renewable Energy or Energy Efficiency Certificates or voluntary carbon marketplaces like NC GreenPower, thereby generating additional revenue for the program.⁹⁷

4. Social Benefits

The societal benefits of clean energy investment—including health and safety benefits, air quality benefits, and reduced energy burden for underserved populations—can be an important measure of the success of a green bank program. For states with policy objectives in these areas, a green bank can be designed to include requirements for the inclusion of these important design elements. For example, one of the stated objectives of the Hawaii GEMS program is to expand access to and affordability of renewable energy and energy efficiency projects for identified underserved markets.⁹⁸

CONCLUSION

Despite tremendous potential for increased clean energy and energy efficiency projects, investment in the Southeast has been slow, due to a lack of public funds and skepticism in the private market. Green banks have proved to be catalytic in the Northeast and Western parts of the country and could be a necessary spark to jump-start investment in the southeast. With a properly designed green bank, states could better take advantage of clean energy investment to accomplish their policy goals, stimulate economic development and support energy equity in the Southeast.

⁹⁴ Connecticut Green Bank, Evaluation Framework, Societal Perspective, Economic Development Overview, August 2016, https://www.ctgreenbank.com/wp-content/uploads/2018/03/CGB_DECD_Jobs-Study_Fact-Sheet.pdf.

⁹⁵ EnergizeCT and GoSolarCT are both initiatives funded by the Connecticut Green Bank. See, <https://www.energizect.com/>; <http://www.gosolarct.com/>.

⁹⁶ New York Green Bank, Winter Newsletter, Dec. 21, 2017, <https://greenbank.ny.gov/News-and-Media/In-The-News/201801-Winter-Newsletter>.

⁹⁷ For additional information NC GreenPower, visit <https://www.ncgreenpower.org/>.

⁹⁸ Hawaii Green Infrastructure Authority, FY2018 Annual Plan, at 3, https://gems.hawaii.gov/wp-content/uploads/2017/04/FY2018-Annual-Plan_Filed-PUC_3-30-17.pdf.

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Nicholas Institute for Environmental Policy Solutions

The Nicholas Institute for Environmental Policy Solutions at Duke University is a nonpartisan institute founded in 2005 to help decision makers in government, the private sector, and the nonprofit community address critical environmental challenges. The Nicholas Institute responds to the demand for high-quality and timely data and acts as an “honest broker” in policy debates by convening and fostering open, ongoing dialogue between stakeholders on all sides of the issues and providing policy-relevant analysis based on academic research. The Nicholas Institute’s leadership and staff leverage the broad expertise of Duke University as well as public and private partners worldwide. Since its inception, the Nicholas Institute has earned a distinguished reputation for its innovative approach to developing multilateral, nonpartisan, and economically viable solutions to pressing environmental challenges.

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