

Connecticut Green Bank – Organization Fact Sheet

CGC has analyzed the audited financial statements of the Connecticut Green Bank to provide insight into the organization’s financial practices. This analysis focuses on the ability of the Green Bank to retain and leverage public financing. This serves as a case study to inform Green Bank exploration in other locations.

The Connecticut Green Bank was formed in July 2011 as a quasi-public instrumentality of the state, and the first state Green Bank in the country. It was created to act as a dedicated finance entity to support the deployment of mature clean energy technology. It was charged with partnering with the private sector to leverage multiple dollars of private investment per public dollar. The Green Bank finances renewable energy and energy efficiency upgrades.¹ As a finance organization, it preserves its public capital (financing is repaid), as opposed to traditional rebate programs, in which all public money is fully expended.

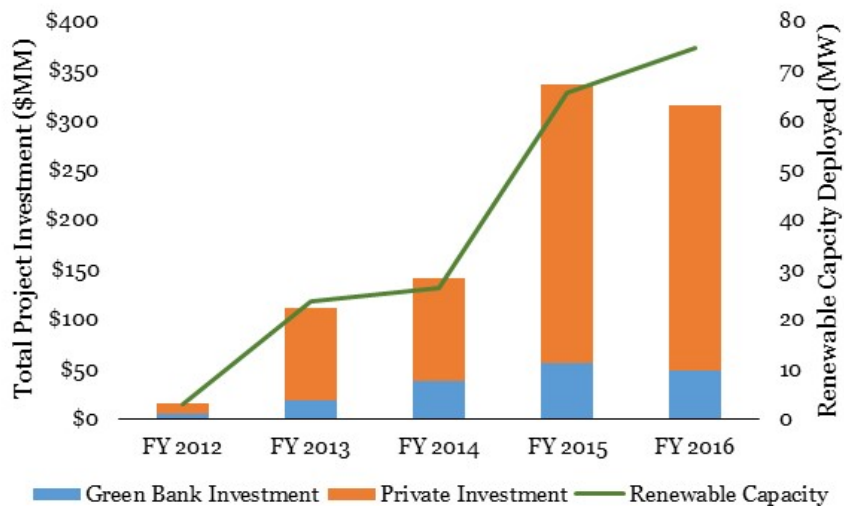
In summary, the Green Bank has:

- Received \$186 million in state funding and deployed \$165 million for project investments;
- Leveraged \$755 million in private investment, generating nearly a billion dollars of total investment;
- Deployed nearly 200 MW of renewable capacity, mostly through distributed solar generation;
- Created nearly 12,000 clean energy jobs in the state;
- Financed projects in multiple ways, including direct lending, leasing, and loan loss reserves;
- Leveraged capital in innovative ways such as credit enhancements and sales of aggregated portfolios
- Preserved effectively all of the public capital it has received so it may be recycled for further investment

Outcomes

To date the Green Bank has driven over \$1 billion of total clean energy investment in the state, using less than \$200 million of public capital for project investment. Through the end of its FY 2016 in June 30, 2016, the Green Bank had deployed \$164.9 million in public capital and leveraged \$755 million in private capital. The overall leverage ratio (private capital divided by public capital) is 4.55. Over this period of time, the Green Bank has deployed nearly 200 MW of renewable capacity.

Figure 1: CT Green Bank Investment & Renewable Capacity



¹ It also has the ability to finance alternative fuel vehicles and associated infrastructure, however, to date it hasn't yet done so.

In addition to these investment metrics, the Green Bank has collected and reported extensive data on its energy, economic and environmental outcomes.

Table 1: CT Green Bank Energy, Economic and Environmental Outcomes

	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Energy Outcomes					
Number of Clean Energy Projects	417	1,118	2,422	6,543	8,271
Annual Energy Savings (MMBtu)	9,334	59,481	378,877	1,086,544	419,219
Renewable Capacity (MW)	2.9	23.5	26.1	65.5	74.4
Lifetime Production (MWh)	68,388	1,419,346	1,007,648	1,824,810	1,995,564
Job Outcomes					
Jobs Direct	88	559	550	1,455	1,703
Jobs Indirect	142	1,132	885	2,340	2,740
Total Jobs	230	1,691	1,435	3,795	4,443
Lifetime CO2 Emissions Reductions					
Emission Reduction (Tons)	35,459	178,437	271,179	815,600	885,103
Home Equivalents	326	15,293	6,499	10,116	10,491
Cars of the Road Equivalents	236	1,967	1,630	5,432	5,816

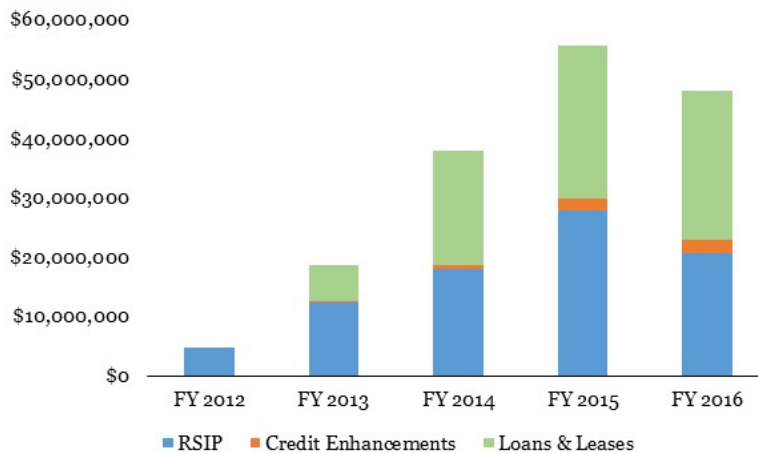
These top line metrics confirm that the Green Bank is accomplishing its mission. It is:

- Using public dollars to drive multiples of private investment;
- Growing the state’s clean energy market;
- Creating clean energy jobs in the state;
- Lowering energy costs; and
- Preserving public dollars through financing so capital can be recycled.

Forms of Green Bank Investment

As shown on the chart below the Green Bank has deployed up to \$56 million dollars annually for clean energy investment. The Green Bank deploys capital in multiple ways, and, because it is financing projects, it also recovers that capital. The financing offered by the Green Bank ranges from simple direct loans to more complex structures where the Green Bank offers an upfront payment to residential solar projects in exchange for the lifetime stream of solar renewable energy credits (RECs) from the system.

Figure 2: Amount & Form of Green Bank Investment

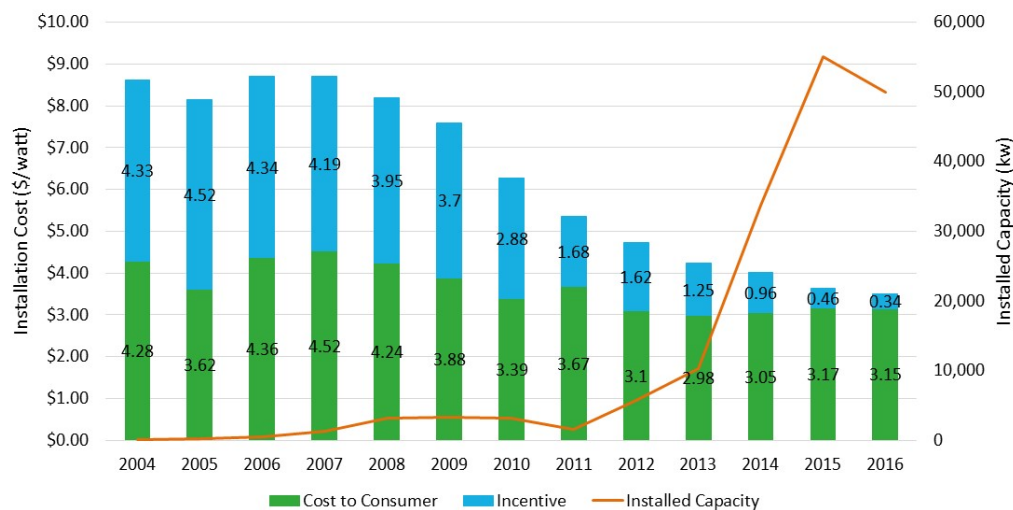


Capital is deployed in three primary ways – through the RSIP solar program, through loan loss reserve credit enhancements, and through direct loans and leases. Direct loans and leases are the most straightforward, where Green Bank capital is used to pay for the upfront cost of a project, and that upfront payment is then repaid to the Green Bank over time with interest. Loan loss reserves are used not as a direct investment, but instead as a risk reduction mechanism to support the direct lending of a private entity. In this case, the Green Bank may charge a fee for the use of the reserve, it may earn interest on the reserve while it is in escrow (only to be drawn upon by the lender in the case of loss), or it may choose to not charge any interest or fee for market development purposes.

Finally, the Green Bank deploys capital through its RSIP, the residential solar investment program. The RSIP is the only remaining subsidy program of the Green Bank and it will phase out over the next few years once 300 MW of deployment is achieved. Though it is presented to the market as a subsidy, the Green Bank does recover its capital unlike traditional rebate programs. The RSIP provides a direct upfront payment to a residential solar system owner or a performance-based incentive paid over time to a third-party owner to reduce the cost of installing solar. In exchange, to earn its capital back, the project gives its lifetime stream of RECs to the Green Bank. Historically the Green Bank has sold these RECs on the open market to generate revenue and help Connecticut meet its Renewable Portfolio Standard (RPS) with in-state clean energy. But in the future the Green Bank will earn a more secure stream of revenue through a long-term REC purchase contract with the local utility. This is a net positive investment for the Green Bank, where the amount of upfront payment made to the project is less than the net present value of the stream of RECs, while also lowering policy costs of the RPS on Connecticut ratepayers.

This chart shows how the RSIP level has declined significantly on a per watt basis since the Green Bank was formed in 2011. Despite this decline, deployment has risen dramatically. As the RSIP level declined, the net cost of solar to the customer remained flat, as the drop in overall installation cost was primarily absorbed by the reduced RSIP. As the effective cost of solar to the customer remained flat over this period, the increase in deployment can be attributed to increased availability of solar and a more robust market, including easier access to loan, lease, and PPA financing from private capital providers.

Figure 3: Connecticut Green Bank RSIP Reduction Over Time²



² Connecticut Green Bank. Note, the reduction in deployment in 2016 is primarily driven by uncertainty of the future of the federal investment tax credit, which supports solar economics.



Private Sector Leverage

In addition to using multiple forms of investment, the Green Bank uses multiple forms of leverage to draw in private capital. And that leverage occurs at different points in the investment process. The exact form and timing of the leverage does not necessarily correspond to the form of Green Bank investment.

For example, leverage can occur upfront at the point of origination. For instance, the Green Bank might directly lend to a project in partnership with a private investor. In that case, there would be “upfront leverage.” Alternatively, the Green Bank could provide a credit enhancement to induce a private lender to be the sole direct lender. In another case, the Green Bank might directly finance a project entirely on its own, but then later sell that loan asset to a private investor. The Connecticut Green Bank has done this multiple times by directly financing many small projects, aggregating those projects and then after the fact selling all those loans to a private lender.³ In this context, if the Green Bank retained a 20% subordinated position in the portfolio, while the private investor bought the 80% senior position, this would mean the Green Bank leveraged 4 private dollars per public dollar. And then finally, the Green Bank could receive a general balance sheet loan from a private investor, taking private capital directly onto its own balance sheet. A general bond issuance is an example of this type of leverage.

The Green Bank has implemented each of these forms of leverage across all of its investments. It is critical to note, though, that none of this leverage is directly apparent through a traditional financial statement. It is impossible to detect through the P&L (i.e. budget) or through the balance sheet or through the cash flow statement. *For instance, looking at a single line item on a budget that shows how much money was put in loan loss reserve tells you nothing about leverage. One cannot tell the ratio of leverage achieved on that reserve simply by looking at the budget, and one cannot tell all the other forms of leverage occurring through different products.* In order to identify leverage, one must look separately at the comprehensive annual financial report (CAFR) produced annually by the Green Bank. The Green Bank has been commended with a Certificate of Excellence for its CAFR by the Government Finance Officers Association, due to its detailed, thorough and transparent reporting. It is in this document that the Green Bank’s leverage is reported.

In terms of metrics overall, beyond leverage, all Green Banks operate in multiple markets using a range of financial tools. Because of this, the outcomes and benefits of Green Banks are not accurately captured using the traditional set of metrics usually used to measure the effectiveness of traditional efficiency rebate programs. For instance a side-by-side comparison of efficiency savings per total public dollars for Green Bank and utility programs would be an inaccurate representation, because a significant portion of the public money used by Green Banks goes to renewables, and not efficiency. Although the Green Bank has applied the Total Resource Cost test to the RSIP demonstrating exemplary performance for renewable energy, Green Banks cannot be meaningfully measured using the traditional Total Resource Cost test, because it does not account for the fact the public dollars are recycled in a Green Bank. It also cannot capture leverage, as the metric is agnostic as to whether a project is paid for using public or private funds.

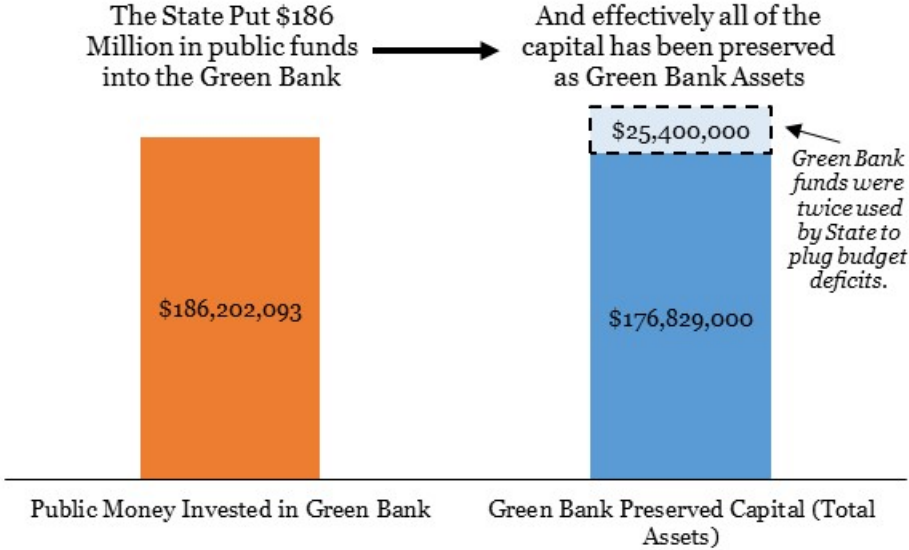
Public Capital Preservation

The Green Bank has achieved these outcomes while preserving the public funding it received from the state. Through FY 2016, the Green Bank has received \$186 million in state funding. At the end of FY 2016, the Green Bank’s total assets on its balance sheet were \$177 million. That means, over its history, the Green Bank has effectively preserved 95% of its capital. This is net all funds the Green Bank has spent on operations, staff, and

³ For example, it seeded a solar loan origination fund, in partnership with Sungage. Green Bank funds were used to provide 100% of the original loan capital. The Green Bank accumulated a portfolio of solar loans, and then sold that portfolio to multiple private purchasers to recapitalize the Green Bank balance sheet. The Green Bank executed a similar transaction when it built a portfolio of commercial PACE loans that were issued using 100% Green Bank capital. The Green Bank played this role upon observing that private capital was not readily flowing into the C-PACE market. The Green Bank accumulated a portfolio of \$20 million of C-PACE loans and securitized the portfolio through a private placement in order to recover its capital.

market development. Notably, the Green Bank has \$177 million assets *after* accounting for \$25.4 million in Green Bank capital taken by the State government to plug budget deficits.

Figure 4: Green Bank Preservation of Public Capital



This kind of public capital preservation stands in contrast to the traditional efficiency rebates administered by utilities in Connecticut, and funded from the same sources. Over this period, the efficiency rebate programs have received \$927 million dollars from ratepayers and RGGI. All of these funds were used as grants and not returned to ratepayers, unlike the Green Bank where its capital is deployed and returned to the Green Bank with a rate of return, to be recycled into additional projects. In this way, the Green Bank has been a prudent investment of public funds while reducing the market’s reliance on subsidies for growth.