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Leveraging State Clean Water Revolving Funds to Expand Clean Energy Financing

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Executive Summary

States that offer loans to finance energy efficiency and other clean energy projects often face challenges with capitalizing these loan funds. Two states—New York and Pennsylvania—innovated by leveraging their Clean Water State Revolving Funds (CWSRFs) to support the capitalization of their clean energy loan funds. Created under the Clean Water Act, CWSRFs generally finance a wide range of water quality infrastructure projects at low cost. Energy efficiency and clean energy projects that prevent the combustion of fossil fuels have the potential to reduce the deposition of related pollutants into state waterways and improve water quality. As such, other states may be able to follow the example of New York and Pennsylvania.

In New York, New York State Energy Research and Development Authority (NYSERDA) structured a sale of bonds secured by the repayments from a portfolio of residential energy efficiency loans from its Green Jobs – Green New York (GJGNY) Program, with the additional support of a guarantee from the state CWSRF. This guarantee enabled the bond issuance to receive triple-A investment-grade ratings at very low risk to the CWSRF, allowing the GJGNY Program to replenish its capital and continue to lend. Subsequent bond issuances that were not backed by the guarantee also received investment-grade ratings; the additional loan performance track record enabled by the CWSRF transaction was likely critical to this development, suggesting that the loan guarantee had a market transformation effect.

The Pennsylvania Treasury Department (Treasury) received a direct investment of funds from Pennsylvania's CWSRF to support the relaunch of the Keystone Home Energy Loan Program (HELP), which had previously been shuttered due to lack of support funding. The national lending and securitization structure that the Treasury and Renew Financial established, however, failed to attract sufficient participation from other energy efficiency programs around the country and was ultimately abandoned (although not due to factors related to the CWSRF). In the meantime, CWSRF capital leveraged significantly larger amounts of Treasury funds, allowing the program to loan an additional \$10 million to residential customers for clean energy improvements. Had Pennsylvania's capital recycling plans materialized, the CWSRF investment might have had similar market transformation impacts in Pennsylvania.

¹ Mr. Pitkin was responsible for the design, implementation, and oversight of New York State Energy Research and Development Authority's Green Jobs – Green New York financial program and bonds issued to recapitalize the program, including the 2013 bond issue discussed in this paper.

From our review of these two case studies, the following critical success factors emerged for facilitating CWSRF transactions to support clean energy lending:

- Reference to preventing atmospheric deposition resulting from the combustion of fossil fuels in the state's Clean Water Act Section 319 Nonpoint Source Pollution Management Plan, which sets out that state's strategy for reducing pollution into state waterways.
- Strong relationships and trust between the CWSRF administrator and the state agency administering the clean energy loan program.
- Limited funding exposure for the CWSRFs—which are generally large and well capitalized—to ensure that any losses experienced by CWSRFs would have a negligible impact on the fund's ability to support core water and wastewater projects.
- Willingness, on the part of the CWSRF administrator, to innovate and engage in careful analysis to support transaction structuring, and support from state energy partner organizations.

Introduction to Clean Water State Revolving Funds (CWSRFs)

Many states offer loans to residential, commercial, and public building owners to finance energy efficiency and other clean energy projects, often through state energy offices (Deason et al. 2016). States often face challenges with capitalizing these loan funds, or with replenishing those funds while waiting for loan repayments to return. Two states—New York and Pennsylvania—innovated by leveraging their CWSRFs to support clean energy loan funds.

Created by the 1987 amendments to the Clean Water Act, CWSRFs provide capital for a wide range of water infrastructure projects. Under the CWSRF program,² the U.S. Environmental Protection Agency (EPA) provides annual grants to all 50 states, Washington, D.C., Puerto Rico, and U.S. territories to capitalize state CWSRF programs. Grant recipients contribute an additional 20% to match the federal grants. The CWSRF programs most typically provide low-interest loans to state water projects. As money from past loans is paid back into a state's revolving loan fund, the state relends that money for other water quality activities. Repayments of loan principal and interest earnings recycle back into individual state CWSRF programs to finance new projects, allowing the funds to "revolve" at the state level over time.

While low-interest loans are most common, states may provide other types of financial assistance using their CWSRF funding, including purchasing or guaranteeing local debt and purchasing bond insurance.

CWSRFs and Energy Efficiency

While CWSRFs traditionally have provided financing assistance to address state water quality needs, a project in 2013 in New York's CWSRF created a precedent for using the CWSRF to provide financing assistance for clean energy projects. This brief provides a case study report of the New York transaction and a second project in Pennsylvania that relied upon the New York precedent.

² For more information on the CWSRF, see epa.gov/cwsrf.

Case Study: New York CWSRF Guarantee of NYSERDA Bonds Financing Residential Energy Efficiency Loans

Background

In 2009, state legislation³ directed NYSERDA to launch the GJGNY Program. The program provides financing through revolving loan funds for energy efficiency retrofits in one- to four-unit residential homes and small business, not-for-profit, and multifamily buildings. Proceeds from selling CO₂ allowances under the Regional Greenhouse Gas Initiative initially funded the program. About \$42.5 million was allocated for a GJGNY Revolving Loan Fund, including \$26.6 million for residential homes.⁴ State legislation in 2012 enhanced the program by establishing an on-bill recovery financing mechanism allowing loans to be repaid through charges on consumers' electric and gas utility bills.⁵

A U.S. Department of Energy Better Buildings Program Retrofit Ramp-Up grant supplemented the seed money from the Regional Greenhouse Gas Initiative. NYSERDA allocated about \$8.5 million from this grant for loan loss and debt service reserves to support residential retrofit loans from the GJGNY Program and to leverage private capital.

Consistent with the GJGNY Act of 2009, NYSERDA developed program guidelines and launched the residential loan program in November 2010. NYSERDA competitively selected a third-party loan originator to originate the loans using NYSERDA's loan underwriting standards.

Given strong demand for GJGNY loans and the long loan repayment terms, the Revolving Loan Fund would have been exhausted in a few years without some additional source of capital. To issue additional loans, NYSERDA planned to issue bonds secured by loan repayments, and to use the proceeds from these bond sales to replenish the GJGNY Revolving Loan Fund.⁶

CWSRF Support

Once NYSERDA launched the program and began accumulating program loans, NYSERDA started to plan for its first bond issue. Feedback from several rating agencies revealed that the program did not yet have sufficient historical loan performance data to support a minimum investment-grade credit rating⁷ on NYSERDA's GJGNY bonds. Discussions ensued between NYSERDA and the New York State Environmental Facilities Corporation (NYSEFC), the administrator of New York's CWSRF, regarding potential assistance from NYSEFC to support the GJGNY Program. NYSERDA and NYSEFC determined that a guarantee from NYSEFC, provided through the CWSRF, would allow the bonds to receive a AAA guarantee rating based on

³ Title 9-A of Article 8 of the Public Authorities Law of the State of New York, known as the GJGNY Act of 2009.

⁴ The balance of funds was used for workforce development initiatives, outreach and marketing, energy audit subsidies, and program administration, implementation, and evaluation costs.

⁵ Sections 1 through 11 of Chapter 388 of the Laws of 2011, as amended by Part DD of Chapter 58 of the Laws of 2012.

⁶ For more on leveraging bond financing to support clean energy projects and programs, see U.S. Department of Energy (2020): <https://www.energy.gov/scep/slsc/articles/leveraging-bond-financing-support-energy-efficiency-and-renewable-energy-goals-1>.

⁷ Bond ratings help investors understand the risks involved in buying bonds. They are issued by rating agencies as letter grades (from D, the lowest rating indicating the most risk, to AAA, the highest, least risky rating) to indicate whether bond issuers are more or less likely to reliably pay principal and interest when due. The higher the credit rating, the lower the interest rate the bond issuer pays to the bond investor. An investment-grade bond would be rated not less than BBB by S&P Global Ratings, for example.

the pledge of excess cash flows from NYSEFC's very successful state revolving fund bond financing program and the strength of its balance sheet.

NYSEFC and NYSERDA contacted EPA to discuss potential support for GJGNY through the CWSRF. In March 2013,⁸ NYSEFC proposed to EPA to use its Nonpoint Source Management Program⁹ to qualify NYSERDA's residential energy efficiency projects financed with GJGNY Program loans as eligible projects under Section 603(c)(2) of the Clean Water Act and the implementing federal guidelines for the CWSRF. NYSEFC noted in its request that the burning of fossil fuels to generate heat¹⁰ in New York contributes to atmospheric deposition into New York water bodies. New York's Nonpoint Source Management Program identifies atmospheric deposition from fossil fuel combustion as a significant source of water quality impairment and calls for additional controls over, and reductions in, atmospheric deposition of such air pollutants into New York water bodies. These energy efficiency projects reduce atmospheric deposition into New York water bodies through reducing the combustion of fossil fuels.

NYSEFC presented a plan to structure a guarantee of NYSERDA's bonds from the CWSRF and sought EPA's concurrence with its position that the proposed structure was an eligible use of CWSRF funds. EPA concurred¹¹ with NYSEFC's position that the projects met eligibility for financing support and supported NYSEFC's plan.

Once EPA had issued its concurrence on the approach, NYSERDA submitted an application for financing support—just as any other water or wastewater facility project would. NYSEFC determined that the project met its program requirements and that the CWSRF had sufficient funding available for NYSERDA's financing request.

CWSRF Credit Assessment

Key factors in NYSEFC's assessment and approval of the financing structure included:

- The parties structured the financing support as a guarantee backed by the CWSRF. The CWSRF administrator did not need to set aside funding to support this guarantee for several reasons: (1) NYSEFC did not anticipate drawing down on the guarantee; (2) NYSERDA pledged additional funds to cover program loan losses (see subsequent bullet point below); and (3) the CWSRF had ample free cash flow plus highly stable and liquid equity balances, making it unnecessary to restrict capital to support its guarantee product. This avoided diverting financing resources from other eligible projects.

⁸ NYSEFC's March 4, 2013, letter to EPA is available at:

[https://www.cdfa.net/cdfa/cdfaweb.nsf/fbaad5956b2928b086256efa005c5f78/ad2ad287a1245c40862573830083767c/\\$FILE/NYSERDA%20Clean%20Water%20SRF%20Eligibility%20Question%20for%20EPA%2003.04.13.pdf](https://www.cdfa.net/cdfa/cdfaweb.nsf/fbaad5956b2928b086256efa005c5f78/ad2ad287a1245c40862573830083767c/$FILE/NYSERDA%20Clean%20Water%20SRF%20Eligibility%20Question%20for%20EPA%2003.04.13.pdf).

⁹ Under the Clean Water Act, nonpoint source pollution comes from any diffuse sources, such as land runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrologic modification. The goals of a state's Nonpoint Source Management Program are to control pollution from nonpoint sources to the waters of the state and to protect, maintain, and restore the water quality of the state.

¹⁰ Due to the nature of the regional electricity market, energy efficiency efforts to reduce electricity consumption were not deemed to contribute to reducing atmospheric deposition since their relationship to emissions reductions at specific electricity generation facilities cannot be determined. NYSERDA calculated and reported to NYSEFC the atmospheric deposition resulting from project measures that reduced heating fuels, but allowed projects composed in whole or in part of electricity energy efficiency measures to be included.

¹¹ EPA responded by letter dated March 22, 2013, which is available at:

[https://www.cdfa.net/cdfa/cdfaweb.nsf/fbaad5956b2928b086256efa005c5f78/ad2ad287a1245c40862573830083767c/\\$FILE/NYSERDA%20-%20EPA%20SRF%20ruling%20in%20favor%20of%20EE%20projects%27%20eligibility.pdf](https://www.cdfa.net/cdfa/cdfaweb.nsf/fbaad5956b2928b086256efa005c5f78/ad2ad287a1245c40862573830083767c/$FILE/NYSERDA%20-%20EPA%20SRF%20ruling%20in%20favor%20of%20EE%20projects%27%20eligibility.pdf).

- NYSEFC recognized that regular and constant repayments from loans provided a source of revenue to mitigate any losses.
- The transaction was structured using NYSEFC's typical debt service coverage ratio of 125% (meaning pledged revenues from loan repayments were 25% more than the principal and interest payments due on the bonds), which provided additional mitigation for loan losses.
- NYSEFC staff ran an extreme scenario for loan losses and determined that its debt would still be fully repaid under that scenario.¹²
- NYSERDA pledged its \$8.5 million allocated under its U.S. Department of Energy grant and also pledged any funds available in the GJGNY Program to reimburse any guarantee funds paid from the CWSRF. This reserve provided an added layer of support to the CWSRF.
- Working with another state entity provided some comfort. NYSERDA was a mature organization with substantial access to capital markets for conduit utility bonds, so a default could negatively impact NYSERDA's access to bond markets in the future. This provided motivation for NYSERDA to exercise due diligence in its loan approvals. Moreover, NYSEFC and NYSERDA worked cooperatively as state public authorities. The commissioner of the New York State Department of Conservation served both as NYSEFC's board chair and as an ex officio member of NYSERDA's board, so NYSEFC was comfortable with NYSERDA as a counterparty to the transaction.
- The NYSERDA guarantee would have a negligible impact on the CWSRF assets, even in the extremely unlikely event of 100% default on all loans. As of March 2013, the NYSEFC CWSRF had \$13.0 billion in total assets and \$7.5 billion in liabilities. The proposed initial \$24-million financing represented less than 0.2% of total NYSEFC CWSRF assets. NYSEFC committed to the EPA that the aggregate amount with any future financing would be limited to not more than \$100 million.

Structuring

NYSERDA issued its \$24.3-million Residential Energy Efficiency Financing Revenue Bonds, Series 20213A,¹³ on July 31, 2013, with a AAA rating by S&P Global and Moody's. The bonds are payable solely from monies held by the bond trustee for repayments from certain program portfolio loans.¹⁴ Figure 1 summarizes the transaction structure.

NYSERDA issued the bonds as Qualified Energy Conservation Bonds.¹⁵ NYSERDA therefore received interest subsidy payments from the United States Treasury over the life of the bonds, calculated on a published rate. NYSERDA structured the bonds with a debt service coverage ratio of 126%. As noted above, this ratio was generally in line with debt service coverage ratios of other projects financed by NYSEFC

¹² NYSERDA prepared several loss scenarios for review with NYSEFC. The base scenario as structured (with a 26% excess debt service coverage) demonstrated the program would provide excess coverage over the expected cumulative losses on loans, using loss data from other similar consumer loans. NYSERDA ran additional loss scenarios assuming higher losses, and the excess debt service coverage, coupled with the \$8.5-million pledge from the collateral reserve funds, provided sufficient coverage for the full repayment of bond principal and interest using what the analysts thought to be a draconian loss scenario.

¹³ The official statement for the bonds is available at: <https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/About/NYSERDA-2013A.pdf>.

¹⁴ There are 3,116 loans issued and outstanding as of June 30, 2013, with a principal balance of \$27.7 million issued at interest rates ranging from 2.99% to 3.99% with an average of 3.44%, and with loan terms ranging from 60 to 180 months with an average term of 152.7 months and an average remaining term of 140.6 months.

¹⁵ For more on Qualified Energy Conservation Bonds, see https://www.energy.gov/sites/prod/files/2017/08/f36/QECB-FAQ_final.pdf. As of January 2018, Qualified Energy Conservation Bonds are no longer being issued (see <https://www.energy.gov/eere/slsc/qualified-energy-conservation-bonds>).

through the CWSRF. NYSERDA structured the bonds with fixed principal payments of various maturity dates (1–15 years) with a weighted average interest rate of 2.43% for a weighted average maturity of 7.53 years.

Orders for the bonds from prospective investors totaled more than two times the amount of bonds available, demonstrating strong investor interest for the bonds. *The Bond Buyer* magazine, a trade periodical for bond issuers and investors, recognized NYSERDA and NYSEFC’s innovation as the Small Issuer Deal of the Year.¹⁶

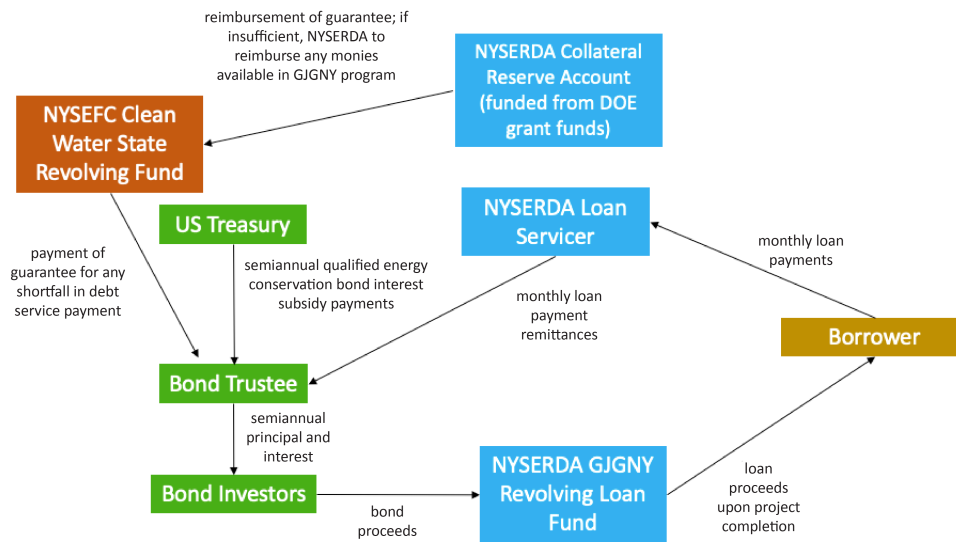


Figure 1: Structure of the NYSERDA transaction

Reporting

NYSERDA provides quarterly performance reports to NYSEFC on the pledged portfolio loans. NYSERDA also files its annual audited financial statements, debt service coverage information, and updates on characteristics of outstanding loans, delinquencies, and loan defaults in the Municipal Securities Rulemaking Board Electronic Municipal Market Access System within 120 days after the end of each fiscal year. Lastly, NYSERDA publishes monthly characteristics and delinquency and loss information on all GJGNY Program loans on its website.¹⁷

¹⁶ See video clip at <https://www.bondbuyer.com/video/deal-of-the-year-small-issuer-financing>.

¹⁷ See: <https://www.nyserd.ny.gov/Researchers-and-Policymakers/Green-Jobs-Green-New-York/Data-and-Trends>.

Subsequent CWSRF Support and Pathway to Self-Sufficiency

Subsequent to its initial 2013 bonds issued with a guarantee from NYSEFC and the New York CWSRF, NYSEFC received additional financing assistance through NYSEFC's traditional project financing structure. Under this structure, NYSEFC issued AAA-rated bonds to finance several qualifying projects, including NYSEFC's GJGNY Program loans. These NYSEFC bonds were secured by bonds¹⁸ issued by NYSEFC to NYSEFC; those NYSEFC bonds were themselves secured by loan repayments from additional GJGNY Program loans. The NYSEFC bonds were also structured with NYSEFC's traditional debt service coverage ratio. NYSEFC pledged the previously mentioned \$8.5-million reserve to support all three bonds issued with financing assistance from NYSEFC, with the expectation that the 2013 bonds would not ultimately draw down on CWSRF funds and that the 2015 and 2016 bonds would be repaid in full. To date, no funds have been drawn down on the 2013 guarantee and all bond debt service payments have been made on time for the 2015 and 2016 bonds.

After several bond issues with NYSEFC assistance, NYSEFC had accumulated sufficient loan performance data to issue publicly rated (an A rating by Kroll Bond Rating Agency) and publicly issued bonds in 2018, 2019, and 2020 without the backing of NYSEFC.¹⁹ Thus, the NYSEFC guarantee successfully transformed the market for NYSEFC's bond issuances, fostering continual capital replenishment without an ongoing guarantee.

Benefits of CWSRF Support

- NYSEFC's guarantee resulted in a AAA bond rating, substantially reducing the interest rate and costs on NYSEFC's bonds, supporting its strategy to offer low-interest-rate loans to consumers, and increasing the replenishment of the GJGNY Revolving Loan Fund.
- NYSEFC's guarantee provided critical credit support to a new program and new asset class until the program had developed historical experience. Subsequently, the program accessed capital markets without credit support.²⁰
- NYSEFC's use of its Nonpoint Source Management Program and authority for atmospheric deposition established a precedent, potentially allowing other states to use the credit strength of their CWSRF programs to support clean energy projects.

¹⁸ Bonds issued by NYSEFC to NYSEFC include \$46,230,000 in Residential Energy Financing Revenue Bonds, Series 2015A and \$23,200,000 in Residential Energy Efficiency Financing Revenue Bonds, Series 2016A.

¹⁹ In 2022, almost 10 years after NYSEFC's first CWSRF-backed bond sale, Berkeley Lab published [Long-Term Performance of Energy Efficiency Loan Portfolios](#) (Deason et al. 2022), which examines the payment history of four energy efficiency financing program portfolios over approximately 10 years. This resource may be useful for supporting future transactions that rely on payments from similar residential energy efficiency loans.

²⁰ NYSEFC's 2013 bonds achieved a AAA rating based on the AAA rating of the CWSRF as guarantor of the bonds. NYSEFC's subsequent bonds issued without credit support from the CWSRF were A-rated (an investment-grade rating), based on the level of pledged loan repayments over anticipated loan losses as calculated by the bond rating agency.

Case Study: Pennsylvania CWSRF Funding for Keystone HELP Loans

Background

The West Penn Power Sustainable Energy Fund (WPPSEF) developed Keystone HELP in 2005. WPPSEF is a 501(c)(3) nonprofit organization that invests in the deployment of sustainable energy technologies that benefit West Penn Power utility ratepayers. To create Keystone HELP, WPPSEF worked with the Gemstone Group (an investment banking and financial advisory services firm) and AFC First Financial Corporation (a national energy efficiency and renewable energy lender and program administrator that is the predecessor company to the current National Energy Improvement Fund). WPPSEF developed the program with AFC to promote ENERGY STAR®-labeled products in the West Penn Power utility service territory.

WPPSEF provided funding for Keystone HELP marketing efforts and created a \$1-million loan pool for West Penn Power homeowners who wanted to install ENERGY STAR-labeled products. AFC underwrote, originated, and then serviced loans made through Keystone HELP.

Within the program's first few months, the Treasury approached WPPSEF and AFC and asked them to consider modifying Keystone HELP into an innovative public-private partnership that would, among other things, allow its scope to expand dramatically to a statewide footprint. The Treasury, as custodian of Pennsylvania Commonwealth assets that are not required for the immediate needs of the government's agencies, offered to invest up to \$20 million of those funds—at market rates of return to the Treasury—in loans to homeowners. The Treasury was able to enlist support from other state agencies that agreed to provide a total of \$1 million in grant funds to create a loan loss reserve. The loss reserve helped enhance security for the Treasury's funding and enabled the program to offer loans at lower net interest rates (and for longer repayment periods) than available from many market-based products. In this model, the Treasury's requirements matched those of private prudent investors,²¹ with the loan loss reserve sheltering the Treasury's position.

Success of Keystone HELP in its initial years encouraged the Treasury to consider enlarging its original \$20-million investment. Working closely with AFC, the Treasury was able to secure contributions of additional programmatic support funds by the Pennsylvania Department of Environmental Protection (including dedicated legislative appropriations), significant proportions of the commonwealth's federal American Recovery and Reinvestment Act grant funds, and even utility contributions pledged as components of electric restructuring plans. The substantially enlarged pool of support funds enabled the Treasury to expand its original capital commitment while preserving its prudent investor status. The program used these new funds for both loan loss reserves and interest rate buydowns for various loan products offered through Keystone HELP. Perhaps more importantly—at least from a market acceptance perspective—these additional program support funds also made it possible for Keystone HELP to offer loans at below market rates,²² supporting homeowner energy efficiency renovations.

²¹ The prudent investor rule is a legal guideline for trustees of investment portfolios. It requires a fiduciary (in this case, the Pennsylvania Treasury) to act in the best interest of the trust's beneficiaries (in this instance, the citizens of the state of Pennsylvania) and outlines standards for legally controlling investment portfolios.

²² Keystone HELP used a portion of the support funds to buy down the interest rates homeowners paid on the loans.

Keystone HELP won the prestigious Energy Stars of Energy Efficiency award from the Alliance to Save Energy in 2013, as well as other awards. By 2014, Keystone HELP had made nearly 14,000 loans totaling over \$125 million.

In anticipation of future funding challenges and scale of exposure, the Treasury engaged the investment banking firm Bostonia to structure a private sale of a portion of the Keystone HELP portfolio to a consortium of regional banks (with AFC retaining servicing). In anticipation of future funding and national program expansion based upon Keystone HELP, the Treasury engaged Citibank, Renew Financial (which was in discussion to acquire AFC), and the Energy Programs Consortium to create WHEEL (Warehouse for Energy Efficiency Loans). WHEEL was designed to bundle Keystone HELP loans with those from energy efficiency loan programs from other jurisdictions to back securities that would be sold to secondary market investors. Renew Financial would in that fashion be able to periodically recycle capital back to the original investors in the program loans, enabling them to finance subsequent rounds of new energy efficiency activities.

WHEEL successfully executed a securitization in June 2015. The securitization was recognized by *Environmental Finance*, which bestowed its Energy Efficiency Award on Renew Financial and Citibank, naming the WHEEL transaction one of the Deals of the Year.

Renew Financial acquired AFC in October 2015, and began expanded efforts to persuade other jurisdictions to support energy efficiency lending programs similar to Keystone HELP and use WHEEL securitizations to revolve their investment capital. Unfortunately, soon after that time, Keystone HELP deployed (and thereby exhausted) all of the support funds it had obtained from the Pennsylvania Department of Environmental Protection and other sources. Without the security protection provided by those subordinated funds, the Treasury was unable to continue providing the investment capital that made up by far the largest portion of funds in the capital stack for each loan. As a result, the program became dormant.

Pennsylvania CWSRF Support

Based on New York's 2013 precedent, the Treasury initiated discussions with the Pennsylvania Infrastructure Investment Authority (PENNVEST), the state's water infrastructure development authority, about the potential for using Pennsylvania CWSRF funds to support the continuation of Keystone HELP (and, in turn, the WHEEL securitization model). With the support of the administration of Governor Tom Wolf, PENNVEST ultimately recognized the water quality benefits from improving home energy efficiency and agreed to provide support funds to help provide credit enhancement for Treasury investments in new Keystone HELP loans. The PENNVEST funds would assume a subordinate position in the capital stack of each individual loan, and then in any portfolio of loan assets bundled into a future securitization. Renew Financial would oversee the program going forward, including aggregating assets and executing securitizations at appropriate moments. The Treasury's position would be retired at the time of securitization, and PENNVEST's position would be retired through loan repayments once all bond purchasers were repaid.

Renew Financial initially anticipated that multiple states with energy efficiency loan assets similar to those created by Keystone HELP would participate in WHEEL. However, Renew Financial ultimately determined that there was insufficient interest to support the WHEEL financing facility or the effort to develop a national secondary market for homeowner energy efficiency loans. Given the failure of this capital recycling

vision, Renew Financial withdrew its support for the WHEEL program going forward. In the absence of a securitization strategy that would provide it with some measure of liquidity for its investment, the Treasury decided to end its support for Keystone HELP in 2017.

Figure 2 summarizes the implemented transaction structure.

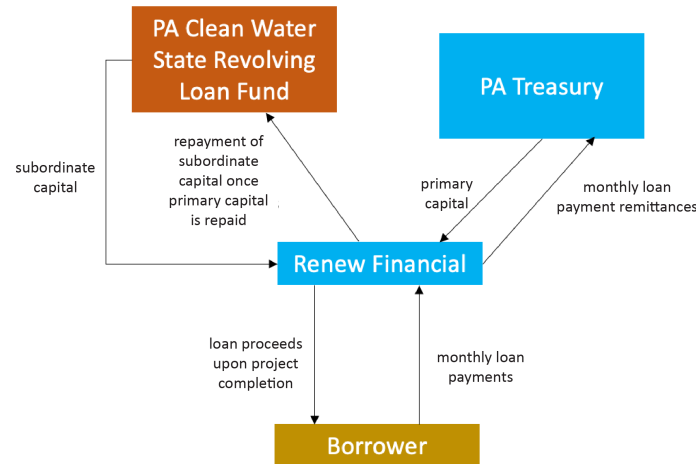


Figure 2: Structure of Keystone HELP following CWSRF involvement

The program made a total of 1,077 loans totaling over \$9.9 million with Pennsylvania CWSRF funding support in this subordinated capital structure, with primary capital (\$7.9 million) coming from the Treasury (the loans were never sold to secondary market investors) and approximately \$2 million funded from Pennsylvania CWSRF funds. Repayments on the loans will be returned to PENNVEST once the primary capital is repaid to the Treasury. The Treasury anticipates repayments on these loans will be consistent with the historical performance of Keystone HELP, which had annualized losses of less than 1%.

CWSRF Credit Analysis

PENNVEST’s enabling statute—Act 16 of 1988, Public Law 82—provides for the investment of all the agency’s assets not required for immediate use in any securities or investments in which funds of the commonwealth are authorized to be invested.²³ PENNVEST routinely implemented this direction by entrusting these investment decisions to the state treasurer, with its mandate to comply with prudent investor precepts.

Following a presentation by the Treasury, the PENNVEST Board agreed that investing a very small portion of its asset base in Keystone HELP loans, making those loans less costly and therefore more attractive to homeowners interested in reducing their energy consumption, could in fact result in reduced deposition of pollutants into the waters of the commonwealth and therefore improve water quality in Pennsylvania. The board determined that such an outcome was in the best interests of PENNVEST and approved the

²³ That is, for use directly financing water and sewage projects to protect the health and safety of citizens of the commonwealth, as well as to promote economic development.

investment subject to the approval of the state treasurer.²⁴ The Treasury, already familiar with the program and the repayment performance history of HELP loan borrowers, approved the use of these PENNVEST funds for Keystone HELP.

Benefits of CWSRF Support

CWSRF funds helped to provide a source of funding to allow the successful program to continue. The Treasury's plan to recapitalize the Keystone HELP loan fund through WHEEL did not succeed, but if it had, the CWSRF funds might well have had a similar market transformation impact in Pennsylvania to that in New York.

Critical Success Factors

The two case studies suggest several critical factors that were key to the successful implementation of the transactions. Other states looking to leverage their CWSRFs to support clean energy loan programs can prioritize replicating these success factors:

- Both transactions involved the state's CWSRF administrator working with other state governmental agency partners. Moreover, both transactions leveraged existing relationships and trust. In New York, having the same executive serving on both agency boards built comfort. In Pennsylvania, the Treasury's prior engagement in and knowledge of Keystone HELP helped its decision to approve the proposed use of CWSRF funds.
- Both transactions had strong participation from senior-level personnel who were project champions and played critical roles in formulating and executing the structures (for the New York transaction, the NYSEFC general counsel and chief financial officer; for the Pennsylvania transaction, the Pennsylvania deputy treasurer).
- Neither state used the CWSRF funds as the primary capital to finance the projects. The CWSRF funds leveraged other capital to finance the projects. As a result, little to no CWSRF funds would be lost assuming reasonable loan performance assumptions. Moreover, if losses exceeded those assumptions, the impact to the overall total CWSRF funds would have been negligible. This was important to avoid diverting CWSRF funds from other water or wastewater treatment projects.
- Both state administrators demonstrated a willingness to innovate and engaged in careful analysis to support transaction structuring. Administrators of CWSRFs know their typical water and wastewater customers and projects but were not familiar with providing financing support to clean energy projects. Both administrators worked with their trusted state partner organizations to carefully and thoughtfully structure the transactions to achieve clean energy mission outcomes that:
 - Provided benefits to the state clean energy organization.
 - Qualified as eligible uses of CWSRF financing.
 - Achieved missions consistent with the Clean Water Act.

²⁴ Section 5(b) of Public Law 82 includes the additional proviso that available assets can also be invested "in any other type of security or investment if, prior to the acquisition of the securities or investments, the board [of PENNVEST] determines by resolution that such type of security or investment is in the best interests of the authority and the State Treasurer approves of such type of security or other investment."

As illustrated, CWSRF support can extend the reach of clean energy financing programs—for example, by offering a low-cost approach to recapitalize these programs. Recently implemented legislation and related programs (e.g., the Bipartisan Infrastructure Law, the Inflation Reduction Act, the Greenhouse Gas Reduction Fund) will lead to more state clean energy financing activity. Support from CWSRFs could be a powerful and appropriate tool to help increase the impact and scale of this activity.

Key Elements for Replication

States who may wish to follow one of these precedents would first need to confirm that both the state's Nonpoint Source (NPS) Program established under Section 319 of the Clean Water Act and the state's current Intended Use Plan (IUP)²⁵ include activities to reduce atmospheric deposition as eligible for CWSRF financing assistance.

Berkeley Lab staff reviewed state NPS programs and found that many include these activities. States whose NPS program lacks this provision could consider whether atmospheric deposition is a source of water pollution in the state²⁶ and consider contacting the state's CWSRF administrator to request that the administrator amend the NPS program.

If the state's NPS program includes authorization for activities to reduce atmospheric deposition, an applicant would need to seek CWSRF financing assistance²⁷ through the project application process, which typically occurs after the state has issued its IUP for a given year. The CWSRF administrator in each state reviews applications and creates a ranked project priority list for the year. In some states the NPS program may include activities to reduce atmospheric deposition, but the IUP may not. In this case, the sponsor of a clean energy loan product could contact the state CWSRF administrator to request that they consider including atmospheric-deposition-related activities in the state's next IUP.

An article published in the *Environmental Law Reporter* (Curley and Haislip 2014) provides a more detailed discussion of the New York precedent, potential for replication by other states, and CWSRF processes. In addition to these process steps, clean energy loan program sponsors who seek to leverage CWSRF assistance would do well to consider the critical success factors for these arrangements described in the previous section in order to implement successful partnerships.

²⁵ Section 606(c) of the Clean Water Act requires each state to prepare an IUP to show how it intends to spend its funds. The IUP is published after a draft IUP is issued for public comment, and sometimes after a public hearing.

²⁶ The National Atmospheric Deposition Program is an EPA-sponsored program housed at the University of Illinois, which has information about atmospheric deposition in each state and may be a valuable resource to consult.

²⁷ Assistance could take the form of a guarantee, similar to the New York 2013 transaction; subordinated capital, similar to the Pennsylvania transaction; or full project financing assistance, similar to the New York 2015 and 2016 transactions.

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