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Revolving Loan Fund Case Studies

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Executive Summary

States and local governments use revolving loan funds[1] (RLFs) as pools of capital to fund clean energy and energy efficiency projects, or to catalyze private lender or investor capital to fund these projects. These case studies summarize information on six active and successful revolving loan programs administered by state energy offices or third-party program administrators under contract to state energy offices.

Staff for each of these six programs delivered program webinars in Spring 2023 as part of the U.S. Department of Energy's Model RLF Webinar Series. The case studies provide links to these webinars as well as to available program documents that may serve as useful reference points for other programs.[2] For those programs that were subject to Davis-Bacon Act or other federal act compliance, we note how the program sponsor managed those activities; for some programs, these provisions did not apply because of the program funding source or activities.

Although the profiled programs use different program designs and may serve different sectors, some of the common features that have contributed to the success of these programs include:

- Ensuring there is a clear and easy process for participation by lenders, borrowers and contractors.
- Leveraging private lender or investor capital in one form or another to recapitalize program funds that would otherwise be exhausted.
- Effective oversight of the program to monitor project status and potential for program changes (interest rates, financing terms, processes, etc.).

These programs helped their participants overcome several barriers to technology adoption, as discussed in more detail in the individual case studies. Specific barriers and solutions include:

- Many customers need to lower or eliminate the upfront cost of energy upgrades to realize energy savings, but existing sources of capital may carry interest rates too high to be attractive. The featured programs successfully **reduced the total cost of borrowing capital** relative to other sources through the use of public funds to improve the customer value proposition. Specific mechanisms for doing so include:
  - Loaning public funds at below-market interest rates, either directly (New York State Energy Research and Development Authority's Green Jobs – Green New York program, Texas's LoanSTAR program) or in a co-lending structure with private capital (Nebraska's Dollar and Energy Saving Loans program).
  - Using public funds to reduce risk for private lenders, either through funding a loan loss reserve (Michigan's Michigan Saves program) or facilitating a program structure that secures loans to the buildings being improved, lowering lender risk due to that security (Minnesota's MinnPACE program).
- Some potential borrowers have difficulty qualifying for conventional loan products, or may only qualify for loans with particularly unattractive interest rates and other terms. Both the Michigan Saves program and the Green Jobs – Green New York program **tailor loan products to these borrowers** by:
  - Using alternative underwriting approaches (e.g., utility bill payment history in lieu of credit scores).
  - Offering specific concessional interest rates to underserved borrowers.
- Incentives such as rebates and tax credits that lower technology costs are often not available until projects are complete. Households and contractors may not be able to pay the full cost up front to enable projects. California's Advanced Rebate Payment Program addresses this barrier by offering a bridge loan to contractors to **pay for the upfront cost of projects**.
- Contractor practices can create a barrier to certain types of projects (such as electrification projects), and providing effective contractor support can help create and retain clean energy jobs. Noting that contractors tend to default to like-fuel replacements, Michigan Saves established a **training and certification program for contractors** that perform electrification projects under the program.

1. RLFs may be structured to perpetually revolve without replenishment, or may decline in value over time and may require periodic replenishment. Moreover, some states have used federal or other external funding sources for credit enhancements that do not revolve, such as interest rate buydowns. For an overview of RLFs, see https://www.energy.gov/scep/slsc/revolving-loan-funds. For an overview of potential credit enhancement designs, see https://emp.lbl.gov/publications/energy-efficiency-financing-program.

2. All recorded webinars and slides from the 2023 Model RLF Webinar Series can be found at https://www.energy.gov/scep/revolving-loan-fund-technical-assistance-resources.

Revolving Loan Fund Case Study:
California Advanced Rebate Program

Program Overview (All data provided by program sponsor)

Program Launch	**November 2020**
Objectives and Sectors Served	Supports participation in Self-Generation Incentive Program (SGIP) for battery storage technologies in single-family homes by providing zero-interest bridge financing of approved project incentives.
Lender	Golden State Finance Authority (GSFA), a California joint powers authority (JPA).[3]
Structure and Credit Enhancements	Revolving loan fund, with bridge loan structure.
Capitalization	Initially $2.5 million in seed funding from American Recovery and Reinvestment Act (ARRA) funds; GSFA provided $12.5 million in additional capital to extend the program's reach and reduce participant wait times.[4]
Administration	Managed by a third-party program administrator, GSFA, on behalf of the California Energy Commission (CEC).
Loan Volume	More than 430 project incentives (totaling $12 million) financed.
Energy and Climate Impacts	A 2021 Market Assessment Study and a 2020 SGIP Energy Storage Impact Evaluation report are available for the broader SGIP program.
More Information	Program website; 2023 webinar and slides.

Program Summary

The Self-Generation Incentive Program (SGIP), established by the California Public Utilities Commission, provides incentives to cover the cost of equipment and installation by approved contractors for residential battery storage technologies (either paired with photovoltaic systems or grid-connected) in eligible[5] single-family residential properties in California. Though these incentives are generous ($27,000 average incentive covering about 100% of the project cost), they are not paid until after project completion. Some homeowners find it financially challenging to pay for services and equipment prior to SGIP reimbursement, which presents a barrier to participation.

The Advanced Rebate Program (ARP), launched by the California Energy Commission (CEC) and administered by the Golden State Finance Authority (GSFA),[6] helps address this issue by providing upfront funding in the form of a zero-interest bridge loan to the contractor on behalf of the homeowner for SGIP-approved projects.

Program Funding and Design

The CEC funded the ARP with $2.5 million in seed funding from American Recovery and Reinvestment Act (ARRA) funds. GSFA provided $12.5 million in additional capital to extend the program's reach and reduce participant wait times.

To participate in the ARP, a homeowner contacts one of the program's approved contractors. The contractor helps the homeowner determine eligibility, evaluates the home, recommends equipment options, and helps complete the ARP application.

3. Joint powers authorities (JPAs) are entities that multiple local governments or public agencies join to jointly exercise powers common to all of them. JPAs are permitted by law in some but not all states, and are commonly used in California.

4. Note that GSFA extended this additional funding after the 2023 RLF Webinar Series presentation, so that funding is not described in the webinar.

5. Applicant must have experienced two or more public safety power shut-offs or live in a high fire threat district (both as defined by SGIP), and must meet one of the following criteria: live in a single-family home subject to resale restrictions; enrolled in a utility Medical Baseline Program; have notified the load serving utility of a serious illness and/or life-threatening condition; have received or reserved other affordable housing solar-related incentives; or have a home that relies on an electric pump well for water.

6. See https://www.gsfahome.org/ for more on GSFA.

GSFA verifies program eligibility and provides a first installment of 50% of the SGIP incentive to the contractor in the form of an interest-free bridge loan. Once the contractor completes the project installation, they complete an incentive claim form submitted to the SGIP Program Administrator and assign the SGIP incentive to GSFA. Finally, after the SGIP Administrator processes the incentive form, the SGIP program pays the incentive payment to GSFA, who applies it to repay the loan.

If the project is not completed, the contractor agrees to promptly pay back all payments received for the project. GSFA may offset any amounts owed against other costs owed to the contractor, and may also terminate the contractor's ability to participate in the program.

Implementation and Partnerships

The CEC provided seed funding for the ARP, completes federal American Recovery and Reinvestment Act (ARRA) reporting to the U.S. Department of Energy, and provides program oversight (approximately .25 full-time equivalent employees).

GSFA administers the ARP and is responsible for qualifying projects, maintaining ARP funds, determining contractor eligibility, completing contractor recruitment and training, issuing loans and incentives to contractors, and providing program reporting to the CEC.

The SGIP and ARP programs require homeowners to choose from a list of approved contractors. Contractors that fail to follow SGIP and ARP program requirements may be removed from the program.

Loan Eligibility and Terms

There are no credit checks for the homeowner since the ARP program makes its loans to contractors for projects that have been approved to receive the SGIP incentive. No fees are charged to the homeowner or the contractor.

Innovation and Notable Program Aspects

- Because contractors pay back ARP loans within 6 months, the program design allows funding to revolve quickly, supporting many projects with a relatively small amount of funding. Since inception, the program funding has revolved more than five times.
- No defaults have been reported in the program.

Lessons Learned/Best Practices

- **Work with a contractor network**. The contractor requirements in both the ARP and SGIP programs help with market outreach and education. They also help ensure successful outcomes and program experiences for the homeowner. The program maintains a Contractor Resource Guide for existing and prospective contractors that provides resources and training materials.
- **Seek out effective program administration partners**. GSFA is an established program administrator that has administered previous energy programs on behalf of the CEC and others. As a California joint powers authority, they are mission-driven in developing and administering financing programs for energy retrofits in commercial and residential buildings. These attributes have helped keep administrative costs relatively low.
- **Identify and address key participant barriers**. The CEC realized that incentive wait times for receiving project incentives were a significant barrier for homeowner participation in SGIP, and designed the ARP to address that specific barrier. This structure has also allowed a substantial amount of leveraging of the program's initial funding due to the short repayment period and recycling of the program funding, and has increased participation in SGIP.

Key Program Documents Available Online

Program website.

2023 webinar and slides.

ARP Program Term Sheet: This document summarizes key program requirements.

GSFA ARP Agreement: Form for agreement between GSFA and contractor.

GSFA ARP Project Information Form: Project application form.

GSFA Developer Participation Application: Application form for new contractors.

GSFA Developer Participation Agreement: Contractor participation agreement.

Revolving Loan Fund Case Study:
Michigan Saves

Program Overview (All data provided by program sponsor)

Program Launch	**September 2010.**
Objectives and Sectors Served	Supports financing for energy efficiency improvements by approved contractors in residential single-family homes.
Lender	Participating Michigan credit unions and other eligible financial institutions.[7]
Structure and Credit Enhancements	Loan loss reserve.
Capitalization	$15.9 million (based on loan balance outstanding).
Administration	Michigan Saves, a 501(c)(3) nonprofit.
Loan Volume	$450 million from program inception through December 2022.
Energy and Climate Impacts	• 3.1 million metric tons of reduced carbon emissions. • 9,175 full-time jobs supported.
More Information	Program website; 2023 webinar and slides.

Program Summary

The Michigan Saves residential loan program provides a loan loss reserve pool, available to credit unions and other eligible financial institutions who are approved by Michigan Saves to participate in the program. The program creates lender-specific reserves equal to 4%[8] of the outstanding principal balance of loans issued by the participating lender. Lenders issue unsecured loans to single-family residential property homeowners to finance the cost of qualifying home energy improvements by approved contractors. Lenders may claim default if they receive no payments from the borrower for 90 days. In the event of default, the lender receives 75% of the loan balance from the loss reserve.[9] The program is administered by Michigan Saves, a 501(c)(3) nonprofit organization. Michigan Saves also provides a separate program for commercial buildings, funded from separate loan loss reserves provided to participating lenders.

Program Funding and Design

The Michigan Public Service Commission provided initial funding for the loan loss reserve ($6.5 million). This funding was later supplemented by Michigan state energy office American Recovery and Reinvestment Act and State Energy Program funds and state of Michigan appropriations.

To participate in the program, a homeowner contacts a program-approved contractor to get an estimate on qualifying residential eligible improvements. The homeowner then completes an online intake application for financing and works with the lender to complete the application process.

Implementation and Partnerships

The Michigan Public Service Commission awarded a grant to Public Sector Consultants (PSC), a public policy consulting firm, in 2009 to create an innovative energy efficiency and renewable energy financing program. The team moved quickly, securing input from stakeholders and performing research to generate the structures, processes, and policies that would form Michigan Saves. In that same year, Michigan Saves was incorporated as a 501(c)(3) nonprofit. Once established, Michigan Saves' Board of Directors engaged PSC to staff the organization, leveraging PSC's experience, expertise, and history with Michigan Saves. Currently there are 11 full-time PSC team members devoted to the Michigan Saves loan program, and several part-time staff members who offer further support.

7. Current program participating lenders are all credit unions.

8. The program was initially launched using 5%, but revised the rate to 4% in 2021. Beginning Jan. 1, 2024, the program returned to using 5%.

9. The initial program paid 50–80% of default loan balances depending on FICO score, but in 2021 changed to a standardized rate of 75% for all loans.

Loans are issued through participating credit union lenders[10] and other eligible financial institutions.

Michigan Saves maintains a network of more than 1,000 approved contractors who have exclusive access to Michigan Saves loan products. Borrowers must work through an approved contractor. Contractors must:

- Be registered and in good standing with the state of Michigan Corporations Division.
- Maintain certain insurance requirements.
- Have an active license in the applicable trade with no actions against the license by the state of Michigan.
- Attend a residential contractor training session.
- Not have been subject to disciplinary proceedings or license revocation by the state of Michigan and may not have any outstanding legal claims, including bankruptcy.

Loan Eligibility and Terms

Loans are unsecured (apart from some solar loans, noted below) and issued in loan amounts from $1,000 to $30,000. Loans carry a maximum interest rate of 7% for borrowers with credit scores of 640 or greater. Lenders are encouraged to approve loans with credit scores less than 640 and may select their own maximum loan amount, term, and interest rate upon written agreement with Michigan Saves. Lenders may secure solar equipment with a Unified Commercial Code filing with authorization from Michigan Saves.

The loan term is 1 year for every $1,000 of loan amount up to $4,999. For loans $5,000 and higher, borrowers may select a loan term of up to 10 years (or longer if the lender offers a longer term). Borrowers may select shorter terms, and there is no prepayment penalty.

To be eligible to participate in the Michigan Saves residential loan program, loans must satisfy minimum underwriting standards established by Michigan Saves as noted below. Each lender sets its own underwriting criteria within these guidelines and makes its own decision about which loans to approve.

Innovation and Notable Program Aspects

- Approximately 59% of Michigan Saves residential loans are made to households with household income of 60–120% of area median income.
- Michigan Saves seeks to promote residential electrification. The program discovered that contractor practices were a key barrier to electrification projects: Many contractors were not in the habit of offering fuel-switching alternatives. Michigan Saves addressed this barrier by creating an electrification training and certification program for approved contractors. Contractors that complete this training receive a badge on the program website that enables program customers pursuing electrification to identify them. The program website also offers a residential electrification guide.
- Michigan Saves has provided certain administrative services[11] to three financing programs funded and serviced

Michigan Saves Minimum Residential Underwriting Standards

Credit score	Minimum 640 (if there are multiple borrowers, the higher score, regardless of income, must be used for qualification).
Bankruptcy	No bankruptcies in the last 12 months.
Foreclosure and repossession	None in the last 12 months.
Unpaid collection accounts and open charge-offs	Final decision deferred to the lender for open accounts exceeding $1,000, excluding medical collections.
Judgments and tax liens	Must be paid or in repayment.
Total monthly obligations to total monthly income	• All qualifying credit scores: 50% or less. • When debt-to-income ratio exceeds 50% and credit score is 680 or greater, the final decision is deferred to the lender.

10. As of the preparation of this report, five credit union lenders were participating in the program.

11. Contractor recruitment, customer service, market materials, and monthly performance reporting.

by utilities that have used alternative underwriting[12] to broaden access to underserved households:

- Holland Energy Fund On-Bill Loan Program, which operated from 2016 to 2023 and made 141 loans totaling almost $2.3 million.
- Travers City Light & Power On-Bill Financing Program, which commenced in 2020 and is still open, has made 18 loans totaling $267,711.
- Detroit Loan Fund, which operated from 2022 to 2023 with funding provided from Kresge Foundation. This loan fund used "Ability to Pay"[13] underwriting criteria. During its operation, the program made 236 loans totaling $2 million.

Lessons Learned/Best Practices

- **Offer risk support to outside lenders to increase leverage of program funds**. The program's loan loss reserve structure has achieved substantial leverage of its funding. The $17.6 million loss reserve has supported $450 million in loan volume. The Michigan Saves loan program is a powerful demonstration of the potential impact of this program structure.
- **Leverage contractors as a sales force for the loan product**. To be effective at scale, information about energy efficiency loans must be available to the borrower at the time they are making a decision to consider undertaking an energy efficiency improvement. Given the program's network of more than 1,000 approved contractors, many potential program participants receive information about Michigan Saves loan products at the time of a decision about whether to proceed with an energy efficiency project.
- **Simplify program access for the participant**. Michigan Saves aims to make its loan products and loan processes very simple to understand and access. For example, it avoids inserting program process between the customer and the contractor by pre-approving measures and projects.

Key Program Documents Available Online

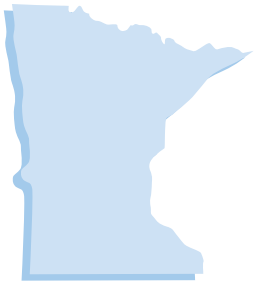
Program website.

2023 webinar and slides.

12. The borrower must have at least 12 consecutive months of electric utility bill payments with no delinquencies (if the applicant had a delinquency in the last 12 months, they could be approved provided that there was no more than one delinquency in the last 24 months and the applicant had a credit score of 640 or more); applicant must not have any delinquent taxes, bankruptcies, foreclosures, or repossessions greater than $1,000 within the last 3 years; and no unsatisfied money judgements. Michigan Saves pulled a credit report for the applicant to determine if there were bankruptcies, foreclosures, etc., but the applicant credit score was only used in the event of a utility bill payment delinquency as described above.

13. Michigan Saves pulled a credit report for the applicant, but did not consider the score in underwriting the applicant. The applicant was required to have at least $300 of disposable income, determined by taking the applicant's gross income and subtracting monthly payments reported on the credit report (including rent, if any, and excluding student loans in deferment, collections, and charge-offs); bankruptcies must have been discharged for at least 6 months; and the applicant must not be 60-plus days delinquent on any non-medical payment or 31-plus days delinquent and have a charge-off in the last 6 months.

Revolving Loan Fund Case Study:
Minnesota Commercial Property Assessed Clean Energy Financing



Program Overview (All data provided by program sponsor)

Program Launch	State legislation authorized Minnesota Commercial Property Assessed Clean Energy Financing (MinnPACE) in 2010; financing launched in 2014.
Objectives and Sectors Served	Finances energy efficiency improvements and renewable energy installations in commercial buildings.
Lender	Saint Paul Port Authority (SPPA).
Structure and Credit Enhancements	Revolving loan fund, with credit enhancement provided through voluntary tax assessment.
Capitalization	15 million dollars for loans made by SPPA; additional capital provided by national commercial property assessed clean energy (C-PACE) lenders, community banks, and credit unions.
Administration	SPPA.
Loan Volume	More than 400 projects in excess of $300 million in project costs (including loans from SPPA and other financiers) from program inception through Spring 2023.
Energy and Climate Impacts	From program inception through Spring 2023, per the 2023 presentation linked below: • More than $2 million in annual energy bill savings. • More than 800 billion annual Btu savings. • More than 3,000 construction jobs created and more than 4,000 jobs created or retained.
More Information	Program website; 2023 webinar and slides; Trillion BTU Program website.

Program Summary

The Minnesota Property Assessed Clean Energy (MinnPACE) program provides financing for energy efficiency upgrades and renewable energy installations in commercial buildings.[14] To be eligible, buildings must be located in eligible counties and cities with joint powers agreements in place with Saint Paul Port Authority (SPPA). Building owners repay over time through a voluntary tax assessment. MinnPACE was launched in 2014 as part of the Trillion BTU Program, an energy conservation loan program started in May 2010 for commercial, industrial, and nonprofit projects that originally used a different loan structure.

Program Funding and Design

The Minnesota Legislature authorized $5 million of the state's American Reinvestment and Recovery Act (ARRA) funds for the Trillion BTU program to operate in the Xcel utility service territory. The Minnesota Department of Commerce subsequently reallocated another $10 million in ARRA funding to allow the program to operate on a statewide basis. This combined funding has supported loans issued by SPPA through the Trillion BTU Program using both Commercial Property Assessed Clean Energy (C-PACE) and non-C-PACE structures.

SPPA finances some MinnPACE projects itself using a revolving loan fund capitalized with the above ARRA funds, and also allows other lenders to finance projects through the program. Of the 400 C-PACE projects ($300 million in project costs) reported in the 2023 presentation, program officials reported that national C-PACE lenders financed about 75 projects, community banks and credit unions financed about 100 projects, and the SPPA revolving fund financed about 225 projects (about $75 million in project costs). SPPA periodically sells its special assessment financing agreements to credit unions and community banks to recapitalize the revolving fund and to fund additional projects; as of August 2023, SPPA had sold about 40 of its assessments (about $30 million in project costs). Program officials report that

14. For more on the C-PACE program model, see the U.S. Department of Energy's C-PACE Toolkit: https://www.energy.gov/scep/slsc/commercial-property-assessed-clean-energy-pace-toolkit.

the fund has revolved about three times since its inception: about two revolutions occurred from the sale of financing agreements to community banks and credit unions, and approximately one revolution of funds occurred naturally through repayments.

To access the program, a commercial building owner within a participating city/county evaluates and selects a project that will reduce energy costs and realize a simple payback of less than 20 years. Following the application process, SPPA provides the commercial property owner with financing for the full project cost. SPPA then works with the city/county to establish the property tax special assessment, which generally starts the following year, and continues annually for up to 20 years. The property owner repays the financing through this special assessment on their property tax bill. As a result, the financing is secured by the property.

National C-PACE lenders also provide similar financing to eligible projects they source, or to projects that may exceed SPPA's financing limits. Certain community banks and credit unions in Minnesota also provide similar financing to projects.

Implementation and Partnerships

SPPA has joint powers agreements with a majority of Minnesota counties and cities.

Minnesota also has a separate regional Rural Minnesota Energy Board PACE Program administered by the Southwest Regional Development Commission, serving 18 counties which have joint powers agreements with the Rural Minnesota Energy Board. This program finances small projects up to $100,000. Both program administrators refer projects to one another based on the financing amount requested. Through August 2023, the Rural Minnesota Energy Board program has funded 35 projects at a total of about $1.3 million in financing.

Loan Eligibility and Terms

MinnPACE financing is available for commercial projects located in a Minnesota city, county, or town that has entered into a joint powers agreement with SPPA. MinnPACE financing is limited to 20% of the assessed or appraised value of the property. To qualify, projects must achieve a simple payback period of 20 years or less.

Qualifying businesses must meet the following criteria:

- No mechanic's liens or similar liens against the property.
- Current on all taxes.
- Current on mortgage payments.
- Not involved in any bankruptcy proceedings.

MinnPACE financing can be used to finance energy audits and renewable energy studies; equipment and installation costs; energy evaluations; costs for design, drafting and engineering; and permits and inspection fees.

MinnPACE can be used to finance both retrofit equipment and energy-saving equipment associated with new construction. Common energy efficiency upgrades include, but are not limited to, heating, ventilation, and air conditioning systems; lighting; building envelope; and energy management systems. Qualifying renewable energy systems include solar, wind, and geothermal.

Maximum assessment amounts and repayment terms vary by lender as follows, but in all instances the maximum assessment amount is limited by state law to not more than 20% of the assessed or appraised value of the property:

- SPPA funding: 10-year fixed term, up to $1 million.
- Local credit unions: up to a 15-year fixed term, up to $1 million.
- National C-PACE funders: up to a 20-year fixed term, over $1 million.

SPPA issues assessments at an interest rate of 5.5%.[15] Local community banks, credit unions, and national C-PACE funders provide different interest rates.

Projects funded by SPPA must comply with Davis-Bacon Act prevailing wage requirements. The program contracts with a consultant, at an estimated cost of less than $10,000 per year, to work with contractors prior to project commencement and review wage reports for Davis-Bacon compliance. Projects funded by private C-PACE capital providers do not need to demonstrate Davis-Bacon compliance. SPPA has worked with the Minnesota State Historic Preservation Office to ensure compliance with requirements related to historic preservation.

Innovation and Notable Program Aspects

- Minnesota uses its state energy office funding to support a C-PACE program, thereby leveraging program funding by selling C-PACE assessments on the secondary market. The MinnPACE Program is one of the highest volume C-PACE programs in the country.
- The MinnPACE program finances a large number of small projects with small businesses, which is unusual for a C-PACE program. About 75% of MinnPACE projects are under $250,000 (75% of these are solar projects and 25% are energy efficiency projects). The program has designed and developed the structure and processes to support a pipeline of these small projects.

15. The program initial interest rate was 5%, then was reduced to 4.25%, but in the past 2 years was increased to 5.5%.

Lessons Learned/Best Practices

- **Engage local lenders, especially credit unions**. Engagement with community banks and credit unions has been the key MinnPACE strategy for revolving funds quickly. MinnPACE's partner banks and credit unions have been willing to buy SPPA-originated C-PACE assessments due to the security offered by the voluntary tax assessment.
- **Develop a recapitalization strategy**. The program developed an effective strategy for addressing its limited funding by selling assessments to community banks and credit unions.

Key Program Documents Available Online

Program website.

2023 webinar and slides.

Trillion BTU Program website.

Loan/Lease Application.

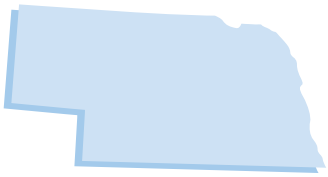
Online Application for MinnPACE Financing/Special Assessment.

Lender Acknowledgement Form: Consent form for existing mortgage lender(s).

Petition for Special Assessments Form: Document recorded in book of deeds to show existence of MinnPACE loan.

NASEO, *Improving Access to C-PACE For Smaller Businesses: Case Studies from Three States*.

Revolving Loan Fund Case Study:
Nebraska Dollar and Energy Saving Loans Program



Program Overview (All data provided by program sponsor)

Program Launch	1990
Objectives and Sectors Served	Residential, farm, small business, and local government loan program, operating in partnership with local lenders.
Lender	Participating lenders (Nebraska-chartered bank, savings institution, or credit union).
Structure and Credit Enhancements	Revolving loan fund, with co-lending/participation structure.
Capitalization	Approximately $45 million from Petroleum Violation Escrow funds and American Recovery and Reinvestment Act (ARRA) funds.
Administration	Nebraska Department of Environment and Energy (NDEE) administers its share of the loans internally.
Loan Volume	29,928 loans; $385.5 million loaned in total ($139.4 million from lenders, $192.7 million from program co-lending fund) from program inception through Spring 2023.
Energy and Climate Impacts	• 14.1M kWh saved • 5.2M therms saved • $104.8 million in total energy savings • $365.9 million output economic impact • 1.4 billion lbs of CO2 emissions reductions.
More Information	Program website; 2023 webinar and slides.

Program Summary

The Dollar and Energy Saving Loans (DESL) program offers loans to residential, commercial, and local government borrowers[16] for building energy efficiency improvements, lighting retrofits, alternative energy projects, or alternative fuel projects. Borrowers can finance prequalified improvements or can submit energy savings estimates for approval of other eligible improvements. Loans are made by participating lenders with Nebraska Department of Energy and Environment (NDEE) funding (at no interest) a portion of the lender's loan. The lender and NDEE share pro rata on losses.

Program Funding and Design

NDEE initially capitalized the program with $10 million of Petroleum Violation Escrow funds. Subsequently, NDEE added $12 million from American Recovery and Reinvestment Act (ARRA) funds and $23 million in additional Petroleum Violation Escrow funds, for a total capitalization of $45 million.

To participate in the program, a prospective borrower completes a program application package and takes the completed forms to a participating lender. The lender approves the loan application subject to NDEE's c ommitment of funds. After NDEE reviews the project information and reserves funds for the loan, the lender notifies the borrower of loan approval and project work can begin. All work must be completed within 5 months after NDEE's commitment of funds.

Once the project is complete, the borrower notifies the lender to finalize remaining details and begin loan repayment. Once the lender closes on the loan and disburses the loan proceeds to the borrower, the lender enters into a participation agreement for the loan with NDEE, and NDEE remits its participation share in the loan to the lender. The lender then reports monthly to NDEE on its loan balances and remits to NDEE its share of loan payments received.

16. Through June 30, 2022, NDEE's participation share of loans (in dollars) has been about: 78% residential, 13% commercial/industrial/local government, 4% wind/solar/fuel cells, 3% transportation/telecommunications, and 2% agricultural (NDEE 2022 Annual State Energy Report, https://nebraskalegislature.gov/FloorDocs/108/PDF/Agencies/Environment_and_Energy__Nebraska_Department_of_/726_20230215-150656.pdf).

Implementation and Partnerships

A NDEE staff member with banking experience led the design and implementation of the program. The Nebraska Bankers Association advised on program development and helped coordinate initial outreach with lenders.

The program is administered internally by NDEE staff (approximately 3.5 full time-equivalent employees). Individual lending partners originate and service program loans.

Loan Eligibility and Terms

Participating lenders must follow program requirements regarding interest rates (currently loans must be offered to the borrower at 5% or less), terms, and eligible loan fees. Nebraska participates in a portion of the lender's loans, depending on the lender's interest rate:

- 50% at greater than 3.5% interest rate.
- 65% at 0-3.5% interest rate.
- 90% at 1% interest rate for public schools.
- 85% at 1.5% for Nebraska Public Power District customers with qualifying heat pumps.

The maximum loan amounts are $125,000 for loans for residential 1–2 family projects and $500,000 for loans for commercial buildings. The maximum loan repayment term is 15 years for most projects involving home/building improvements, but 5 years for projects only financing appliances.

The participating lender performs loan underwriting according to their standard practice; the program does not prescribe underwriting criteria apart from measure eligibility.

The program provides a list of prequalified improvements that may be included in a loan. Other eligible improvements not on the prequalified list can be financed if the borrower provides a program form documenting that the project will pay for itself within 15 years for building improvements (or five years for replacement appliances, home electronics or office equipment; or within 10 years for other improvements). The program does not require the use of approved contractors or energy audits, but notes that audits may be available in certain utility territories, and also provides a do-it-yourself energy saving analysis which can be completed by the borrower.

NDEE generally uses ARRA funds for residential projects in buildings less than 50 years old, which (under ARRA rules) do not require compliance with Davis-Bacon Act, Buy American Act, or historic preservation requirements. It funds other projects with other sources of capital as a strategy for managing reporting requirements.

Innovation and Notable Program Aspects

- The DESL program uses a participation lending structure which has been successful in attracting a relatively large number of lending partners and projects financed. The structure leverages program dollars by attracting private capital to fund up to half of the loan amounts, while effectively outsourcing loan underwriting and servicing tasks to the participating lenders, thereby reducing burden on SEO staff. Participating lenders benefit by being able to offer a lower interest rate to their customers due to DESL's zero-interest contribution.
- Through thoughtful program design and active outreach (including the participation of the Nebraska Bankers Association) at program launch, the DESL program has maintained a large network of more than 100 participating lenders. A small number of active lenders make a large share of program loans.

Lessons Learned/Best Practices

- **Engage local lenders and contractors and create a loan product they want to use**. The program involved lenders in the initial program design and has developed and maintained good relationships and communications with lenders and contractors, which is critical for program participation and success. The program is one of the older state energy financing programs and has supported a substantial amount of lending activity to date, which provides evidence that the program design has been successful.
- **Design an efficient loan process**. Program officials strive to provide prompt turnaround on applications and approvals, which is essential to borrowers and lenders.
- **Consider a participation structure with low interest rates**. The participation structure creates an incentive for local lenders to issue loans at low interest rates since it provides a substantial portion (50–90%) of the loan capital and allows the lender to receive interest on the entire loan amount, allowing the lender to earn an attractive return on its capital.
- **Provide only one source of funding per loan.** The program generally provides one source of funding for each project, which makes program administration and financial reporting easier.

Key Program Documents Available Online

Program website.

2023 webinar and slides.

Application Forms.

Lenders Agreement and Forms.

Revolving Loan Fund Case Study:

New York State Energy Research and Development Authority Green Jobs – Green New York Program Residential Financing

Program Overview (All data provided by program sponsor)

Program Launch	Authorized in 2009 state legislation and launched in December 2010.
Objectives and Sectors Served	Primary focus is providing low-interest-rate loans to lower- to moderate-income homeowners.
Lender	New York State Energy Research and Development Authority (NYSERDA).
Structure and Credit Enhancements	Revolving loan fund.
Capitalization	Funding through Regional Greenhouse Gas Initiative (RGGI) funds, totaling $199.0 million as of June 2022.
Administration	Managed by NYSERDA (three full-time equivalent employees), with contracts for certain program services (detailed below).
Loan Volume	38,713 loans totaling $476.9 million from program inception through June 2023.
Energy and Climate Impacts	From program inception through January 2023: • 6,317 MWh of produced solar • 4,700 MWh in electricity savings • 344,000 MMBtu in fuel savings.
More Information	Program website; 2023 webinar and slides.

Program Summary

The Green Jobs – Green New York (GJGNY) residential loan program provides unsecured loans to homeowners in New York state to finance the installation of air source and ground source heat pumps, solar electric systems, and energy efficiency improvements in 1–4 unit residential dwellings through approved contractors.

The program offers three loan products, and until recently offered a fourth:

1. **Smart Energy Loan**: The borrower is billed monthly or makes payment with automatic bank withdrawal (ACH). This loan is not assignable or transferrable upon property sale and is subject to a $25,000 cap.
2. **On-Bill Recovery (OBR) Loan**: The borrower repays through a charge on the borrower's electric/gas utility bill. Non-payment of the loan can result in shutoff of utility service. This loan may be assumed by the new owner upon sale or transfer of the property and is subject to a $25,000 cap.
3. **Tax Credit Rebate Loan**: Added in January 2021, this "bridge loan" can be used to finance anticipated income tax credits for eligible projects with a single payment due 24 months after issuance. This loan can be issued in connection with a Smart Energy/OBR Loan, but the combined loan total must remain under the $25,000 cap.
4. **Companion Loan**: This is a separate loan funded with capital from NY Green Bank, a division of the New York State Energy Research and Development Authority (NYSERDA), for projects that need more funding than the $25,000 statutory loan limit on the above loans. The borrower is billed monthly or makes ACH payments. This loan product was recently discontinued due to a lack of funding.

Program Funding and Design

NYSERDA funds the GJGNY program from proceeds from the sale of greenhouse gas emissions allowances under the Regional Greenhouse Gas Initiative (RGGI).[17]

17. The authorizing legislation directed $112 million of RGGI funds be used to fund the program, which included funding for workforce development activities, energy audit subsidies, program marketing, program administration and evaluation, and an initial revolving loan fund for residential loans and loans for small businesses, nonprofits, and multifamily buildings. Subsequent RGGI funding has been added annually to maintain the revolving loan fund balance and equity funding required for each bond issuance to meet bond agency rating requirements.

To participate in the program, a homeowner identifies a participating contractor to perform an energy audit, and then submits a credit application for the amount of the project cost to be financed. Once approved, the borrower executes the loan documents and loan repayment starts after project completion.

The program operates in an integrated fashion with other NYSERDA and utility programs supported by ratepayer funds approved by the New York State Public Service Commission (such as Home Energy Efficiency Programs, NY-Sun, and NYS Clean Heat) that provide contractor and participant incentives and workforce development activities.

The program engages with the institutional bond market as its means to leverage private capital. NYSERDA has periodically recapitalized the revolving loan fund by selling bonds secured by program loans to institutional bond investors, as well as a June 2021 sale of participation interests in certain loans.

Implementation and Partnerships

NYSERDA retained a financial advisor to provide input on its loan terms and underwriting standards and to develop its secondary market capitalization strategy. An advisory council comprised of broad outside experts also provided input during the development of the program and provides ongoing oversight.

NYSERDA uses several contractors to assist with program delivery:

- A loan originator, which qualifies borrowers and issues loans using loan underwriting criteria established by NYSERDA.
- A loan servicer, which provides billing and collection services.
- Each of the New York state investor-owned utilities, who perform certain billing and collection services for OBR loans.
- Title companies, who record program declarations for OBR Loans in municipal recording offices (to provide notice to any subsequent property purchaser).
- Approved program contractors, who perform energy efficiency improvements and renewable energy system installations.
- A financial advisor, bond underwriter, and bond counsel.

All projects supported by GJGNY loans must conduct an energy audit.[18]

Loan Eligibility and Terms

NYSERDA established two different loan underwriting criteria, Tier 1 and Tier 2, which are both used for each of the loan products offered by the program. Tier 2 standards are more flexible; NYSERDA generally holds Tier 2 loans for a period of at least 5 years before they can be used to secure bonds. The table below lists the current underwriting criteria for each loan tier.

In addition to the above borrower criteria, projects receiving loans must meet the following cost-effectiveness criteria:

- OBR Loan monthly payments may not exceed one-twelfth of the estimated first-year average monthly energy cost savings over the loan term.
- Smart Energy Loans must either: (1) finance projects for which at least 85% of the loan amount supports prequalified measures; or (2) meet cost-effectiveness criteria using an online project eligibility tool.

GJGNY Underwriting Criteria (Applies for all loan products)

Criterion	Tier 1	Tier 2
Minimum FICO score	640	540
Maximum debt-to-income ratio	50% (no requirement if FICO > 720)	40%-60% depending on FICO score (no requirement if FICO > 720)
Bankruptcies/ foreclosures/ repossessions	None within the past 2 years.	None within the past 7 years.
Outstanding judgments	No reported outstanding collections, judgments, or liens greater than $2,500.	No reported outstanding collections, judgments, or liens greater than $2,500
Mortgage payment delinquencies	N/A.	On-time payments for the preceding 12 months; no payments more than 60 days late during the preceding 24 months.

18. Described at https://www.nyserda.ny.gov/All-Programs/Residential-Energy-Assessment-Programs. Energy audits are provided free of charge or on a subsidized basis based on homeowner income. Initially, these energy audits were funded from RGGI funds used to initially fund the program. After those funds were exhausted, energy audits have been funded through ratepayer funds approved by the New York State Public Service Commission.

As documented in the project eligibility tool, loans are limited to not more than $13,000 for projects with simple payback periods of more than 15 years, or $25,000 if the simple payback is 15 years or less. Loan terms are offered at 5, 10, or 15 years (except for the Tax Credit Rebate Loan, which is for 24 months), but may not exceed the useful life of the financed improvements (calculated as weighted average useful life for multi-measure projects). By default, loan proceeds are paid to the contractor upon project completion. Effective January 2020, NYSERDA's Advance Payment Program disburses 50% of loan proceeds to contractors enrolled in the program when the borrower signs the financing document, and the remaining 50% upon project completion.

In January 2020 the program launched a geographic eligibility for lower interest rates. Borrowers who live in a federal census block group in which 50% or more of the population have household incomes less than 120% of area median income, or who provide documentation that their own household income is below this threshold, receive lower interest rates. Approximately 72% of New York state households qualify for the lower rate. As of summer 2023, interest rates are:

- OBR Loan: 3.49%/6.99%.
- Smart Energy Loan: 3.99%/7.49% (0.5% discount applied if repaid through ACH).
- Tax Credit Rebate and Companion Loans: 6.49%/6.99%.

Innovation and Notable Program Aspects

- The GJGNY legislation directed NYSERDA to provide innovative financing solutions to broaden access to financing and to address financing market barriers. NYSERDA adopted longer (15-year) loan repayment terms than most loan products to lower the monthly cost of comprehensive energy efficiency retrofits and renewable energy system installations. NYSERDA designed its Tier 2 loan underwriting standards to provide financing to borrowers who might not qualify for financing from traditional lending institutions.
- NYSERDA's bond market recapitalization strategy was critical to the program's ability to leverage its relatively small initial program funding.
- NYSERDA's bond issuances have engaged private institution capital and bond rating agencies to support the development of residential clean energy loans as a new asset class.
- In 2013, NYSERDA issued bonds secured by program loans and further secured with a guarantee from the New York State Environmental Facilities Corporation Clean Water State Revolving Fund (allowing the bonds to achieve AAA rating). *The Bond Buyer,* a periodical for municipal and institutional bond investors, recognized the transaction as the Small Issuer Deal of the Year. This mechanism provided a potential new pathway for state clean energy projects to be supported through the federal Clean Water State Revolving Fund program. See Leveraging State Clean Water Revolving Funds to Expand Clean Energy Financing for more.
- NYSERDA publishes monthly data on loan portfolio attributes and performance (delinquencies/losses) on its website at https://www.nyserda.ny.gov/ny/CED. Users can summarize data by multiple categories (technology, loan type, loan underwriting tier, income level, etc.) and can also download anonymized, loan-level data. Other programs have accessed these data to inform their assumptions about program financial performance; Berkeley Lab leveraged these data as well as data from other leading residential programs in a study of residential energy efficiency loan performance.

Lessons Learned/Best Practices

- **Ensure that there is a streamlined and easy process for borrowers and contractors to access the loan products.** Over time, NYSERDA has made revisions to its loan application form and borrower income documentation requirements and improvements to the loan originator's online application system.
- **Revisit interest rates as needed to better meet program objectives and target sectors.** NYSERDA revised its interest rate approach over time to ensure that the program is primarily serving lower income or lower credit consumers who may have challenges accessing traditional financing sources or where the interest rates on such loan products are high and may be a barrier to participation.
- **Revisit loan underwriting standards as needed to meet program objectives.** NYSERDA revised its loan underwriting standards over time to ensure that they could be implemented easily and provide reasonable protection to the revolving loan fund corpus while also focusing on innovating to broaden access to financing.
- **Consider companion financing to enable larger projects**. Maximum loan amounts can present a barrier to major heating, ventilation, and air conditioning equipment (HVAC) projects such as air- and ground-source heat pumps, which are now focal technologies for the program but were not at time of implementation. NYSERDA introduced the Companion Loan in part to better support these measures.

Key Program Documents Available Online

Program website.

2023 webinar and slides.

Eligible Measures: List of improvements eligible for GJGNY financing.

Residential Financing Application: Fillable form; online application also available.

Revolving Loan Fund Case Study:
Texas LoanSTAR Program

Program Overview (All data provided by program sponsor)

Program Launch	1988
Objectives and Sectors Served	Serves taxpayer-supported institutions: K–12 schools, local and county governments, public hospitals, higher education, and state agencies.
Lender	Texas State Energy Conservation Office (SECO).
Structure and Credit Enhancements	Revolving loan fund.
Capitalization	As of July 2023, the revolving loan fund balance (cash plus loans outstanding) was $248.0 million.
Administration	Managed and administered internally by SECO.
Loan Volume	398 loans totaling $500 million from program inception through spring 2023.
Energy and Climate Impacts	• 21.6 billion kWh saved • 24.6 MMBTu of gas saved • Avoided emissions: 19 tons NO, 7.1 tons CO_2, 14.4 tons SO_2.
More Information	Program website; 2023 webinar and slides.

Program Summary

The Texas LoanSTAR (Saving Taxes and Resources) program finances energy-related, cost-saving retrofits of facilities supported by the state, including public school districts and public colleges and universities as well as local and state government agencies. The loans are structured so that expected savings in utility costs will repay the loan. Typical projects are large. The Texas State Energy Conservation Office (SECO) serves as the capital provider, lender, and program administrator, operating all aspects of the program.

Program Funding and Design

SECO initially funded LoanSTAR with $95 million of Petroleum Violation Escrow funds. SECO later supplemented the fund with periodic federal State Energy Program and American Recovery and Reinvestment Act (ARRA) funds. As of July 2023, the fund balance (cash plus loans outstanding) was $248.0 million, funded entirely by federal dollars ($150.9 million from Petroleum Violation Escrow funds, $9.5 million from State Energy Program funds, and $87.6 million from ARRA funds).

LoanSTAR loans fund utility cost reduction measures[19] identified in a utility assessment report (UAR). A state of Texas licensed professional engineer prepares this report and submits it to SECO for approval. The loan borrower must own and occupy the buildings where the measures will be installed.

Each year, SECO publishes a Notice of Loan Fund Availability for LoanSTAR loans on the state comptroller's website and on SECO's Funding & Incentives webpage. Potential borrowers complete applications in response to these notices. SECO reviews loans on a first-come, first-served basis. After a borrower submits an application, SECO conducts an administrative review of the loan application. At that time, SECO commits (sets aside)

19. Eligible projects may include one or more of the following utility cost reduction measures: indoor and outdoor lighting projects; heating, ventilation, and air conditioning equipment (HVAC); electrical distribution equipment; building shell improvements; energy management systems; energy recovery systems, including systems that generate electricity on-site; alternate/renewable energy systems; load management devices; water systems and wastewater systems energy conservation measures; geothermal equipment; indoor and outdoor water conservation projects; commissioning; and other cost-effective energy efficiency or water conservation enhancement, demand, or rate-based measures that the LoanSTAR Program has approved. They must: be permanently affixed to the building or permanently installed on the site; have a demonstrated track record of cost-effectiveness; be commercially available; and be recommended in a UAR that is prepared by a state of Texas licensed professional engineer. Experimental or research-related technologies that are not commercially available are ineligible.

funds for the project. The borrower's engineer then prepares and submits a UAR, which provides a summary of the current energy use of the building and the proposed improvements and projected energy savings. SECO assigns the engineering review of the UAR to independent third-party engineers under contract with SECO for review. When the third-party engineer determines that the UAR complies with SECO's technical guidelines and that the costs are reasonable, the third-party engineer notifies SECO in writing. When SECO receives this notification, it prepares a loan agreement for signature. SECO holds a kickoff meeting to ensure that the borrower understands the loan reimbursement requirements and the loan agreement details. The borrower then begins design and construction.

SECO's independent third-party engineer provides design and on-site construction reviews at 50% and 100% completion, which support disbursements to the borrower on a reimbursement basis. SECO's independent third-party engineers then prepare and submit a final completion report to SECO. SECO then processes the borrower's final reimbursement request and places the project into repayment status. SECO sends the borrower a quarterly repayment schedule based on the UAR for the aggregate amount disbursed to the borrower plus accrued interest. SECO sets the term of the loan at the simple payback period determined in the UAR.

Implementation and Partnerships

SECO administers LoanSTAR internally (about 2.5 full-time equivalent employees). SECO handles all program administration roles, including project eligibility, loan origination and loan agreement preparation, kickoff meeting logistics, reimbursement request processing, coordination with SECO's independent third-party engineers, and loan repayment collections. For projects funded with grant funds that have Davis-Bacon Act and Buy American Act requirements, SECO staff reviews submissions, meets monthly with SECO's independent third-party engineers, and conducts periodic on-site monitoring visits for compliance.

Loan Eligibility and Terms

Because SECO manages the program internally and default risk is low by working exclusively with the public sector, SECO can offer low interest rates (see below). There is no credit evaluation of the borrower.

To qualify for LoanSTAR funding, each energy-saving or demand-reduction measure must pay for itself within the estimated useful life of the measure. In addition, the simple payback of the aggregate of the measures must be less than or equal to 15 years. SECO determines the term of the LoanSTAR loan based on the calculated simple payback period of the overall project from the UAR, with a maximum term of 15 years. For example, a $100,000 project with a commission report that estimates annual energy savings of $10,000 would result in a loan with a 10-year term.

LoanSTAR loans are unsecured. The maximum loan amount is currently $6 million. Loan interest rates vary by funding source/project type:

- Petroleum violation escrow funds: 2% (2.5% in FY24).
- Other State Energy Program funds: 2% (2.5% in FY24).
- ARRA: 1%. Reduced rate is offered due to additional requirements for federal funds, such as Davis-Bacon and Buy American requirements. (1.5% in FY24).
- ARRA chiller projects: 0.25% (reduced rate to encourage technology adoption).

Innovation and Notable Program Aspects

- LoanSTAR has experienced no defaults in its history and has found that providing loans to public sector organizations minimizes risks of defaults.
- The LoanSTAR program fund is among the largest state energy office programs in the country, and has proven able to sustain itself for decades as a self-administered program by leveraging multiple sources of federal funding over time and ensuring strong financial performance from its borrowers.

Lessons Learned/Best Practices

- **Provide a clear process.** The program has developed clear loan application, loan review, and oversight processes.
- **Work with independent third-party professional engineering firms.** The program uses third-party professional engineers for all projects during the loan application process and holds progress meetings with the firms to review status of projects. Other programs might benefit from doing this for larger projects.
- **Provide only one source of funding per loan.** The program provides one source of funding for each project, which makes program administration and financial reporting easier.
- **Provide free preliminary energy audits**. The program has used these free energy audits to help identify savings opportunities and introduce organizations to the LoanSTAR program.
- **Offer below-market interest rates**. The program has kept the program interest rates below the school 15-year bond rates to provide an advantage to borrowers for participating in the program.
- **Provide for peer exchange among borrowers**. The program schedules prior participants to discuss their experience with the loan program at energy management conferences.

Key Program Documents Available Online

Program website.

2023 webinar and slides.

LoanSTAR Technical Guidelines: This document provides detailed information on program requirements, including the eligibility criteria, application process, and loan terms.

Project Application: This form is used to apply for a LoanSTAR loan.

Texas Administrative Code: Project requirements noted in Sections 19.41-19.45.

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