U.S. Department of ENERGY | Office of State and Community Energy Programs

NREL Transforming ENERGY

Reaching Underserved Communities with Energy Efficiency Funding and Financing Programs: Primer for State Energy Offices

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Introduction

This primer outlines strategies, principles, and key considerations for State Energy Offices (SEOs) to develop and deploy energy efficiency and renewable energy funding and financing programs that advance energy equity. It describes core principles for equitable funding and financing program design, including community engagement, accessibility, affordability, accountability, and continuity. It then reviews how these principles can be put into practice throughout all phases of program design and implementation, exploring key challenges in each phase, and actionable solutions to advancing equity. By implementing these core principles and best practices throughout the program lifecycle, SEOs can ensure that energy efficiency and renewable energy benefits are distributed more equitably within their communities, supporting long-term resilience and financial stability.

Investing in energy efficiency and renewable energy infrastructure supports thriving households, businesses, and communities by ensuring access to reliable and affordable energy sources. However, these investments have not been equitably distributed.[1] For example, a recent study from the American Council for an Energy-Efficiency Economy (ACEEE) found that low-income households in the United States spend a median of over 8% of their annual income on energy costs compared to the national median of 2.9%.[2] Energy equity addresses the fact that underinvestment in modern energy infrastructure, energy-efficient housing, and renewable energy impacts some individuals and communities more than others. In an equitable energy system, the economic, health, and social benefits and burdens are equitably distributed regardless of ability, race, and socioeconomic status, among other characteristics. Funding and financing programs that strive to advance energy equity will help ensure low- and moderate-income households, small businesses, and underinvested American communities have equitable access to reliable, affordable energy.

Renewable energy and energy efficiency projects, which tend to be capital intensive, are often inaccessible for low-to-moderate income (LMI) community members and small businesses due to challenges associated with acquiring affordable financing. Many traditional financing programs, particularly lending programs, fail to adequately serve these individuals and communities due to factors like stringent credit requirements (e.g., credit score, debt-to-income ratio, income verification, employment history, etc.), disparities in financial literacy, inadequate marketing outreach, borrower mistrust, and language barriers.

SEOs are uniquely positioned to advance equity-informed energy funding and financing programs.

- **Public service mandate:** Overseen by governors and state legislatures, SEOs work directly with communities, utilities, and elected officials to support policy that aligns with the office's mission.
- **Program oversight:** SEOs have the authority to develop and administer programs that address their state's unique energy goals, resources, and delivery capacity, and can adapt these strategies to meet changing needs or emerging opportunities.
- **Access to flexible capital:** Funded through the Department of Energy's (DOE) State Energy Program (SEP) and state budget allocations, among other sources, SEOs tend to have autonomy in how they utilize funds to address their state's specific energy needs.

[1] https://www.wri.org/insights/achieving-equitable-us-clean-energy-transition

[2] https://www.aceee.org/sites/default/files/pdfs/data_update_-_city_energy_burdens_0.pdf

Five Core Principles for Equitable Programs

The goal of equitable energy funding and financing programs is to empower underserved borrowers and grant recipients to attain improved access to energy efficiency and renewable energy, enhance energy security, and foster community resilience. Five core principles guide equitable energy funding and financing program design and implementation across residential and commercial sectors:

Engagement
Engagement entails meaningfully interacting with the households, businesses, and communities the program aims to serve early and often through the program phases to better understand their characteristics and needs. This is critical for nurturing successful partnerships, securing community buy-in, and extending program reach. Effective engagement relies on establishing a variety of communication channels that enable balanced, continuous dialogue and information sharing. A program that upholds the principle of engagement goes beyond informing borrowers and communities to involve them directly through program design and implementation (see the International Association for Public Participation public engagement spectrum framework in Appendix B).[3]

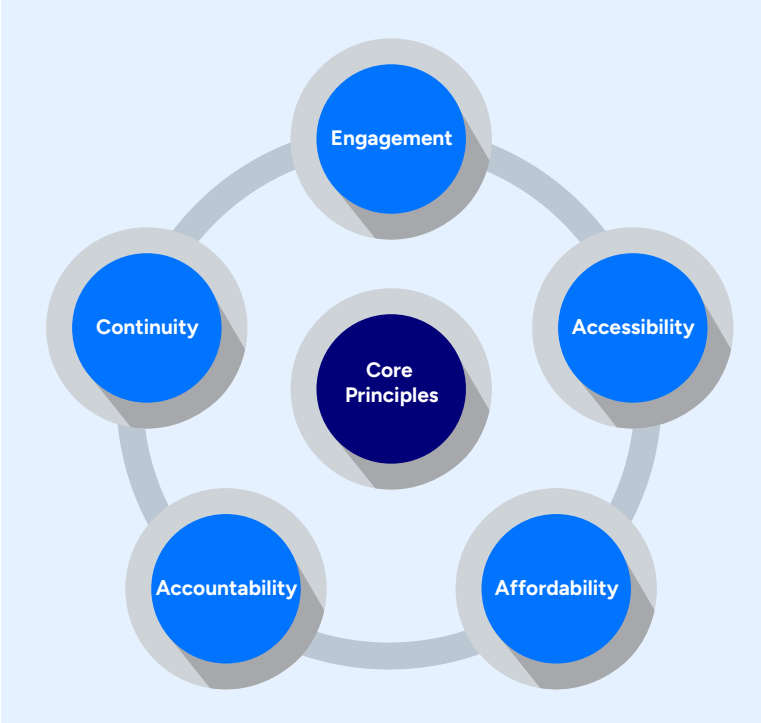

Image 1: The Five Core Principles for Equitable Programs

Accessibility
Accessibility means ensuring that the program and its resources are easily available and understandable to the beneficiaries the program intends to serve to ensure actual usability and utility. A program applying the principle of accessibility uses clear, simple language (including translations where necessary) and takes advantage of various technological and community tools and resources. An accessible program will also include easy-to-access support and guidance for the intended beneficiaries.

Affordability
Affordability means considering the financial capacity of the intended beneficiaries. This principle is important because it ensures that different categories of households and businesses can benefit from energy efficiency and renewable energy programs without exacerbating their existing financial burden. Upholding this principle may involve designing programs with built-in variation (e.g., grant tiers, interest rate thresholds, etc.) to enable the program to reach borrowers and recipients with different financial capacities.

Accountability
Accountability means taking responsibility for transparent tracking, measurement, record-keeping, and communication of program processes, performance, and reach. This principle is important as it helps to build trust, credibility, and uptake of the program. Through this principle a program can recognize and replicate its successes and readjust to correct shortfalls. A program applying this principle incorporates targeted, concrete metrics to help measure progress toward program goals.

Continuity
Continuity means maintaining programs whose impacts and outcomes have longer-term benefits for stakeholders. By sustaining program operations as long as the target beneficiaries require support, while still being flexible to evolving the program alongside changing policy objectives and community needs, funding and financing programs can be more resilient, adaptable, and insulated from adverse socioeconomic conditions.

[3] NASEO's paper "Designing Equity-Focused Stakeholder Engagement to Inform State Energy Office Programs and Policies" provides an in-depth discussion and examples of applying this framework in the state energy policy setting.

Key Program Phases and Actionable Steps

Funding and financing programs can be thought of as having a four-phase lifecycle (Image 2) starting with identifying household, business, and community needs (Phase 1) and developing program goals (Phase 2), then moving into implementing the program (Phase 3) and measuring its reach and impact (Phase 4). Program phases tend to operate in a cycle in which the measurement of a program's impact leads to future iterations of the program that are better informed by the lessons learned. Throughout the program lifecycle, community engagement early and often ensures borrower and community buy-in and programs informed by their goals and needs at each milestone. This section describes each program phase and actionable steps to reach underserved communities at each phase.

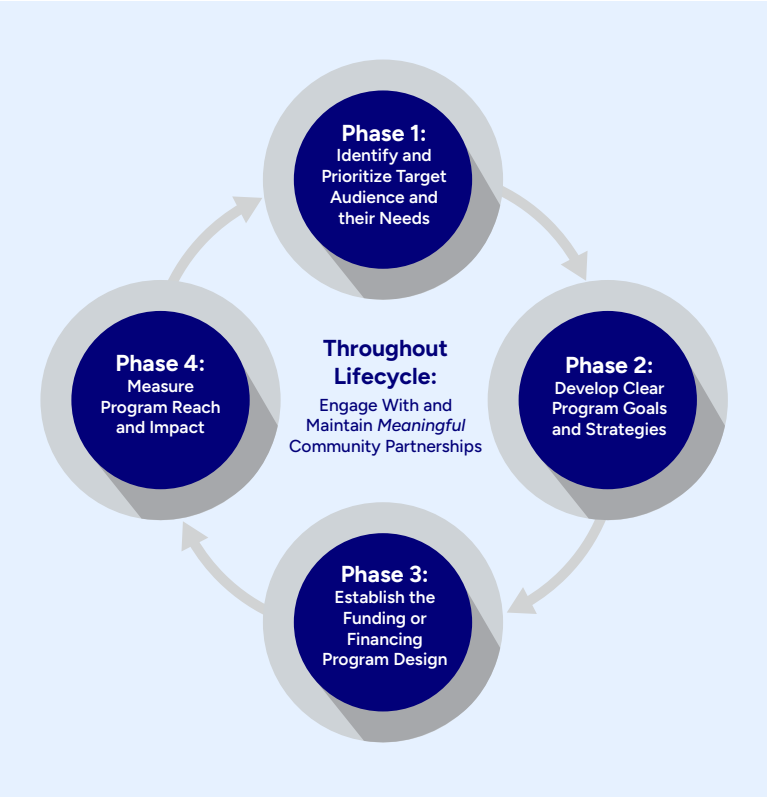

Image 2: Equitable Funding and Financing Program Lifecycle

Throughout the program lifecycle, it is advantageous for program administrators to identify barriers and pitfalls as early as possible to minimize their potential negative impact on program performance. Each section below details program phases and highlights examples of potential pitfalls to watch for during each phase of the program design and implementation process, as well as core principles administrators can use to address them most effectively.

Phase 1: Identify and Prioritize Target Audience and Their Needs

Funding and financing program design starts with identifying who the program will be designed to serve, e.g., low-to-moderate income homeowners or tenants, small businesses, or other underserved communities. Starting with defining the borrower or recipient in mind ensures the program is designed to meet their unique needs and fill the gaps in the existing financing and funding market.

SEOs can consider various characteristics (e.g., income level, energy burden, health and social vulnerability, environmental risk) to identify the organizations, businesses, single-family and multi-family households in underserved communities that would potentially benefit from an equitable energy funding or financing program. Appendix A provides a list of tools and resources that can be used or adapted for identifying underserved communities.

Some of the key challenges during this phase may include difficulty in selecting the appropriate parameters to define the target communities, data quality issues and availability, and the need to address evolving policy objectives over time. Addressing these challenges requires emphasis on the core principles of engagement, accountability, affordability, and accessibility.

Actionable Steps for Phase 1	Core Principles Applied
☐ **Use one or more state or DOE-recommended tools to identify underserved communities or building sectors (Appendix A). Potential questions to explore include:** • Which geographic areas and communities face high energy burden? • Which areas and communities have limited financial resources (low-to-moderate income households) to fund energy efficiency and renewable energy upgrades? • Which areas have older, less energy efficient building stock?	**Accountability** **Accessibility**
☐ **Establish engagement mechanisms (in-person and/or virtual) to collect input and feedback from community members who may be interested in and might benefit from an equitable energy funding and financing program.** • Explore existing engagement tools and resources (e.g., HUD Community Engagement Toolkit); leverage technology and social media if relevant; and reach out to existing community engagement platforms, groups, and organizations for partnership (e.g., cultural affinity groups, neighborhood associations, civic organizations, etc.). *Tip: Meaningful engagement ensures that the program considers community members' firsthand account of their needs and priorities that might not always be reflected in third-party collected data.*	**Engagement** **Accessibility**
☐ **Conduct a needs assessment of the target audience(s) of the program.** • A needs assessment involves scoping (defining the audience, outreach goals, and outreach methods, etc.); data collection (this may involve using both digital and offline tools including surveys, interviews, questionnaires, forums, etc.); and analysis. • Potential questions to explore include: - The level of current access to energy funding/financing or awareness of existing programs within certain communities, the challenges faced in making energy upgrades, and their energy priorities. - How certain energy efficiency and renewable energy measures that might be funded by the program would impact the beneficiary's existing energy burden (e.g., anticipated energy savings, reduction in electricity consumption from the baseline, etc.) - What financial parameters would be necessary to ensure affordability for the target beneficiaries (e.g., monthly or annual savings achieved net of any financing costs, interest rate or rebate amounts needed, etc.) - What are existing resources in the community (e.g., Low Income Home Energy Assistance Program, Habitat for Humanity)? Are they oversubscribed?	**Engagement** **Accessibility** **Affordability** **Accountability**

Phase 2: Develop Clear Program Goals and Strategies

After identifying the target audience and their needs, SEOs can establish clear program objectives more effectively. The insights gained from Phase 1 discovery, e.g., community data, engagement, and a thorough needs assessment, are crucial during Phase 2, as they help define the program's intended impact.

Setting quantitative targets across a variety of metrics – such as annual energy savings for households or businesses, or the number of LMI households reached – is essential for accountability. This phase is closely tied to Phase 4 since selecting target

metrics prior to implementation influences how the program's progress and success will be measured and reported over time.

Some of the key challenges during this phase may include addressing the diverse funding needs and challenges among community members and effectively identifying data points that align with the program's overall objective. This phase incorporates elements of all five core principles as establishing clear goals and strategies with measurable targets lays a solid foundation for program success. Without well-defined objectives, it becomes challenging to design an appropriate financial structure in the next phase, as well as maintain accountability.

Actionable Steps for Phase 2	Core Principles Applied
☐ **Conduct a comprehensive benefits analysis (i.e., how a range of different program strategies may lead to different outcomes) and establish clear impact targets. Data to review in an analysis may include:** • Beneficiary-level impact data, e.g., individual, household, or business energy cost savings; estimated avoided emissions and public health impacts; and energy resilience benefits. • Program-level impact data, e.g., the number of beneficiaries served, total capital mobilized, and the number of LMI beneficiaries impacted. *Tip: Engage directly with the target audience to learn what they consider their main priorities when it comes to energy efficiency and renewable energy implementation.*	**Accountability** **Accessibility**
☐ **Identify strategies to reach each target audience(s) identified in Phase 1 and set impact targets or metrics for each audience.** • Recognize the different audiences the program aims to serve, such as small businesses, single-family households, or others, and segment the strategy to address their unique needs and challenges, if needed. For example: - A program serving both low- and moderate-income households may define income thresholds for eligibility for zero- versus low-interest loans. - A program serving both households and businesses for efficiency upgrades might have a higher loan cap for the businesses compared to households. • Set distinct impact targets for each audience, if applicable, and ensure the metrics selected for tracking align with the sector and recipient type. For example, a residential financing program that serves both renters and owners, or a rebate program that serves both the residential and commercial sectors, may lead to different impacts and therefore require unique targets. These targets may include a percentage reduction in energy consumption from the baseline, monthly energy bill savings, and the number of community members impacted.	**Engagement** **Accessibility**
☐ **Develop a clear performance data management plan.** • Create a strategy for collecting, tracking, and reporting program performance data over time to assess progress toward impact targets. • Define roles and responsibilities for data tracking, including who will collect the data and the frequency of collection. • Establish a formal review process to assess collected data, and plan for adjustments to the program structure based on outcomes. • Ensure the performance data management plan complies with all mandatory reporting requirements tied to program funding.	**Engagement** **Accessibility** **Affordability** **Accountability**

Box 1: Approaching Financing for Low-Income Community Members

While moderate-income community members may benefit from financing, SEOs might consider approaching lending to low-income households with caution. For customers already facing high energy costs and financial insecurity, adding to their existing financial burden could exacerbate these challenges, particularly if the net savings from installed clean energy and energy efficiency measures take years to materialize or if the upfront costs are significant. Additionally, low-income community members may lack the liquidity needed to manage the unexpected costs associated with clean energy, such as system repairs or lower-than-anticipated energy savings.

Instead of traditional loan offerings, states could explore alternative approaches like credit enhancements with private financial institution lending partners, grant-based assistance, rebates, subsidies, and tariffed on-bill financing – which may be stacked and/or braided to maximize assistance to low-to-moderate income customers. Definitions of "low-income" vary, with some existing programs providing grants instead of loans for households earning less than a certain percentage of the federal poverty line (FPL). For example, the State Energy Program's Energy Efficiency Revolving Loan Fund Capitalization Grant Program defines low-income as less than 100% of the federal poverty line.

Phase 3: Establish the Funding or Financing Program Design

By either running a state-administered program or partnering with private financial institutions, SEOs can deploy a variety of strategies to make lending and other approaches more accessible to underserved communities. Selecting the right funding or financing program design ensures the target audience can participate in the program and have their needs met. The funding or financing program design phase most closely relates to the core equity principles of accessibility, affordability, and engagement. This section presents information and examples on a variety of funding and financing models SEOs can consider when designing their programs to advance equity.

Funding Program Models & Design Considerations

As described in Box 1, financing may not be an appropriate approach for program beneficiaries already facing high energy costs and financial insecurity. SEOs may consider exhausting grants and other funding options before financing is used, or may want to compare grant-based strategies to very low-risk financing strategies (e.g., zero-interest loans with long terms and strong forbearance features). The following funding options can allow low-income customers across sectors to benefit from energy efficiency and renewable energy measures without exacerbating their existing financial challenges.

- **Grants:** Grants provide financial assistance without the need for repayment, making it the most affordable option for highly financially burdened customers.

  Example: USDA Rural Energy for America Program provides grant funding to agricultural producers and rural small businesses for renewable energy systems ($2,500 to $1 million) or to make energy efficiency ($1,500 to $500,000) improvements.

  Example: The Maryland Energy Administration's (MEA) Community Solar Low-to-Moderate Income (LMI) Power Purchase Agreement (PPA) Grant Program provides funding to Community Solar Subscriber Organizations, enabling them to offer below-market-rate electricity to LMI households.

- **Rebates & subsidies:** These financial incentives reduce the cost of energy improvements, though the timing of the financial transfer from program administrator to customer may differ (i.e., rebate transfer typically occurs post-purchase, while subsidy transfer often occurs pre-purchase).

  Example: In Arizona, the Governor's Office of Resiliency has been tasked with administering the energy efficiency rebate programs in the State. The Homeowners Manage Energy Savings (HOMES) program will provide performance-based rebates for whole-house energy saving retrofits. The Homeowner Electrification & Appliance Rebates (HEAR) program will provide point-of-sale rebates for qualified electrification projects in low-income and historically underserved households.

- **Tariffed on-bill financing (TOBF):** A method utilized by utilities, tariffed on-bill financing allows customers to pay for energy efficiency and renewable upgrades directly on their utility bills through a tariff, spreading out the costs over time and reducing the administrative burden for the customer.

  Example: Hawaii Electric Companies have a TOBF program, Green Energy Money $aver (GEM$), that enables LMI customers to pay back the cost of installing solar PV, solar water heaters, and other eligible energy upgrades with no upfront costs. Customer repayments are tied to the property, not the individual, enabling renter flexibility. Additionally, the GEM$ on-bill program does not rely on income verification or credit score to determine participant eligibility.

Financing Tools & Best Practices to Expand Program Accessibility

The following strategies can be deployed across residential and commercial financing program models, including both state-administered models and partnership models with private financial institutions, and in combination with each other to best serve the target recipients. For example, adopting concessionary interest rates within a subordinated co-lending model can both reduce the risk for the lending partner *and* further improve accessibility for a wider range of recipients. SEOs can discuss this 'menu' of options with interested parties (i.e., recipients and financial partners) as early as possible to identify which tools can best address their needs to meet the program objectives.

- **Utilize non-traditional underwriting approaches:** Underwriting is the process lenders use to assess and approve borrower applications. Traditional underwriting criteria typically include high credit scores and low debt-to-income (DTI) ratios, criteria underserved borrowers may be less likely to meet. SEOs can employ non-traditional underwriting criteria, which use alternative data points like utility bill repayment history to qualify customers for loans, can broaden the customer base to include individuals who may have poor credit profiles (e.g., low credit score and high debt-to-income ratios). This can also be a useful approach for better accessing individuals with no or limited credit history.
- **Offer consumer protections:** Protections ensure that customers receiving financing do not face unintended consequences, like damaged credit, of entering into a loan agreement. These protections could include transparency around full cost disclosure before entering the loan agreement, reviewing the loan applicant's ability to pay, formal acknowledgement by lenders and program administrators that fraud and predatory lending are illegal practices, and establishing protocols to assist struggling borrowers (such as loan modification and forbearance).
- **Directly reduce debt costs:** Strategies that lower the total cost of the loan (including principal and interest over its lifetime) or reduce regular payment amounts (usually monthly) can help make loans more accessible and affordable for LMI borrowers.
  - **Encourage longer loan terms:** A loan term refers to the amount of time until a loan matures and ought to be repaid in full. Longer loan terms result in lower monthly payments for borrowers, which makes loans more feasible for borrowers with lower loan repayment margin.
  - **Adopt concessionary interest rates:** Interest rates are charged as a percentage of the loan principal. The higher the interest rate, the more the borrower will ultimately pay for energy improvements and the higher the burden on the borrower. Low- or zero-interest loans are more accessible to underserved borrowers with limited financial resources.
  - **Interest Rate Buy-Downs (IRBs)**: IRBs result in lower recurring payments for the borrower by reducing the interest rate. This strategy is created through an upfront payment that is calculated based on the principal and the desired reduction in the interest rate. This is a tool that can be used to increase borrower eligibility by reducing their debt burden. However, the upfront payment may be costly for the borrower, potentially limiting the affordability for borrowers without sufficient liquid capital.
- **Consider performance contracting:** Performance contracting is a financing method that utilizes energy cost savings to fund capital improvement projects. Two commonly used models for this approach are the Energy Savings Performance Contract and the Energy-as-a-Service model:
  - **Energy Savings Performance Contract (ESPC) model:** Primarily used in the MUSH market (Municipal and State Governments, Universities, Schools, and Hospitals), an ESPC achieves energy savings at a property often through a variety of equipment upgrades, guaranteeing energy cost savings for a predetermined period in exchange for payment from the savings. The customers own the equipment during the contract.

    Example: Rockford Housing Authority engaged in a $7.5 million Energy Performance Contract to evaluate the conduct a comprehensive energy audit and implement energy efficiency measures at eight of its multifamily properties, reducing energy costs by over $100,000 a year while improving the quality of housing for low-income housing tenants.
  - **Energy-as-a-Service (EaaS):** Primarily used in the commercial sector, the third-party EaaS provider pays for the project and owns the equipment at their own expense during the contract period, then the customer makes regular service payments. This makes it an off-balance sheet transaction. Energy Service Agreements (ESA) are a common form of EaaS contract, though other structures exist as well.

    Example: Through an Energy-as-a-Service agreement, Schneider Electric and its partner, Duke Energy Renewables, offered a plan that would allow Montgomery County to install two advanced microgrids and upgrade aging electrical infrastructure — all without any upfront investment. In addition, the private partners would maintain and operate the microgrids for the life of the contract.

- **Improve risk-return profiles with credit enhancements:** SEOs can reduce potential losses to other lenders in the event of default, which can improve lending terms, make loans more affordable, and attract more private capital to maximize more limited SEO funds. The Credit Enhancement Overview Guide provides key considerations for state and local policymakers, utility energy efficiency program administrators, and program partners, such as financial institutions, on designing and implementing successful credit enhancement strategies for existing buildings in the residential and commercial sectors. Common credit enhancement strategies include:
  - **Loan Loss Reserves (LLR):** Funds are set aside as a buffer by the program administrator to cover potential losses from repayment defaults. LLRs are particularly useful to attract private investor participation and increase program access to borrowers who have higher risk profiles, such as those with poor credit history or lower income levels.

    Example: The Green Colorado Credit Reserve (GCCR) is a loan loss reserve that was created by the Colorado Energy Office to incentivize private lenders throughout Colorado to make small commercial loans up to $100,000 for capital improvements that promote energy efficiency and renewable energy. For each loan made by a participating lender, the GCCR will provide a loan loss reserve equal to 15% of the amount of the loan. According to the CEO, this increases lenders' risk thresholds, enabling them to offer more accessible and affordable interest rates for loans.

    Example: Under the Michigan Saves residential loan program, once a customer selects the eligible energy-saving home improvements they want an authorized contractor to install, they can apply for a loan from a Michigan Saves lender. Michigan Saves contributes 5% of each eligible loan to a lender-specific loan loss reserve fund. Approximately 59% of Michigan Saves residential loans are made to households with household income of 60–120% of area median income.
  - **Debt Service Reserves (DSR):** In this strategy, the borrower, rather than the program administrator, sets aside a predetermined proportion of the principal amount in a separate account to serve as a buffer against payment default in the event of financial difficulty. Reducing repayment risk across loans may improve the program's ability to operate over a sustained period and ensure continued support for community members. However, just like the IRB, the funds being set aside are an additional cost for the borrower and increase the overall size of the loan since they do not have use of the reserved funds, potentially limiting affordability.
  - **Subordinated Capital:** This strategy involves creating repayment priority tiers, often based on the combination of funding sources used in a lending program. This tool is particularly useful in a blended finance model between public and private capital, and the lower risk level of the senior capital (the private lender) increases the chances of private capital participation in a program. In the case of a default, the state-sourced funds absorb the risk. This can enable the financing of projects that otherwise may be deemed too risky by the private capital providers.

    Example: Amalgamated Bank and the Connecticut (CT) Green Bank have an agreement with Eversource's Small Business Energy Advantage (SBEA) to purchase tranches of SBEA loans to ensure the program has a continuous flow of affordable capital to support additional loans in the future and allowing a wider range customers to benefit through lower program costs. CT Green Bank's tranche is subordinate to Amalgamated Bank's tranche. To further support the Small Business Energy Advantage program, CT Green Bank created Green Liberty Notes, offered quarterly through Raise Green's online investment platform with a minimum investment of $100 so everyone can support Connecticut's small businesses' efforts to become more energy efficient.
  - **Loan Guarantees:** In a loan guarantee, a third party assumes responsibility for repayment in the event of borrower default. To encourage repayment, state offices can include repayment incentives for borrowers such as qualification for continued, larger support upon repayment. By reducing lender risk, loan guarantees incentivize the extension of credit to households that might not otherwise qualify.

    Example: The Small Business Administration's Green Lender Initiative employs SBA loan guarantees to attract additional private capital in support of energy investments. The SBA also expanded Community Advantage (CA), the mission-driven component of the 7(a) Loan Program, by increasing the maximum loan amount and allowable geographic areas for CA lending, with particular flexibility for climate-focused projects.
  - **Loan Loss Insurance:** This involves the purchase of a policy from a private insurer to transfer the risk of default to the insurer. This is useful for lending to high-risk borrowers, which might include those with poor credit history or lower incomes, but premiums may be expensive, and the claim process could be complicated. Additionally, there could be a disincentive for borrowers to pay back funds due to the so-called moral hazard, a situation in which a borrower is incentivized to take on more risk because they do not bear the full costs of the risk.

State-Administered Financing vs. Partnership Model

States can utilize a variety of models that provide and encourage equitable energy efficiency and renewable energy financing, including both state-administered programs and partnerships with private financial institutions, such as banks, credit unions, Community Development Financial Institutions (CDFIs), and community lenders. The following table highlights some of the distinct advantages and disadvantages of each approach from an equity objective perspective.

	Advantages	Disadvantages
State-Administered Financing Programs	• Full control over program design and underwriting standards • Potentially greater ability to offer tailored, place-based solutions which consider the unique energy and financial characteristics of the area • Ability to align program design with broader state policies and objectives	• SEOs may lack the capacity or resources to manage large-scale financing programs • More limited capital pool • Misses out on leveraging potential trusted relationships between financial institutions and community members
Partnerships with Private Financial Institutions	• Crowding-in of private capital leads to larger funding pool to maximize impact • Risk-sharing between state and capital providers through credit enhancements can broaden the customer base	• Potentially less control over equity-focused outcomes • Potentially higher interest rates/fees required by the capital providers, which can reduce affordability to LMI customers

State-administered programs may enable greater program flexibility and accessibility, while a partnership model can scale faster, reach broader markets, and crowd-in private capital. Ultimately, the choice between these two models depends on the SEO's priorities, resources, and capacity.

Actionable Steps for Phase 3	Core Principles Applied
☐ **Perform an internal capacity assessment to determine whether a state-administered or partnership model is most suitable.** • Estimate the budget, full-time equivalent (FTE), equipment, software, etc. that would be needed to self-administer a program. • Research and meet with existing financial institutions that operate in the target communities to assess their experience and what value-add they could provide through a partnership model. For example: - Are they already recognized and trusted by community members? - Do they have prior experience in energy efficiency and renewable energy lending?	**Accountability** **Continuity**
☐ **Meet with potential lending partners to understand the strategies and mechanisms that would best align with their objectives.** • Model how the different financing strategies and mechanisms impact the lending partner's ability to take on more risk and expand the customer base. For example: - A sensitivity matrix assessing how a 1% increase in a loan loss reserve fund allocation would improve the lending partner's ability to take on more risk through serving lower credit scores, higher debt-to-income ratios, etc.	**Accessibility** **Affordability**

☐ **Engage with the community to understand their challenges in borrowing or receiving funds to identify the strategies that would best address their needs.** • Ask them about their prior experiences in taking on debt and receiving grants and other types of funding. Questions might include: - What has been your experience with applying for loans or credit for energy efficiency and renewable energy projects? - Were there specific loan terms or conditions that made borrowing easier or more difficult for you? - What types of financial institutions have you worked with? Credit unions, CDFIs, community lenders, etc.? - Have you received any grants or other financial assistance before? How was that process for you? - What would make it easier for you to take advantage of available grants or rebates?	**Engagement** **Accessibility** **Affordability**

Phase 4: Measure Program Reach and Impact

Once the program has been implemented, SEOs can then evaluate its reach and impact to ensure it delivers the desired outcomes. This phase involves tracking progress toward the previously defined metrics and analyzing the program's effectiveness in achieving its goals.

Measuring program reach and impact requires data collection, analysis, and reporting. Metrics such as the number and demographics of beneficiaries served, energy savings achieved, and emissions reductions are examples of data types used for assessing progress. This phase builds directly on the work completed in Phase 2, as the metrics established earlier guide how program success is measured during this phase. Phase 4 can then inform future iterations of the program. If the target audience(s) identified in Phase 1 were not reached, revisiting the audience needs (Phase 1) and revising the program design (Phase 3) may be needed to ensure the program reaches its goals (Phase 2).

Key challenges in this phase may include ensuring consistent and reliable data collection, adapting metrics to account for evolving program goals, and maintaining stakeholder engagement throughout the evaluation process. Measuring reach and impact aligns most closely with accountability, continuity, and engagement.

Actionable Steps for Phase 4	Core Principles Applied
☐ **Track and report transparently on key program performance metrics.** • Report data on both beneficiary-level data (e.g., average individual, household, or business energy cost savings; estimated avoided emissions; energy resilience benefits) and program-level data (e.g., number of beneficiaries served, total capital mobilized, number of LMI beneficiaries impacted). • Use standardized, trusted digital tools (e.g., Microsoft Excel, Microsoft Power BI, Oracle, etc.) for data collection, visualization, and analysis to ensure consistency and reliability. • When possible, streamline the data collection process. For example, if building energy audits are a part of the program, utilize the data collected by the auditors about the household characteristics and energy savings.	**Accountability**

☐ **Analyze the collected data to evaluate the program impact against the stated objective developed in Phase 2.** • Compare the targeted impacts with the actual impacts to measure overall program performance. • Identify specific areas within the program where it may be falling short of expectations (e.g., if fewer LMI households participated than expected), and consider why this may be the case. For example: - Was the community outreach insufficient, leading to low awareness of the program? - Were the financial requirements of the program too limiting? - Does mistrust of authorities among target beneficiaries appear to have negatively impacted involvement? If so, how could community partnerships be leveraged to overcome this?	**Accountability**
☐ **Engage directly with program beneficiaries to gather their feedback on their participation in the program.** • Share public program progress reports with a variety of stakeholders including program beneficiaries. Example reporting: Green Jobs Green NY Data and Trends - NYSERDA. • Gather and use firsthand qualitative stakeholder feedback, along with collected data, to refine metrics, program goals, and funding or financial design as needed.	**Accountability** **Engagement**
☐ **Adjust the program based on findings from Phase 4 as needed.** • Adapt the target audience, funding and financing mechanisms, or outreach strategies based on the combination of data-driven analysis and direct community engagement. This may require collaboration with lending partners, if using a partnership model for program administration. • Ensure that any adjustments maintain alignment with the program's overall objectives and principles.	**Accountability** **Continuity**

Conclusion

Funding and financing programs that strive to create energy equity will help ensure low-to-moderate income households, businesses, and underserved communities have equitable access to reliable, affordable energy. By leveraging their public service mandate, program oversight, and access to flexible capital, SEOs can help ensure that the economic, health, and social benefits of energy efficiency and renewable energy reach all communities. Throughout the program lifecycle at each phase, funding and financing programs will be best positioned to advance equity when they apply the core principles of equitable programs – engagement, accessibility, affordability, accountability, and continuity – early and often. SEOs that intentionally check in with program administration team members at each stage of the program lifecycle can better ensure that the program design and implementation reflect these guiding principles.

Appendix A

Below is a list of tools and resources that can be used or adapted for identifying underserved communities and sectors:

- DOE-Recommended Tool: Climate & Economic Justice Screening Tool (CEJST): This interactive map shows information about the climate, environmental, health, and socioeconomic burdens faced by communities across the nation
- DOE-Recommended Tool: Low-income Energy Affordability Data Tool (LEAD): This interactive map displays community energy burden to identify communities paying a higher percentage of their income on energy and includes the ability to display a layer of CEJST data.
- DOE-Recommended Tool: ComStock and ResStock: These building stock tools model the current commercial and residential building stock across the U.S. including energy usage and opportunities for energy savings.
- Other federal tools:
  - EJScreen: Environmental Justice Screening and Mapping Tool | Environmental Protection Agency
  - Environmental Justice Dashboard | Tracking | NCEH | Center for Disease Control
  - CDC/ATSDR Social Vulnerability Index (SVI) | Place and Health | Agency for Toxic Substances and Disease Registry
  - Screening Tool for Equity Analysis of Projects (STEAP) | US Department of Transportation

Existing program and contractor networks through programs like Low Income Home Energy Assistance Program (LIHEAP), the Weatherization Assistance Program (WAP) Community Action Agencies, and Habitat for Humanity can also help identify underserved communities.

Some states have created additional resources to identify underserved communities. Below are two examples:

- Illinois Solar for All: Environmental Justice Communities - Illinois Solar for All (illinoissfa.com).
- California has a system for tracking benefits to state disadvantaged communities and provides an interactive mapping tool: Priority Populations 2023 (ca.gov).

Appendix B

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Image Credit: IAP2 Spectrum of Public Participation

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