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Clean Energy Financing Programs

A Decision Guide for States
and Communities

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This Guide

is intended to help government entities understand and make decisions to support appropriate financing programs for their jurisdiction. The Guide describes:

- Financing-program options
- Key components of these programs
- Factors for states and communities to consider as they make decisions about getting started or updating their programs

The Guide's objective is to help government entities facilitate financing support in the commercial and residential sectors, with a secondary focus on helping state and local governments finance improvements to their own buildings.

Financing strategies that states and communities can apply to both energy efficiency and renewable energy are covered. The document is intended primarily for users with limited financial background.

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Clean Energy Financing Programs

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The first steps in choosing a financing program are to decide on the objectives and understand the requirements for success. In the following pages, this chapter addresses two critical components:

- Important Objectives for State and Local Governments
- Keys to Success

States and communities are increasingly turning to energy efficiency and renewable energy to meet a range of public policy goals. However, realizing the energy, economic, and environmental benefits of these strategies typically requires an up-front capital investment by homeowners and businesses. State and local governments can help defray this initial cost by establishing clean energy financing programs that leverage and augment traditional financing channels.

The objective of state and local financing programs is to make clean energy investments affordable for homeowners and businesses by minimizing up-front capital requirements. Because the savings from energy improvements typically exceed the up-front costs of the project, effective financing programs can overcome a significant barrier to expanding clean energy investment.

This Guide is an introductory resource for state and local governments working to encourage clean energy improvements, either in their own facilities or in the residential and commercial sectors. It is intended to help state and local officials identify the financing options that are best suited to their jurisdiction's specific needs.

Financing Program Decision Tool

As an integral companion to this Guide, EPA offers a unique Financing Program Decision Tool. It helps users make informed program choices based on information provided by the user about their objectives and resources. The Tool is intended as a starting point for state and local governments wanting to implement or revise a clean energy financing program. For information on how to access the Tool, can be found on [page 17](#).

Important Objectives for State and Local Governments

With a growing number of states and communities adopting and implementing clean energy financing programs, a number of important objectives can be observed. State and local governments interested in exploring or getting started with financing programs in their own jurisdiction can review this list and adjust their own objectives, as appropriate.

- **Address the needs of underserved sectors.** Programs can be designed for residential, small business, multi-family and other sectors to provide financing to credit-worthy property owners who may not qualify for private-sector loans.
- **Support private-sector lending by providing loan loss reserves** or other credit enhancements. Such enhancements can help lenders to qualify more borrowers and to offer loan terms that better meet the needs of energy improvement projects.
- **Collect loan loss data** from the programs they develop and support. Data from existing programs indicate that clean energy lending may present a significantly lower risk than similar lending for other uses. More data is needed to help lenders justify offering a lower interest rate for clean energy loans.
- **Generate demand** for clean energy loans. Some lenders that have tried to market green home loans on their own have concluded that there is too little demand to justify the effort. State and local governments are in a better position to develop a comprehensive marketing and installation process that can create broad demand.
- **Link program participants to private-sector solutions.** State and local programs can cultivate relationships with local lenders and other potential partners to encourage further market transformation.
- **Provide program continuity** to extend financing programs initiated under the American Recovery and Reinvestment Act (ARRA). With these funds expiring in 2012 or 2013, one option for sustained lending is to use loan repayments to make new loans. In addition, state and local governments can explore other sources of funding, including: bonds, such as Qualified Energy Conservation Bonds (QECBs); service benefit charges; and state treasury funds. Funding can take a year or more to arrange, so planning ahead is crucial.

Keys to Success

Successful state and local financing programs commonly incorporate the following four strategies:

- (1) Learn from Successful Programs
- (2) Provide Low Monthly Payments
- (3) Establish Broad Eligibility
- (4) Link Financing to Effective Clean Energy Programs

Jurisdictions that are getting started or revisiting their financing programs can review these lessons and make adjustments as appropriate.

1. Learn from Successful Programs

In recent years, states and communities have gained significant new experience with the design, implementation, and evaluation of clean energy financing programs. There are numerous opportunities to learn from successful program examples around the country. Although effective models are still emerging, state and local governments can keep track of developments, borrowing what works and avoiding what doesn't.

EPA ENERGY STAR's live Web training makes it easy to get the information you need by visiting www.energystar.gov/index.cfm?c=business.bus_internet_presentations. The U.S. Department of Energy's (DOE's) webinars (<http://www1.eere.energy.gov/wip/solutioncenter>) can also help programs stay current on what is working well for other jurisdictions.

2. Provide Low Monthly Payments

A key goal of financing is to reduce monthly payments so that energy savings can cover all or most of the payment. One way to achieve this is to **lengthen the loan term**. It is not unusual to find 10-year terms for unsecured energy loans (those made without borrower collateral) and 20-year terms for secured loans. A potential disadvantage of longer terms is that they are associated with slightly higher chances of default.

The other major variable in payment size is whether the program can **provide a low interest rate**. A low rate can not only reduce the loan payment, but also help property owners feel that they are getting a good deal. Rates over 7 percent to 8 percent appear to hurt a program's participation and ultimate success.

3. Establish Broad Eligibility

Property owners with excellent credit and equity in their property can typically get loans from private lenders. As a result, the aim of many government-sponsored programs is to **help borrowers with other than excellent credit and equity**. A potential disadvantage of accepting lower credit scores is that loan losses may be higher.

Another opportunity to expand eligibility is to **allow a higher debt-to-income (DTI) ratio**. The caps that private lenders put on DTI for consumers seldom takes into account the benefit of the energy improvements in terms of reducing the borrower's expenses. Government-sponsored programs can factor in this benefit, either in general or on a case-by-case basis, when establishing DTI criteria.

Similarly, when calculating the **loan-to-value (LTV) ratio**, state or local government financing programs may choose to factor in the benefit that energy improvements will have on a property's value by allowing somewhat higher LTVs.

4. Link Financing to Effective Clean Energy Programs

Clean energy financing does not create demand for energy improvements—rather, it helps overcome a major obstacle to harnessing whatever demand exists. To succeed, financing must be linked to a comprehensive clean energy program committed to building demand and to overcoming other barriers to greater market penetration. Two common strategies include:

- **Integrate with Marketing** – Information about customer financing should be a key element of the marketing efforts of clean-energy program administrators. Effective marketing offers a single entry point for customers and reduces confusion. From a marketing perspective, the financing process should make it easy for the homeowner to act while their interest and attention is at its peak.
- **Coordinate with an Organized Energy Audit and Installation Process** – The clean-energy audit and installation process can be confusing and burdensome for customers. To overcome these obstacles, a **financing program should be linked to a well-designed audit and installation process**. The role of the financing program is to integrate smoothly into the process, particularly at the loan application and disbursement stages.

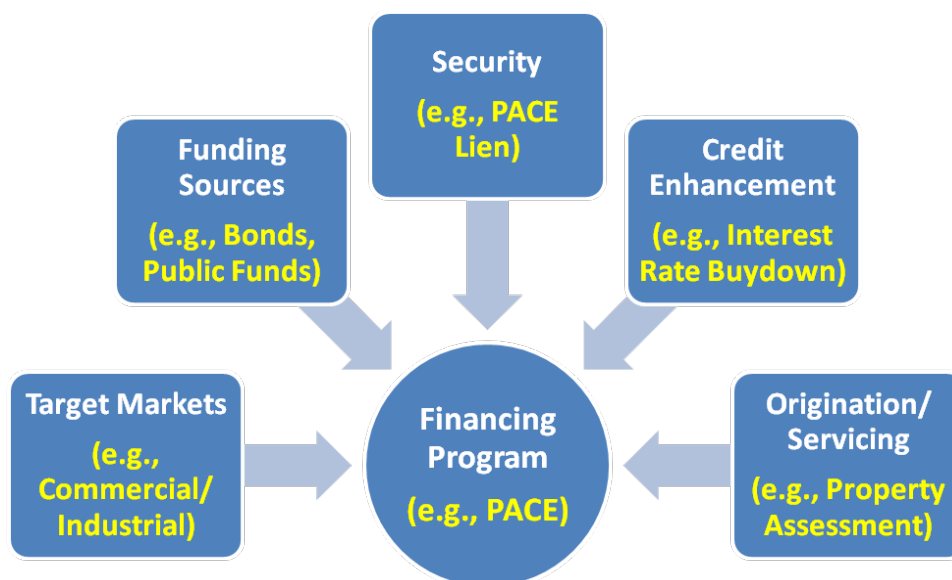
Key Elements of a Financing Program

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A finance program consists of five “elements”:

- The target market
- Funding sources
- Security
- Credit enhancement
- Loan origination and servicing

Property Assessed Clean Energy (PACE) programs provide an example of how these five key elements form a finance program. As illustrated in the figure below, PACE is a program that: (1) targets commercial and industrial markets; (2) is usually funded by a bond issuance or public funds; (3) uses a special lien as security; (4) allows for an interest rate buydown; and (5) is originated and repaid as a voluntary tax assessment.



When choosing between finance programs, it is important to understand how each of these elements affects the program as a whole. The pages that follow discuss each of the five elements in detail.

Target Markets

Choosing which market to serve is often the first step in designing a clean energy financing program. The choice is often influenced by available resources, government priorities, and other similar factors. Understanding the key characteristics and needs of the various markets may be helpful in making this decision. The four markets discussed here include:

- (1) Residential
- (2) Commercial and Industrial
- (3) Public Sector and Schools
- (4) Non-Profit Organizations

1. Residential

The residential market is best defined as owner-occupied homes, either single-family or attached, with self-contained and metered energy systems. Rental properties, apartments, and owner-occupied units with shared systems (as in many condominium buildings) are more suitably included in the commercial market. The residential market can be split into reactive and proactive segments.

- **Reactive** – This segment is characterized by an immediate need to replace failed equipment. The goal of a financing program in this situation is to encourage homeowners to choose a high-efficiency replacement by offering special financing for eligible equipment. Loans to this sector are typically in the \$1,000 to \$10,000 range
- **Proactive** – These homeowners voluntarily make home energy improvements, often to the whole house. Financing programs for this segment are designed to help overcome the obstacle of the up-front cost. Loans are often in the range of \$10,000 to \$20,000, but can be significantly higher than that if the homeowner makes both efficiency and renewable energy improvements.

Keystone Help

This Pennsylvania program targets the reactive segment and has financed over \$40 million in energy improvements in its first five years.

www.keystonehelp.com

2. Commercial and Industrial

Designing a financing program for the commercial and industrial markets can be challenging due to the diversity of customer types and building uses. Each category faces unique issues based on ownership structure, profitability, and accounting and financial reporting practices. There are three general segments: (1) large commercial properties (including retail/office and multi-family properties), (2) small properties and businesses, and (3) industrial/manufacturing facilities.

- **Large Commercial Properties** – Large buildings often use significant amounts of energy, and can therefore generate large energy savings. However, many commercial properties are owned by short-term investors who are hesitant to enter into a financing agreement that might hinder a future sale. In addition, depressed property values and weak balance sheets can make it difficult for owners to arrange financing. Projects are often complicated by elaborate building ownership structures—such as limited liability companies and limited partnerships—which require greater lender sophistication.
- **Small Properties and Businesses** – Small businesses seldom have the large project scale necessary for energy performance contracting to be a viable option. While commercial PACE may be an option, financing programs for this segment more typically involve revolving loan funds or credit-enhanced private lending in collaboration with commercial leasing companies or financial institutions. Community development financial institutions (CDFIs) can be helpful partners for developing financing programs for small businesses that operate in financially underserved communities.
- **Industrial/Manufacturing Facilities** – While industrial projects are often easier to finance than those in the commercial segment, industrial customers also have issues. For instance, production delays caused by installing energy efficiency equipment can cost more in lost revenues than the savings justify. Also, industrial customers often want simple paybacks of 18 months to 3 years, which excludes many of the traditional energy efficiency savings opportunities such as HVAC systems, motors, energy management systems, etc.

Alabama Saves

This leveraged revolving loan fund is targeting large commercial and industrial projects and, in little more than a year, has identified \$40 million in projects to fund.

www.alabamasaves.com

Tenant-occupied properties often face an additional issue involving split-incentives. While property owners typically pay for improvements, if the tenant pays the utility bill, the owner won't benefit from the energy savings. Conversely, tenants are often reluctant to make improvements to a property they do not own. Utility on-bill repayment is the best financing option to address this issue, since both the monthly finance payments and the energy savings will appear on the tenant's utility bill.

3. Public Sector and Schools

Public entities that make improvements to their own buildings face a common financing challenge: the capital budget process for incurring public debt is typically complex and often requires voter approval. To address this challenge, clean energy financing is often structured so that the energy savings rather than public debt serve as the repayment vehicle. This may offer additional advantages for an entity's debt capacity and credit rating. Non-debt financing options include:

- Energy Performance Contracting (EPC) – [page 40](#)
- Tax-exempt lease purchase agreements – [page 11](#)
- Power Purchase Agreements (PPAs) – [page 43](#)
- Certificates of Participation (COPs) – [page 11](#)

Green Revolving Funds

More than 50 U.S. universities are financing campus energy improvements from their own endowment funds. Green revolving funds are earning safe annual returns of up to 47% for the endowments, while the schools improve building comfort and operating costs. Similarly, State Treasury funds in Pennsylvania are currently used to finance the Keystone HELP program. Local governments may also be able to make use of this strategy.

www.endowmentinstitute.org

If public debt is feasible for financing a project, the options expand to include a variety of bond alternatives, as described on [page 10](#).

For schools there are three low-interest, tax-credit bond programs of special interest. The first two bond programs below are specifically for schools. These bonds may be available subject to federal allocation.

- Qualified School Construction Bonds (QSCBs) – [page 10](#)
- Qualified Zone Academy Bonds (QZABs) – [page 10](#)
- Qualified Energy Conservation Bonds (QECBs) – [page 10](#)

State governments that want to encourage local governments to make energy improvements to their own public buildings have several options, including revolving loan funds ([page 22](#)) and subsidies such as rebates or grants ([page 19](#)).

4. Non-Profit Organizations

Large non-profit organizations can use many of the same financing strategies as commercial and industrial organizations. For example, universities and health care facilities may be able to take advantage of tax-exempt bonds. However, because non-profits do not pay taxes, they only benefit indirectly from energy-related tax credits or incentives. For instance, a non-profit can lease equipment from a for-profit organization that can use the tax credit and will lower the lease payments to reflect some of their tax credit's value. Power Purchase Agreements can offer similar indirect tax benefits. For bigger projects (\$1million or more), performance contracting may also be an option.

Smaller non-profits can be more difficult to reach. They often have tighter budgets and are less willing to take on debt for any purpose that does not directly support their mission.

Funding sources for non-profit financing programs include:

- Specialty finance groups like the Non-Profit Finance Fund (<http://nonprofitfinancefund.org>)
- Specialty lenders for charter schools
- Foundations (via their mission related investments)
- Community and economic development authorities
- Community development financial institutions – [page 9](#)
- Traditional lenders, some of which include non-profit lending as a specialty
- Federal, state, local, and foundation grants.

For more information on target markets and marketing in general, see the Marketing section ([page 48](#)) in Chapter Four: Financing Tools and Resources.

Funding Options

The major funding sources for clean energy financing programs can be grouped into the following four categories:

- (1) Loans
- (2) Bonds
- (3) Leasing Arrangements
- (4) Other Funding Options

1. Loans

Some state and local financing programs partner with private lenders. There are several options in these situations:

- **Banks** – Local community banks may have more flexibility to partner than large regional and national banks. Not all banks offer both mortgage lending (loans secured by property) and consumer lending (unsecured loans based on a party's ability to repay); those that do offer both options often manage them separately. Michigan Saves persuaded local banks to join their program by providing a loan loss reserve fund (page 15) to help the banks cover anticipated loan losses.
- **Credit Unions** – Credit unions may also be flexible and willing partners. Credit unions are non-profits that are owned and controlled by their members. They typically have a local focus and view lending as a way to support their members and communities.
- **Community Development Financial Institutions (CDFIs)** – CDFIs are non-profit lenders dedicated to providing financial services to neighborhoods and customers that are underserved by traditional lenders. CDFIs are typically able to offer more attractive loans than traditional lenders. A national list of CDFIs is available at www.assetcoalitiontoolkit.org/files/budget/CDFI%20by%20State.pdf.
- **Specialized Energy Lenders** – Several lenders are approved by Fannie Mae for their national Energy Loan program. These lenders offer off-the-shelf programs that can be launched quickly. They do not provide capital for the loans, but instead cover their costs by increasing the interest rate on the loan. The lenders' websites are at:
www.afcfirst.com
www.energyfinancesolutions.com
www.viewtechfinancialservices.com

CDFIs and the CRA

The Community Reinvestment Act (CRA) encourages traditional lenders to make loans to underserved markets, and at lower interest rates than they usually offer. Since CDFI's are already serving these markets, lenders often earn CRA credit by working with a CDFI.

2. Bonds

Bonds are long-term debt instruments used by state and local governments to raise capital for stated purposes. Payments, called coupons, are typically made at regular intervals until the final payment at maturity. Bonds can be used to fund clean energy financing programs:

- **General Obligation (GO) Bonds** – Both state and local governments can issue GO bonds, which rely on the credit rating of the issuer and their promise to repay using any available resources. Because the promise to repay is binding, and because governments can raise taxes to cover the payments, these bonds are considered low-risk and so that capital can be raised at low interest rates. GO bonds usually require voter approval.
- **Revenue Bonds** – These are municipal bonds with repayment tied to a specific source of revenue. For example, loan payments from homeowners to an energy loan program can be pledged to pay off a revenue bond. Because these bonds are tied to a specific revenue stream, they are often viewed as higher-risk than a GO bond, resulting in a higher interest rate cost. Revenue bonds pay for themselves with a dedicated revenue stream. They do not obligate the general tax revenues, and they may not require voter approval.
- **Qualified Energy Conservation Bonds (QECBs)** – QECBs are subsidized by the federal government. State and local governments can sell bonds up to a certain dollar value that is based on their population. QECBs are direct-subsidy bonds, meaning that the issuer receives a direct rebate from the U.S. Treasury, essentially reducing the cost of borrowing. QECBs can be a valuable source of low-cost loan capital. QECB resources are available at:

www.naseo.org/resources/financing/qecb/index.html

http://www1.eere.energy.gov/wip/pdfs/qecb_creb_primer.pdf

- **Qualified Zone Academy Bonds (QZABs)** – QZABs offer federal tax credits to bond investors, and can be used to fund school renovations and repairs. Qualified schools can borrow at rates as low as 0 percent to fund public-private partnership programs. The 2011 allocation (\$400 million) expires on December 31, 2013. More information is available at:

www.irs.gov/irb/2011-06_IRB/ar12.html

<http://www2.ed.gov/programs/qualifiedzone/index.html>

- **Qualified School Construction Bonds (QSCB)** – These interest-free, tax-credit bonds can be issued by state or local governments to construct or improve certain eligible public schools. In Nevada, a \$2.4 million QSCB issued by the Douglas County School District saved local taxpayers \$500,000 in interest compared to a general obligation bond. The energy savings are used to pay off the bonds. See <http://www1.eere.energy.gov/wip/solutioncenter/pdfs/douglascountyschooldistrictprojectsummary.pdf>. For more information on QSCBs, see www.qscb.us/faq.asp#whatareqscb.

PACE Bonds

Property Assessed Clean Energy (PACE) bonds are a type of revenue bond issued by special assessment districts. Proceeds from the bond sale are used to fund energy improvements for property owners; in return, the owners agree to pay a corresponding special assessment on their property taxes for 15 to 20 years.

>>[more – p. 25](#)

3. Leasing Arrangements

Leasing can be attractive because of the flexibility it offers, and because it allows public and non-profit entities that don't pay taxes to take advantage of tax credits and rebates. A for-profit leasing company can benefit from the tax savings, which can be reflected in a lower lease payment. Leasing is also an attractive option for entities that do not want to take on the additional debt of a loan or bond. There are several types of leases, including:

- Capital Leases** – Capital leases are common in performance contracting (page 40). The lessee (the entity using the equipment) assumes many of the risks and benefits of ownership, including the ability to expense both the depreciation and the interest portion of the lease payments. The equipment and future lease payments are shown as both an asset and a liability on the lessee's balance sheet, and the lease payments are classified as capital expenses. Capital leases often have a "bargain purchase option" that allows the user to buy the equipment at the end of the lease at a price below market value.
- Operating Leases** – In these leases, the entity providing the equipment retains full ownership, so it does not appear as an asset or a liability on the user's balance sheet. This can appeal to users that are near their borrowing capacity. There are specific IRS rules regarding when a lease can be treated as an operating lease versus a capital lease. To learn more about these rules and how they may change, see www.picpa.org/Content/41049.aspx.
- Tax-Exempt Lease-Purchase Agreements** – Also known as municipal leases, these agreements presume that the state or local government will own the asset after the lease expires. Further, the effective interest rate is reduced because interest payments received from the government are exempt from federal income tax. In most states, tax-exempt lease-purchase agreements are not considered debt and rarely require public approval. If funds are not appropriated to pay the lease in future budgets, the equipment is returned and the lease is terminated. For this reason, these leases are usually limited to equipment that is essential to the operation of the entity. In New Hampshire, a Master Lease Program (MLP) was combined with a Performance Contract to consolidate several projects under one lease agreement and achieve a lower cost of financing.
- Certificates of Participation (COPs)** – COPs are lease financing agreements in the form of securities that can be marketed to multiple investors when no single investor is willing to fund an entire project. Each investor buys an interest in the lease, and the funds are used to finance the project. State and local governments typically use COPs to fund improvements to their own buildings. Unlike bonds, COPs are not usually considered debt, and in most jurisdictions do not require voter approval. This results in a swifter and less costly transaction. COPs can be used to finance large (\$1 million or more) renewable energy projects when the public entity has a strong credit rating.

Lower Payments

Payments on an operating lease are less than for capital leases and loans, since the lessor owns the asset and the user is not building equity. It is assumed that the residual value of the asset can be recovered at the end of the lease. Because of this, operating leases are typically limited to equipment with substantial residual value.

4. Other Funding Options

- **Public Benefit Funds (PBFs)** – With PBFs, also known as System Benefit Charges, tariffs are placed on utility bills to fund projects that offer a public benefit. They must be legislated or approved by a utility’s regulating body. Uses vary, but usually include clean energy programs. PBFs exist in over 30 states, and can serve as a steady source of funding for long-term programs.
- **Fines, Penalties, and Violation Funds** – These funds come from state and federal environmental penalties. For instance, the petroleum violation escrow account (PVEA) is funded with fines paid by oil companies for violating federal price caps. PVEA funds are distributed to states and can be used for clean energy programs. The Texas LoanSTAR program is funded by the PVEA, and the State of Montana funded their Alternative Energy Revolving Loan Program with state air quality penalties.
- **Grants** – Grants may be available at federal, state, and local levels, and also from foundations. Grants often have restrictions on their use, but can be a flexible tool with the ability to fund a variety of financing strategies.
- **Taxes** – Some communities have passed small taxes specifically to fund clean energy programs. Others are using general tax revenue for this purpose. In some cases, the tax is collected on the utility bill instead of through more traditional means.
- **Emissions Allowance Revenues** – State and local governments that take part in cap and trade programs, such as the Regional Greenhouse Gas Initiative (RGGI) in the Northeastern U.S., can use the revenues from allowance sales to fund clean energy financing programs.

State Treasury Funds

Treasurers in some states are using a portion of their investment portfolio to fund clean energy programs. A market-rate investment return is typically required, along with a very secure means of repayment. The money can be loaned directly or placed in the deposit account of lenders that make the loans. For example, Pennsylvania’s Treasurer has invested \$20 million directly in unsecured residential energy loans that are backed by a loan loss reserve.

For more information on funding sources, see the Funding Databases section ([page 46](#)) of Chapter Four: Financing Tools and Resources.

Security

Clean energy financing is “secured” when it has an asset of some kind backing it. If the loan is not repaid, the asset can be sold to pay back at least part of the loan. Security is often important to state or local clean energy financing programs, serving to reduce the risk of non-payment and helping to justify lower interest rates, longer loan terms, and broader underwriting criteria. Security can be categorized into three groups:

- (1) Unsecured Loans
- (2) Liens
- (3) Other Security

1. Unsecured Loans

Unsecured loans rely on good faith that the borrower can and will promptly repay the loan. Underwriting criteria, such as minimum credit scores and low debt-to-income ratios, help to increase the likelihood of repayment. However, assets cannot be repossessed if payment is not made on unsecured loans. Unsecured lending is seldom used for loans larger than \$10,000 to \$15,000 because of the risk of default.

Faster Lending

Because unsecured loans do not require an appraisal, preliminary approval can take less than an hour, with closing following in short order. This is crucial for the reactive segment of the residential market.

2. Liens

A lien is a legal claim to an asset that gives the lender the right to repossess the asset if a debt is not repaid. The owner cannot sell the asset without paying off the debt. If an asset has multiple liens, the senior lien (such as a first mortgage) will be repaid first in the event of a foreclosure. A senior lien offers better security for a lender, which typically results in a lower interest rate on the loan.

- **Property Assessed Clean Energy (PACE) Liens** are a special type of lien created when property owners voluntarily agree to a special assessment on their property taxes in return for up-front funding of energy improvements. The PACE lien secures the assessment and takes priority over mortgages and all other non-governmental liens. Because of this priority status, PACE liens provide exceptional security.

Liens that Transfer

Unlike other liens, PACE liens do not have to be paid off when a property is sold. The assessment can transfer to the new owner along with the ongoing energy savings.

However, the ability of a PACE lien to take priority over a mortgage without the permission of the mortgage lender caused Fannie Mae to oppose and effectively suspend residential PACE programs. Commercial PACE liens have not been opposed, since commercial mortgages and loans typically require the borrower to get the lender's permission before voluntarily taking on an additional liability, such as a PACE assessment. As a

result, Boulder County in Colorado transitioned their PACE program from residential to small commercial, and Los Angeles, California is developing a PACE program specifically for the large commercial sector.

- **Uniform Commercial Code (UCC) filings**, or fixture filings, typically secure personal property such as furnaces, although they can also secure real estate.

3. Other Security

- **Utility Disconnect** - In on-bill repayment programs, monthly loan payments are billed as part of the customer's utility bill. In some programs, the utility has the authority or is required to disconnect power if the customer fails to make the loan payments. Since power is crucial to a structure's occupants, the ability to disconnect power is a relatively strong form of security.
- **Pledged Assets** – In the event of default, the resale value of energy improvements may fall far short of repaying the lender. Insulation, for instance, is impractical to repossess. In commercial lending, this gap is often addressed by requiring the company to pledge more assets as collateral for the loan.
- **Personal Guarantees** – For small businesses, it is common for lenders to require the owner to pledge their personal assets, such as their home. This can impact the owner's willingness to take on a loan.

Credit Enhancement

Credit enhancements improve the chances that a lender will be repaid for their clean energy investments. By reducing the risk of loss, enhancements can lower the interest rate, lengthen the loan term, or broaden the underwriting criteria. Common enhancements for state and local clean energy financing programs include:

- **Loan Loss Reserves (LLRs)**, also referred to as loss reserve funds, set aside money to help repay losses when loans default. The reserve normally repays between 85 and 90 percent of the loss on any individual loan, and the total reserve is typically capped at 5 percent to 20 percent of the total loan pool. LLRs can offer attractive leverage; for example, a \$1 million LLR capped at 5% can support a total loan pool of \$20 million. The Greater Cincinnati Energy Alliance is a good example of a LLR used to support a residential Home Energy Loan Program: the loans are originated and serviced by a specialized energy lender, and the LLR minimizes the lender's risk of loss, which helps the lender justify an attractive 6.99% interest rate.
- **Loan Guarantees** are similar to a loan loss reserve, except that the money is not actually set aside into a reserve fund. Instead, there is simply an agreement that loan defaults will be covered per the guarantee. State and local governments that received grants from the American Recovery and Reinvestment Act (ARRA) may use some of those funds for LLRs but not for guarantees.
- **Other types of enhancements** for clean energy financing programs include debt service reserves, loan loss insurance, and subordinated co-financing. These are typically used in more specialized situations.

Interest Rate Buydowns

While not technically a credit enhancement, interest rate buydowns (IRBs) are often considered an enhancement because they have the similar effect of lowering the interest rate. An IRB is essentially a subsidy paid at the closing to enable a lender to justify a lower interest rate on a loan. IRBs are useful when the cost of capital (say 8 percent) plus the cost of originating and servicing the loans (say 3 percent) result in an interest rate that borrowers may not find attractive (11 percent). IRBs can be expensive, and they offer less leverage than an LLR.

Loan Origination and Servicing

With some financing programs, such as revolving loan funds, a state or local government must decide whether to originate and service the loans themselves, or to contract with a third party to administer the process. Origination refers to the process of receiving, researching, and approving a loan application, executing the loan documents, and disbursing the loan proceeds to the borrower. Loan servicing refers to everything that takes place after disbursement, including collection, monitoring, and ongoing communication. The options include:

- **In-house** – A state or local government agency with experience in loan origination or servicing (perhaps with an existing revolving loan fund) may choose to handle the process in-house. There are several factors to consider when deciding whether to handle origination and servicing internally:
 - Costs of origination and servicing
 - Additional staffing requirements
 - The type of loans (commercial or residential, secured or unsecured, etc.)
 - In-house origination and servicing are most compatible with revolving loan funds and PACE programs.
- **Third-party administrator** – Many programs utilize a third-party administrator for origination and servicing. Some programs have an administrator run all aspects of the program on behalf of the agency, while in other programs, the agency contracts out only specific pieces of the process. For example, the Michigan Saves program is operated by a third-party administrator, which in turn contracts out the initial loan intake and processing to a national service provider.
- **Financial institution** – In the case where a program has partnered with a financial institution (in credit-enhanced private lending, for example), the financial institution may offer or require that it be allowed to handle the loan origination and servicing. Almost all financial institution partners have this ability.
- **Utility** – In the early days of on-bill financing, many utility companies provided not only the capital for the loans, but the origination and servicing support as well. An example of this is Midwest Energy's How\$mart program in Kansas, where the utility makes loans to residential and commercial customers for energy improvements, and collects the loan payments through a charge on the utility bill. As the on-bill financing model has evolved, utilities are focusing more on simply providing the utility bill as a repayment mechanism. In these cases, third-party lenders assume responsibility for loan origination and the remaining servicing responsibilities, including collection in the event of default.

Greater Cincinnati Energy Alliance (GCEA)

In Cincinnati's program, a specialized energy lender originates the loans and continues to service the loans even after GCEA buys the loans from the lender.

CHAPTER THREE

Financing Program Decision Tool

CHAPTER CONTENTS

- Rebates
- Revolving Loans
- Property Assessed Clean Energy (PACE)
- Credit-Enhanced Private Loans
- HUD PowerSaver
- On-Bill Repayment
- Energy Efficient Mortgages
- Performance Contracting
- Power Purchase Agreements (PPAs) / Solar Leasing

The **Financing Program Decision Tool** is a companion to this Guide. It is available for use online or for downloading at <http://epa.gov/statelocalclimate/state/activities/tool.html>. A screenshot of the Tool is presented below.

Financing Program Decision Tool

This tool is for state and local governments interested in developing a financing program to support energy efficiency and clean energy improvements for large numbers of buildings within their jurisdiction. For those who have not already visited the [Clean Energy Financing Programs](#) home page, the information there may be helpful in understanding and answering the questions below. For clarification on individual questions, use the "Help?" links. In order to use the tool, please follow the steps outlined below:

Step 1 - Answer the nine **QUESTIONS** below about the **Target Market** and **Available Resources** for your program.

Step 2 - The **RESULTS** section on the right displays the **Finance Program Options** that may be most applicable.




State and Local Climate and Energy Program

QUESTIONS

Target Market

1) Which sector will the program target?	Help?	
2) Will the program target borrowers with marginal credit?	Help?	☐ Yes ☒ No
3) Will the program offer subsidized financing? (only possible if "Yes" to #5 below)	Help?	☐ Yes ☒ No
4) Will the target market include tenant-occupied buildings?	Help?	☐ Yes ☒ No

Available Resources

5) Do you have access to funds that will not need to be repaid?	Help?	☒ Yes ☐ No
6) Can you take on additional debt?	Help?	☒ Yes ☐ No
7) Can you issue bonds to support this particular program?	Help?	☒ Yes ☐ No
8) Has your state passed PACE legislation?	Help?	☒ Yes ☐ No
9) Is on-bill repayment through local utilities a viable option?	Help?	☒ Yes ☐ No

Please note: These are initial suggestions only; experienced advice should be part of any program decision.

RESULTS

Finance Program Options

- [Revolving Loans](#)
- [Credit Enhanced Private Loans](#)
- [PACE](#)
- [On-Bill Repayment](#)
- [Energy Efficient Mortgages](#)
- [Performance Contracting](#)
- [Rebates](#)
- [PPAs / Solar Leases](#)
- [HUD PowerSaver](#)

The purpose of the Tool is to help state and local governments choose a financing program that best fits their circumstances. The Tool helps users narrow down the options by asking nine questions about their preferred target market and available resources. For instance, if the user chooses to target the commercial sector, the residential-specific options (HUD PowerSaver and Energy Efficient Mortgages) are ruled out. Answering all nine questions typically reduces the list to a short list of appropriate options.

Once the user has narrowed down their options, clicking on a selected option leads to a detailed description of that option, including case histories and links to other resources. Similar descriptions for each program option are presented in the following pages of this Guide.

The unique benefit of this Tool is its ability to help users who may be relatively new to clean energy financing programs to quickly sort through an overwhelming amount of information and options to zero in on a financing program that is likely to be successful for their circumstances. While expert advice in choosing and implementing a financing program is still essential, the Tool can be a useful starting point for state and local governments needing to learn the basics and get moving quickly.

TO LEARN WHAT FINANCING PROGRAMS MATCH YOUR JURISDICTION'S NEED

Please visit <http://epa.gov/statelocalclimate/state/activities/tool.html>

Rebates

A rebate is a direct transfer of funds with no repayment obligation. It is designed to reduce the overall cost of purchasing an energy efficiency or renewable energy measure or upgrade. Rebates can take the form of price reductions, refunds, or credits. They can be claimed at the point of sale, after verification of installation, or at some future date (such as a tax credit or a mail-in rebate).

Rebate Characteristics

Technology Focus	Energy Efficiency and Renewable Energy
Type of Measures Financed	Single Product or Technology-Focused (Insulation, Boilers, Solar Panels)
Target Sector(s)	Commercial & Industrial, Residential, Public, and Non-Profit
Compatible Funding Sources	Public Funds
Security Required of Borrower	None
Repayment Mechanism	None
Complexity to Implement	Simple
Role for State/Local Governments	Provide Funding, Oversee Distribution of Rebates
Impact per Dollar of Public Funds	Low to Moderate

Considerations for State and Local Governments

- Since rebates are a direct subsidy, they generate no return and must be supported with continuing commitments of discretionary funding.
- Many communities already have existing energy efficiency rebate programs through local or regional utilities. States and local governments should seek to build on these existing programs through partnerships with utility companies.
- Consider allowing the benefits of the rebate to be assigned to a third party. This often simplifies the process for the end consumer, as a contractor (or other third party) can claim the rebate and then pass the benefits along to the consumer in the form of a lower net price, eliminating the need for the end-consumer to deal with the rebate process.

Advantages	Disadvantages
• Rebate programs are relatively quick and easy to set up and manage. Many governments and utilities already have experience running rebate programs. • Straightforward for the consumer. • Flexible: rebates can be used to encourage any technology in any sector.	• Lowest leverage (impact) per dollar when compared to other options. • Rebates are often unsustainable, creating artificial demand that lasts only as long as the rebate is in effect.

When to Use Rebates

Rebates are best for state and local governments that have available discretionary funding and want a relatively simple way to encourage energy efficiency and renewable energy. They can be used on their own or in conjunction with another financing vehicle. Rebates are not as effective for whole-building retrofits, as they tend to target specific products or technologies. However, even rebates on specific products may reduce the overall cost of a whole-building retrofit, thus making it attractive to borrowers.

Example Programs / Case Studies

Austin Energy: Energy Efficiency Rebate Program (Austin, TX)

Austin Energy offers a comprehensive energy efficiency rebate program for single-family residential, multifamily, and commercial customers. For residential customers, rebates are available for HVAC equipment and weatherization improvements up to about \$2,000. Commercial rebates up to \$100,000 are available for dozens of renewable energy and energy efficiency upgrades.

www.austinenenergy.com/energy%20efficiency/Programs/Rebates/index.htm

Oregon Business Energy Tax Credit (State of Oregon)

The state of Oregon offers a tax credit rebate to trade, business, and rental property owners that pay business taxes within the state. A Pass-Through Option enables project owners to take advantage of the credit if they are an Oregon non-profit, tribe, or public entity that partners with an Oregon business or resident with state tax liability. The credit can cover up to 50 percent of the project cost and is available for three types of projects: Renewable Resources, Energy Conservation, and Renewable Energy Resource Equipment Manufacturing.

www.oregon.gov/ENERGY/CONS/BUS/BETC.shtml

Resources & Guidance

Database of State Incentives for Renewables & Efficiency (DSIRE) – A search of DSIRE can identify virtually every rebate program in the country.

www.dsireusa.org

State Clean Energy Practices: Renewable Energy Rebates – A primer on renewable energy rebates from the National Renewable Energy Laboratory (NREL)
www.nrel.gov/analysis/pdfs/45039.pdf (PDF, 38 pp. 523K)

City of Burbank, CA – Commercial Rebate Program
www.burbankwaterandpower.com/index.php/incentives-for-businesses/energy-solutions-business-rebate-programs

Colorado Governor's Energy Office (GEO) – Statewide Rebate Program
www.rechargecolorado.com/index.php/programs_overview/rebates

Revolving Loans

Revolving loan funds (RLFs) use a source of capital (typically offered by a state or local government) to make direct loans to borrowers for energy efficiency and renewable energy projects. As these loans are repaid, the proceeds flow back into the fund and become available for more loans.

Revolving loan funds can be managed internally by government agencies or by a third-party financial institution that uses the loan capital offered by the agencies to make loans on their behalf. In either case, the capital provider has the ability to set the loan terms and conditions.

Revolving Loan Fund Characteristics

Technology Focus	Energy Efficiency and Renewable Energy
Type of Measures Financed	Individual Product Installations or Whole-Building Upgrades
Target Sector(s)	Commercial & Industrial, Residential, Public, and Non-Profit
Compatible Funding Sources	Private Lenders, Bonds, or Public Funds
Security Required of Borrower	Unsecured for Smaller Loans (under \$7,500 to \$20,000), Property Lien for Larger Loans
Repayment Mechanism	Monthly Loan Payment Directly to Government Lender or to Third-Party Program Administrator
Complexity to Implement	Moderate
Role for State/Local Governments	Make Loans, Collect Monthly Loan Payments
Impact per Dollar of Public Funds	Moderate

Considerations for State and Local Governments

- RLFs allow the capital provider (most often the state or local government) significant control over loan terms, interest rates, and borrower credit requirements. However, loans with very low interest rates may not recover enough interest to cover the cost of fund management and loan defaults, slowly reducing the loan capital. Also, lower credit requirements increase the risk of loan defaults. If the RLF intends to sell the loans into the secondary market at any point, the loans must be written to conforming credit standards, which may limit interest rates, terms, and the risk profiles of borrowers. Considerations like these should be balanced with the goals of the fund to arrive at the optimal set of loan terms.
- RLFs in which more than one party is providing the loan capital must work out the loan terms and conditions amongst all capital providers.

Advantages	Disadvantages
• RLFs are the most flexible financing option in terms of capital source, target market, and underwriting criteria. • Many state and local governments already have experience managing revolving loan funds for other purposes (such as water treatment plants) and can readily set up an energy efficiency or renewable energy RLF. • RLFs that are set up and managed internally do not require external contracts or capital.	• Revolving loan funds absorb all losses from loan defaults. In commercial programs, loan defaults are not protected by the same level of security as is provided by a Property Assessed Clean Energy (PACE) lien. • During the initial round of lending, volume may ramp up quickly to meet demand. After that, new lending is constrained to the stream of repayments from the initial loans. For example, if a \$1 million fund makes loans with a 10-year term and lends all \$1 million in the first year, only \$100,000 is repaid in the second year and is available for making new loans. • Administering a RLF program in-house may require significant staffing and resources. • Revolving funds do not offer as much initial leverage as other financing options. For instance, a \$1 million RLF making 10-year loans can only fund \$1 million in energy improvements initially, and will take 10 more years to fund the next \$1 million. By contrast, a \$1 million loan loss reserve can support initial funding of up to \$20 million in improvements.

When to Use Revolving Loans

Revolving loan programs are well-suited for governments with experience administering loan programs, or for governments willing to contract with a third party to administer the program. RLFs are extremely flexible, can be modified to target any sector or market, and are a good option for programs targeting customers with limited access to capital.

Example Programs / Case Studies

SECO Texas LoanSTAR Program (State of Texas)

The Texas LoanSTAR Program is an RLF created by the Texas Energy Office in 1988, funded principally through petroleum violation escrow funds received from the federal government. Loans are targeted for public buildings, including state agencies, school districts, higher education, local governments, and hospitals. As of November 2007, the program had funded a total of 191 loans valued at over \$240 million; as a result, recipients throughout the state have realized a combined energy savings of over \$212 million.

www.seco.cpa.state.tx.us/lr

Montana Alternative Energy Revolving Loan Program (State of Montana)

The Alternative Energy Revolving Loan Program was established in 2001 by the Montana legislature. It offers low-cost financing to homeowners, small businesses, non-profits, and government entities installing alternative energy systems and energy efficiency measures. Historically, the program was funded through air-quality penalties collected by the Montana Department of Environmental Quality, but recently the program received an infusion of more funding through various American Recovery and Reinvestment Act (ARRA) grants.

<http://deq.mt.gov/energy/renewable/altenergyloan.mcp>

Resources & Guidance

Revolving Loan Funds: Basics and Best Practices – RLF best practices webinar from the National Renewable Energy Laboratory (NREL)

www.nrel.gov/applying_technologies/state_local_activities/pdfs/tap_webinar_20090826_booth.pdf (PDF, 19 pp. 629K)

Revolving Loan Funds and the State Energy Program – Detailed RLF information from the U.S. Department of Energy

http://www1.eere.energy.gov/wip/pdfs/sep_rlf.pdf (PDF, 14 pp. 511K)

Renewable Energy Loan Programs: Case Studies of State Support for Renewable Energy – Example state loan programs and features from the Berkeley Lab

http://eetd.lbl.gov/ea/emp/cases/RE_Loan_Programs.pdf (PDF, 9 pp. 332K)

Alabama SAVES – An example of an RLF working in conjunction with a loan loss reserve

www.alabamasaves.com

Property Assessed Clean Energy (PACE)

Property Assessed Clean Energy (PACE) builds on the familiar concept of a municipal improvement district. PACE creates a voluntary special tax or special assessment district that funds the cost of energy improvements for commercial and industrial property owners that voluntarily join the district. The owner pays the district back over time through an assessment on their property taxes. The savings on the owner's utility bills help cover the project cost. The assessment is secured by a property lien that takes priority over the mortgage and other loans if there is a foreclosure. One advantage of PACE is that the assessment stays with the property in the event of a sale, assuming that the buyer agrees to this transfer. The benefits of the upgrades and the corresponding payments can be transferred to the new owner.

PACE Characteristics

Technology Focus	Energy Efficiency and Renewable Energy
Type of Measures Financed	Whole-Building Upgrades
Target Sector(s)	Commercial & Industrial
Compatible Funding Sources	Bonds and/or Public Funds
Security Required of Borrower	PACE (Senior) Lien on Building Property
Repayment Mechanism	Property Tax Bill
Complexity to Implement	Complex
Role for State/Local Governments	Pass PACE Legislation, Issue Bonds, Distribute Bond Proceeds to Property Owners, Collect Payments on Property Tax Bills, Pay Bond Holders
Impact per Dollar of Public Funds	High to Very High

Considerations for State and Local Governments

- Many early PACE programs, which were chartered by local governments, targeted the residential sector. While PACE was initially conceived as both a commercial and residential option, the Federal Housing and Finance Authority (FHFA), which regulates Freddie Mac and Fannie Mae, was concerned about the impact of PACE priority liens on mortgage lenders and effectively shut down residential PACE in 2010. Commercial PACE is still viable, although property owners must typically get their existing lender's approval before signing up for a PACE program.
- PACE programs typically require authorizing legislation at the state level. Local governments seeking to set up a PACE program should first check whether PACE legislation exists in their state and, if required, should work with the state government to pass PACE legislation. To date, PACE-enabling

legislation has been passed in the following states: CA, CO, FL, GA, IL, LA, ME, MD, MN, MO, NV, NH, NM, NY, NC, OH, OK, OR, TX, VT, VA, and WI. For a current list of states with PACE legislation in place, see the Database of State Incentives for Renewables and Efficiency (DSIRE) at www.dsireusa.org/incentives/index.cfm?EE=1&RE=1&SPV=0&ST=0&searchtype=PTFAuth&sh=1

Advantages	Disadvantages
• A PACE lien offers the issuing agency strong protection against loss in the case of default. This security makes it possible to issue bonds to fund the PACE program. • PACE does not require public funds. It can be run using private capital from the bond market. • The assessment and corresponding payments can stay with the property in the event of a sale. • PACE programs can serve property owners who would not qualify for a bank loan.	• States that do not already have PACE-enabling legislation require the extra effort and time to pass legislation before PACE can be made available. • PACE is limited to the commercial and industrial sector unless FHFA's position is reversed or overridden. • Municipalities may need to give a guarantee or similar assurance to make PACE bonds marketable. • After factoring in all costs, the interest rate for a PACE program may be higher than for other options unless the rate is subsidized.

When to Use PACE

PACE works best for whole-building retrofits in the commercial sector. It offers a solution for property owners who might not qualify for a traditional loan. The security of a PACE lien gives the program superior protection against the risk of loan defaults. PACE may appeal to state and local governments that can issue bonds with attractive interest rates.

Example Programs / Case Studies

Palm Desert Energy Independence Program (Palm Desert, CA)

The Palm Desert Energy Independence Program offers home and business owners affordable financing for major energy-saving property improvements, such as high-efficiency air conditioners, dual-pane windows, and solar panels. Long-term payback for the improvements is linked to the owner's property taxes.

Since its launch in August 2008, the Energy Independence Program has provided \$5 million in loans, funded with \$2.5 million each from the City's general fund and the City's Redevelopment Agency. In February 2010, the city announced \$6 million in new program funding. Half of the new funds will be dedicated to energy efficiency improvement loans and half will be reserved for solar project loans.

www.cityofpalmdesert.org/Index.aspx?page=484

Sonoma County Energy Independence Program (SCEIP) (Sonoma County, CA)

Launched in spring 2009, SCEIP is a combined residential, commercial, and industrial PACE program. It is unique in that it allows water efficiency upgrades to be part of the voluntary assessment package along with energy efficiency and renewable energy. SCEIP offers loans at 7 percent interest with payback periods of five, 10, and 20 years.

www.sonomacountyenergy.org

Boulder County: ClimateSmart Loan Program (Boulder, CO)

The ClimateSmart Loan Program provides financing to commercial property owners for efficiency or renewable energy projects. The county is authorized to issue up to \$40 million in tax-exempt bonds to support the program. The ClimateSmart Loan Program started in 2009 for the residential sector (which has since been suspended) and launched commercial PACE in 2010.

www.climatesmartloanprogram.com

Resources & Guidance

Alliance to Save Energy (ASE) Guide to PACE – General PACE information and implementation

<http://ase.org/resources/property-assessed-clean-energy-financing-pace>

National Renewable Energy Laboratory (NREL) PACE Fact Sheet

www.nrel.gov/docs/fy10osti/47097.pdf (PDF, 4pp. 441K)

National Association of State Energy Officials (NASEO) PACE example legislation documents

www.naseo.org/resources/financing/pace/index.html

Renewable & Appropriate Energy Laboratory (RAEL) Financing District Guide – How to set up a local PACE program

www.naseo.org/resources/financing/pace/index.html (PDF, 47pp. 327K)

Database of State Incentives for Renewables and Efficiency (DSIRE) List of Existing PACE Programs and Locations

www.dsireusa.org/incentives/index.cfm?EE=1&RE=1&SPV=0&ST=0&searchtype=PTFAuth&sh=1

Credit-Enhanced Private Loans

In a credit-enhanced loan, a third party assumes some of the loan risk that would originally have been born by the lender. Credit-enhanced private lending is a public-private partnership whereby government funds encourage private lenders to offer attractive loans to select markets.

The third-party loans are funded, originated, and serviced by a financial institution (i.e., a bank or a credit union) and are typically similar to standard loan products, but with better terms, such as lower interest rates or more flexible underwriting standards. The government funds are not used to make the actual loans, but serve to mitigate the financial institution's risk or to subsidize lower interest rates to the borrower.

Credit-Enhanced Private Loan Characteristics

Technology Focus	Energy Efficiency and Renewable Energy
Type of Measures Financed	Individual Product Installations or Whole-Building Upgrades
Target Sector(s)	Commercial & Industrial, Residential, and Non-Profit
Compatible Funding Sources	Public Funds (for the Credit Enhancements) and Private Lenders (Loan Capital)
Security Required of Borrower	Unsecured for Smaller Loans (under \$7,500 to \$20,000), Junior or Senior Property Lien for Larger Loans
Repayment Mechanism	Monthly Loan Payment to Bank or Credit Union
Complexity to Implement	Complex
Role for State/Local Governments	Partner with Financial Institution(s), Deposit Credit Enhancement Funds in Escrow, Make Periodic Payments to Financial Institution from Escrow Account
Impact per Dollar of Public Funds	High

Considerations for State and Local Governments

- Loan loss reserves and interest rate buy downs are the most widely used credit enhancements by state and local governments for clean energy loan programs.
- Several national lenders in the energy efficiency market specialize in working with state and local governments to offer off-the-shelf loan programs for the residential and commercial sectors. Depending on the capital source, these pre-designed programs may be slightly more expensive to implement than the custom options, but are much simpler and much faster to set up.

- State and local governments can also design their own programs by working with local or regional financial institutions to develop a custom solution.

Advantages	Disadvantages
• The financial institution manages the day-to-day aspects of the program, including loan origination and servicing. • Credit-enhanced private loans provide a quick way to leverage funds, especially with an off-the-shelf program (the quickest leveraging of any option). For instance, a \$1 million loan loss reserve can support up to \$20 million in private lending for energy improvements. • There is a high degree of flexibility in loan products. • The lending encourages private sector growth in energy efficiency and renewable energy lending.	• As with traditional lending products, financial institutions will require a credit check and security on larger loans. • For custom programs, the need to identify partner financial institutions and negotiate the administrative and funding agreements can be time consuming and expensive. • The contract structure is complex

When to Use Credit-Enhanced Private Loans

Credit enhance private loans are well suited for programs that need to make the most of their resources by leveraging their money with private capital. They allow programs to make a large number of loans quickly. If demand is predicted to exceed government funding, private lending can stretch government dollars. Also, an initial state or local government enhancement may lead to increased private-lender interest in energy efficiency and renewable energy loans, stimulating business even after state or local government involvement ends.

Example Programs / Case Studies

Sustainable Connections: Energy Challenge (Whatcom County, WA)

The Sustainable Connections: Energy Challenge is an energy efficiency retrofit program that partnered with Banner Bank to provide financing to residential and commercial markets. The program uses a combination of credit enhancements, including a loan loss reserve fund and an interest rate buy-down. The credit enhancements are supported by grant funds, enabling the bank to offer special, low-interest financing for energy efficiency retrofits. The Sustainable Connections: Energy Challenge aims to reduce energy use in 150 local businesses and 900 homes over two years.

<http://sustainableconnections.org/energy/energychallenge>

Pennsylvania Keystone Home Energy Loan Program (State of Pennsylvania)

Pennsylvania Keystone HELP is one of the largest credit enhancement-based energy efficiency lending programs in the country. It focuses largely on the reactive market, such as when a furnace needs to be

replaced, and offers special financing for high-efficiency replacements. Contractors serve as a ready sales channel, although they don't have a direct role in the loan process itself. The Pennsylvania Department of Environmental Protection provides a loan loss reserve fund and interest rate buydown. Loan capital is being provided by the Pennsylvania Treasury Department and the program is administered by a third-party national energy efficiency lender.

www.keystonehelp.com/index.php

Resources & Guidance

Loan Loss Reserve Fund Presentation – How to structure a loan loss reserve fund

https://www1.eere.energy.gov/wip/solutioncenter/pdfs/Loss_Reserve_Funds_MacLean_Presentation_011510.pdf (PDF, 20 pp. 117K)

Examples of specialized energy efficiency lender programs:

- AFC First – www.afcfirst.com/index.php
- Viewtech Financial Services – www.viewtechfinancialservices.com
- Energy Finance Solutions – www.energyfinesolutions.com/main/about/title/Overview

Example loan loss reserve documents:

- NASEO Loan Loss Reserve Model Agreement – www.naseo.org/resources/financing/llr/index.html
- Michigan Saves – www.michigansaves.org

HUD PowerSaver

The U.S. Department of Housing and Urban Development (HUD) PowerSaver loan program provides a federal loan guarantee to encourage banks and credit unions to make loans to finance home energy efficiency and renewable energy improvements up to \$25,000. HUD has selected 18 lenders from around the country for a two-year pilot program starting in mid-2011. These lenders may make loans in their HUD-approved target markets, as well as any communities that received U.S. Department of Energy Better Building grants, and also any jurisdictions where EPA's Home Performance with ENERGY STAR program is available. HUD is providing grants to the lenders during the pilot program to help reduce costs for lenders who will pass the savings on to borrowers.

PowerSaver loans under \$7,500 may be unsecured, but most of the pilot lenders are focused on larger secured loans. The underwriting guidelines allow a combined loan-to-value ratio of up to 100 percent, a debt-to-income ratio up to 45 percent, and FICO credit scores down to 660. The loan term is up to 15 years for energy efficiency improvements and 20 years for renewable energy projects.

HUD PowerSaver Characteristics

Technology Focus	Energy Efficiency and Renewable Energy
Type of Measures Financed	Individual Product Installations or Whole-Building Upgrades
Target Sector(s)	Residential
Compatible Funding Sources	Public Funds
Security Required of Borrower	Lien on Property for Loans Over \$7,500
Repayment Mechanism	Monthly Payment to Bank or Credit Union
Complexity to Implement	Low
Role for State/Local Governments	Create demand for home energy retrofits with a well-designed audit and installation process
Impact per Dollar of Public Funds	Very High

Considerations for State and Local Governments

- To participate in the PowerSaver pilot program, a community must persuade one of the 18 pilot lenders to offer PowerSaver loans in their area. Several of the lenders operate across large regions of the country. A lender's willingness to work with a community may depend on the community's ability to create demand for energy retrofits through effective marketing and a strong audit and installation program.

- A community must also be either within the lender's HUD-approved target market, within an area served by a Home Performance with ENERGY STAR program, or a Better Building grantee.
- Both secured and unsecured loan options are available, allowing the program to serve both the reactive and proactive markets.

Advantages	Disadvantages
• The PowerSaver program can operate at no cost to the local community. • PowerSaver has the ability to meet growing demand. There is no cap on the number of loans that can be offered through the program. • PowerSaver offers private lenders the ability to acquire new customers with minimal marketing effort.	• The current program will not expand beyond the selected pilot areas until 2013. If the pilot program is not successful, HUD may not continue this program beyond 2013. • Lenders may consider the transaction costs too high to make entering the program worthwhile.

When to Use HUD PowerSaver

PowerSaver may be an attractive program for communities that qualify and can attract a pilot lender. Assuming that the program expands beyond the pilot stage in 2013, it may be a viable option for many more communities. Continue to check the website resources listed below for updates.

Example Programs / Case Studies

Pilot programs in selected communities should be started by mid-2011.

Resources & Guidance

List of Pilot Lenders and Their HUD-Approved Target Markets

<http://portal.hud.gov/hudportal/documents/huddoc?id=pslendersinfo.pdf> (PDF, 2 pp. 175K)

Final Notice in the Federal Register – This notice describes the program in great detail; the complete list of U.S. DOE Better Building grantees is presented on pg. 17942 of the Register.

<http://edocket.access.gpo.gov/2011/pdf/2011-7551.pdf> (PDF, 16 pp. 685K)

List of Home Performance with ENERGY STAR programs

www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_hpwes_partners

HUD's PowerSaver Home Page – Background and updates

www.hud.gov/offices/hsg/sfh/title/ti_home.cfm

Lawrence Berkeley National Laboratory (LBNL) Clean Energy Financing Policy Brief - HUD
PowerSaver pilot program policy brief and loan details
<http://eetd.lbl.gov/ea/emp/reports/ee-policybrief121010.pdf> (PDF, 6 pp. 339K)

On-Bill Repayment

With on-bill repayment (OBR), property owners borrow money for energy improvements and pay it back over time via their utility bills. Early programs were referred to as “on-bill finance” because the utility was expected to finance and originate the loans. Utilities were often uncomfortable in this role. Recent programs are more flexible and allow for the loan capital and origination to be provided by a third-party lender; the utility bill simply serves as the repayment vehicle.

There are two types of OBR programs: tariffs and loans. Loans are personal debt and must be paid off if the property is sold. Tariffs are an obligation assigned to the utility meter. If the property is sold, the new owner assumes responsibility for the payments.

OBR is unique in its ability to address the “split incentives” problem that occurs when a tenant pays the utility bills. Property owners have little incentive to pay for energy improvements if the tenant reaps the savings, and tenants have little incentive to invest in improvements to a building they do not own. With OBR, the savings and loan payments are on the same bill, thereby eliminating the split-incentives issue.

On-Bill Repayment Characteristics

Technology Focus	Energy Efficiency
Type of Measures Financed	Individual Product Installations or Whole-Building Upgrades
Target Sector(s)	Commercial & Industrial, Residential, Public, and Non-Profit
Compatible Funding Sources	Private Lenders, Bonds, or Public Funds
Security Required of Borrower	The Ability to Shut Off Utility Service in the Event of Non-Payment is Typically All the Security Required; Some Programs Require a UCC Filing
Repayment Mechanism	Utility Bill
Complexity to Implement	Complex
Role for State/Local Governments	Partner with Utility, Provide Loan Capital and/or Credit Enhancement Funds to Utility
Impact per Dollar of Public Funds	Moderate to High

Considerations for State and Local Governments

- When designing an OBR program, it is important to consider the effect of the source of capital on the interest rate paid by the borrower. When the capital for OBR loans come from a third-party source

(e.g., a bank makes the loan), loan defaults can become an issue. If there is a collection, utilities (and sometimes regulatory authorities) often require that delinquent utility bills are paid first, with only the remaining funds going toward loan repayment. This can increase lender risk and may result in a higher interest rate. For this reason, interest rates may be lower if a state or local government or utility provides the loan capital.

- The ability to disconnect power in the event of non-payment can be a powerful incentive to pay and a strong form of security. However, utilities and governments may be reluctant to enforce this measure due to social and other concerns.
- Many utility partners may not have the type of billing systems in place that would allow for OBR, in which case a sizeable investment is often required to upgrade utility billing and collection systems before an OBR program can launch.

Advantages	Disadvantages
• OBR is the only financing vehicle that works successfully for rental properties where the tenant pays the utility bills (eliminating the split-incentives problem). • In the tariff version of OBR, the payments can be passed along to the new owner if the property is sold.	• Setting up an OBR requires utility cooperation. • May require legislation to authorize its use.

When to Use On-Bill Financing

OBR is well-suited for programs that plan to target renters or tenants. It is also one of the better programs for borrowers who don't have excellent credit, as the credit decision is based on utility payment history and not on the customer's credit score. OBR requires a utility company partner.

Example Programs / Case Studies

Midwest Energy How\$mart (State of Kansas)

Midwest Energy offers its residential and small commercial customers an on-bill financing program for their energy-efficiency improvements. To take part in the How\$mart program, customers must be up-to-date on their energy payments and have an energy audit performed on their building by a Midwest Energy auditor. If a customer decides to make the improvements identified in the audit, the audit is free and Midwest Energy pays the initial cost of the upgrades. Customers pay back the improvements in a surcharge on their utility bill after the upgrades are installed.

Interest rates for the program vary depending on whether a customer is residential or non-residential. How\$mart offer loans with terms up to 15 years for residential customers and up to 10 years for commercial customers. Renters who wish to take part in the program must first have permission from their landlord.

www.mwenergy.com/howsmart.aspx

Long Island Green Homes (Babylon, NY)

The Long Island Green Homes program uses funds from the town's solid-waste reserve to finance energy efficiency and renewable energy projects. The program requires a building to undergo an initial energy audit, after which a certified contractor completes the work identified in the audit. Upon completion of the upgrades, the town pays the contractors directly and the property owner pays back the upgrade costs on a trash bill surcharge with 3 percent interest.

<http://ligreenhomes.com/page.php?Page=home>

Clean Energy Works Portland (Portland, OR)

The Clean Energy Works Portland program is a 500-home pilot available to residents of the city of Portland that provides easy access to low-cost financing for energy efficiency improvements. If a homeowner's property is selected through an application process, a home energy assessment is scheduled to be conducted by a certified Building Performance Institute contractor. An Energy Advocate will also be available to the homeowner to discuss the recommended improvement measures and financing options, as well as to walk the homeowner through the installation process.

There is no upfront cost to the homeowner. The cost of improvements is financed over a 20-year term that is repaid on the customer's utility bills. With a recent \$20 million federal stimulus, Clean Energy Works Portland has expanded its mission and changed its name to Clean Energy Works Oregon.

www.cleanenergyworksoregon.org

Resources & Guidance

Alliance to Save Energy (ASE) On-Bill Financing Policy Brief

www.ma-eeac.org/docs/On-BillFinancingASEBriefMatthewBrown.pdf (PDF, 19 pp. 393K)

On-Bill Finance for the Small Business Market – Includes a comprehensive list of OBF programs nationwide

www.oregon.gov/ENERGY/LOANS/EEAST/docs/On-Bill_Finance_for_SmallBusinessMarket.pdf (PDF, 14 pp. 281K)

Energy Efficient Mortgages

Energy efficient mortgages (EEMs) wrap the cost of energy efficiency and renewable energy improvements into a single primary mortgage during the purchase or refinance of residential real estate. There are two kinds of energy efficient mortgages:

- **Conventional Energy Efficient Mortgages** – These standard loan products offered by Fannie Mae, Freddie Mac, FHA, and VA follow a well-defined national standard. Although underwritten as a traditional mortgage, an EEM is usually more flexible in areas such as loan-to-value and debt-to-income ratios.
- **Specialty Mortgages** – Specialty mortgages are normally the product of joint collaboration between a lending institution and a local or state government. One or both parties agree to subsidize the mortgage if the borrower makes energy improvements that meet energy efficiency requirements set by the program.

With both kinds of EEMs, third-party funds from public agencies and municipalities can be used to provide incentives to lenders and borrowers in the form of an interest rate buy-down or closing cost credit.

Energy Efficient Mortgage Characteristics

Technology Focus	Energy Efficiency and Renewable Energy
Type of Measures Financed	Whole-Building Upgrades
Target Sector(s)	Residential
Compatible Funding Sources	Public Funds
Security Required of Borrower	Senior Lien on Home (Must be the Primary Home Mortgage)
Repayment Mechanism	Monthly Payment to Bank or Credit Union
Complexity to Implement	Moderate
Role for State/Local Governments	Partner with Financial Institution(s) to subsidize a specialty EEM
Impact per Dollar of Public Funds	High

Considerations for State and Local Governments

- EEMs are only applicable for borrowers purchasing a new home or already refinancing an existing home (e.g., to take advantage of lower interest rates). EEM programs are limited in their ability to

reach a majority of the population at any given time. However, they provide more financing at a critical transaction point when borrowers may already be considering a remodel or upgrade work.

- EEMs are limited in the type of improvements they can finance. Conventional EEMs cannot finance upgrades when the total cost of improvements, including maintenance costs, are greater than the total present value of the energy savings over the useful life of the improvements. In other words, improvements can be financed only if the energy savings outweigh the costs.

Advantages	Disadvantages
• Payments for EEMs are low, as the mortgage may be amortized over 15, 20, or 30 years, and interest payments can be tax deductible. • EEMs have low interest rates, and a secondary market already exists for conventional EEMs.	• Depending on the state of residence, closing costs to obtain an EEM can be high. If refinancing, other benefits like lower interest rates need to offset the loan costs. • The entire mortgage must be financed to incorporate the energy efficiency and renewable energy costs. • EEMs are not eligible on second homes or investment properties.

When to Use EEMs

EEMs can be an attractive option for people who are buying or refinancing a home. However, the average homeowner only moves once every seven years, so unless the refinancing market is strong, EEMs are useful to just a small segment of the market at any given time. Because of this, EEMs are best used as an additional option in a comprehensive program as opposed to serving as the foundation of the program.

Example Program / Case Study

Colorado State ENERGY STAR Mortgage (State of Colorado)

The state of Colorado is managing a pilot for EPA's ENERGY STAR Mortgage (ESM) program. The Colorado program partners with local lenders to provide ENERGY STAR Mortgages to buy an ENERGY STAR-rated home, to buy a new home that the borrower retrofits, or the refinancing and retrofit of an existing home. An energy audit is performed to make sure that energy savings will be achieved. The Colorado Governor's Energy Office shares the cost of a subsidy for this program with the Bank of Colorado in the form of an interest rate buy-down.

www.coloradoenergystarhomes.com/index.php/resources

Resources & Guidance

ENERGY STAR Mortgage pilot program

www.energystar.gov/index.cfm?c=mortgages.energystar_mortgages

Maine Housing ENERGY STAR Mortgage pilot program

www.mainehousing.org/ENERGYStar.aspx

HUD / FHA EEM basic description and guidelines

http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/eem/eemhome

Fannie Mae EEM basic description and guidelines

www.efanniemae.com/sf/mortgageproducts/pdf/eifeaturefacts.pdf (PDF, 3 pp. 41K)

Performance Contracting

Energy Savings Performance Contracting (ESPC) is a wide-ranging building retrofit option developed in the private sector. ESPCs are typically performed by an Energy Services Company (ESCO) and include a comprehensive building energy audit, a financial analysis of upgrade options, arrangement of project financing, installation of building upgrades, and post-installation performance monitoring and equipment maintenance.

ESPCs are typically designed to be cash-flow neutral, where the amount of monthly energy savings are at least equal to the amount of the monthly payment needed to finance the improvements. Most ESCOs guarantee the projected energy savings, and will reimburse the customer if the savings are not realized.

ESPCs do not require public subsidies to operate successfully. However, a state or local government can encourage interest in ESPCs by offering rebates or subsidized financing, which may require public-sector funds. Governments with the ability to issue bonds at attractive rates can also aggregate and help raise capital for many smaller projects, passing along the lower interest rate from the large bond issuance to the smaller projects, particularly if the projects will be installed around the same time and have similar payback periods.

Performance Contracting Characteristics

Technology Focus	Energy Efficiency and Renewable Energy (Limited)
Type of Measures Financed	Whole-Building Upgrades
Target Sector(s)	Public, Non-Profit, and Commercial & Industrial
Compatible Funding Sources	Private Financing, Public Funds, Bonds
Security Required of Borrower	Varies (often a UCC Filing on the financed equipment)
Repayment Mechanism	Monthly Loan Payment to ESCO or Financial Institution
Complexity to Implement	Simple to Complex
Role for State/Local Governments	Public subsidies can enable projects and deep retrofits that might otherwise not be viable
Impact per Dollar of Public Funds	High

Considerations for State and Local Governments

- ESPCs are best suited to comprehensive building retrofits and upgrades to multiple building systems at the same time. If a building owner only wishes to replace a boiler, for example, an ESPC may not be the best option.
- ESPCs are traditionally energy-efficiency oriented, although more ESCOs are offering renewable energy options as part their standard services.
- ESPCs are an excellent choice for upgrading state or local government buildings.
- Most ESPC projects consist of two agreements: (1) a guaranteed energy savings agreement (GESA) between the customer and the ESCO that covers the engineering, equipment selection, installation, commissioning, and ongoing measurement and verification costs and project costs; and (2) a financing agreement between the customer and the lender or investors funding the project.
- Many states have legislation in place to authorize ESPCs and confirm that financing would be treated as an operating expense rather than debt (www.ornl.gov/info/esco/legislation/newesco.shtml).

Advantages	Disadvantages
• ESPCs are well-established, have strong private-sector support, and have a proven track record of success. • The ESCO guarantee reduces customer risk. • Most projects do not require any public subsidy.	• ESPCs are suitable for larger buildings only, where the project size is sufficient to be of interest to an ESCO (typically \$1 million or more). • These are negotiated contracts that require an understanding of how energy efficiency projects work.

When to Use Performance Contracting

Performance contracting is for large, whole-building retrofits. Performance contracting works well for public and non-profit buildings and engages the private-sector industry. ESPC is best for programs where energy efficiency is the priority, rather than renewable energy. Building owners are most likely to use an ESPC when they do not have available cash to make improvements, lack the expertise or time to implement retrofit projects on their own, or need the performance guarantees to obtain approval to do the project. Rebates can also be used to encourage more extensive retrofit projects. Public-sector officials should check with their state energy office for details about implementing ESPCs in their state.

Example Program / Case Study

North Carolina Department of Administration (State of North Carolina)

The North Carolina Department of Administration (NCDOA) has an energy savings performance contract with an ESCO to address both short- and long-term needs through improving the energy infrastructure of a grouping of state government buildings. Among some of the improvements were a more efficient cooling

solution, lighting and water conservation measures, and new HVAC equipment. The NCDOA will save over a \$1 million per year in operating costs as a result of the retrofit.

www.naesco.org/resources/casestudies/documents/PES%20NC%20State.pdf

Bridgeport Housing Authority (Bridgeport, Connecticut)

The Bridgeport Housing Authority (BHA) contracted with an ESCO for \$20 million in energy and resource upgrades in six major complexes plus 500 scattered sites, covering approximately 2,500 units. The work will provide \$1.3 million annually in guaranteed energy savings and reduce electricity use by 35 percent, natural gas use by 24 percent, and water consumption by 45 percent.

www.naesco.org/resources/casestudies/documents/BHA_CaseBriefFINAL.pdf

Resources & Guidance

Financing Energy Efficiency Projects – discusses performance contracting

www.energystar.gov/ia/business/government/Financial_Energy_Efficiency_Projects.pdf (PDF, 5 pp. 106K)

Introduction to Performance Contracting – National Renewable Energy Lab (NREL)

www.nrel.gov/applying_technologies/state_local_activities/pdfs/tap_webinar_20091216_knutson.pdf (PDF, 54 pp. 2.2M)

Energy Service Coalition (ESC) – best practices and guidance documents

www.energyservicescoalition.org/espc/tools/index.html

Maximize Stimulus Funding with Performance Contracting and ENERGY STAR – webinar

<https://energystar.webex.com/tc0500l/trainingcenter/record/recordAction.do?siteurl=energystar&recordingID=31465132&actionType=Info&tcRecordingLink=Yes>

National Association of Energy Service Companies (NAESCO) – case study examples

www.naesco.org/resources/casestudies/default.aspx

Power Purchase Agreements and Solar Leasing

In a Power Purchase Agreement (PPA), a developer or independent financier pays for and installs renewable energy equipment on the property of an end-user. The property owner then buys the electricity produced by the renewable energy at some pre-determined rate (either fixed or variable) for a set amount of time (typically between 10 and 20 years). Tax credits stay with the developer, and are usually reflected in lower energy prices for the user.

A solar lease is similar to a PPA, but instead of purchasing power, the property owner rents the installed equipment. The combination of the lease payment and the reduced energy bill is typically less than the old bill.

Power Purchase Agreements & Solar Leasing Characteristics

Technology Focus	Renewable Energy
Type of Measures Financed	Solar, Geothermal, Wind, Biomass, Landfill Gas, etc.
Target Sector(s)	Commercial & Industrial, Residential, Public, and Non-Profit
Compatible Funding Sources	Private Investors or Lenders (for Developer Capital)
Security Required of Borrower	UCC Filing
Repayment Mechanism	PPAs –Through Negotiated Price per kWh; Solar Lease – Monthly Payments to Equipment Owner
Complexity to Implement	Simple (Solar Leases) to Complex (PPAs)
Role for State/Local Governments	If PPAs and solar leasing are not viable, a small public subsidy may be enough to make a difference
Impact per Dollar of Public Funds	Moderate to High

Considerations for State and Local Governments

- PPAs are attractive to any institution on a tight budget and that wishes to keep the assets off their balance sheet. No down payment is needed and the capital is provided by the developer/investor, who owns the project.
- The ability to capture the tax benefits makes PPAs attractive to public-sector clients who might otherwise have to give them up.
- Larger projects may generate more electricity than the property owner can use. In states where net metering is allowed, excess energy can perhaps be sold to the local utility.

- Residential solar leasing is growing quickly in areas of the country (like California) with high electricity costs and/or generous utility rebates.

Advantages	Disadvantages
• PPAs and solar leases eliminate the high up-front cost of renewable energy installations. • PPAs and solar leasing work well in areas with high electricity rates and/or generous utility rebates. • PPAs are good for public entities or large non-profits that cannot take advantage of the tax credits or depreciation associated with project.	• The PPA process can be complex. • PPAs work best for large projects. • State statutes and/or regulations may need to be changed to allow for solar leasing.

When to Use PPAs and Solar Leases

In markets where the economics of renewable energy do not yet support PPAs and solar leases, governments may be able to help make the economics attractive with rebates or other incentives.

Example Programs / Case Studies

Connecticut Solar Leasing (State of Connecticut)

This program is designed to make solar energy systems available to moderate-income homeowners. The program is offered by CT Solar Leasing LLC in partnership with: the Connecticut Clean Energy Fund, which provides rebates for the solar power installations; AFC First Financial Corporation, which acts as the program administrator; and Gemstone Lease Management. The 15-year leases offer a five-year extension option, and monthly payments are about \$120 for the average home.

www.ctsolarlease.com/index.php

City of Pendleton (Oregon)

The City of Pendleton partnered with Honeywell Building Solutions and Advanced Energy Solutions to install a 100-kilowatt photovoltaic (PV) system on the roof of its water treatment plant. Through use of a solar PPA, the City did not incur up-front costs. A combination of federal and state incentives, including the Oregon Business Energy Tax Credit and a per-wattage credit from Energy Trust of Oregon, was used to lower the overall cost. The lease has a 20-year term, at the end of which the City has the option to enter into another contract, buy the PV system, or opt out and have Honeywell remove the system.

www.epa.gov/greenpower/documents/pendleton_oregon.pdf (PDF, 1 pp. 298K)

Resources & Guidance

U.S. EPA Green Power Partnership® – discusses solar PPAs

www.epa.gov/greenpower/buygp/solarpower.htm

Solar Leasing for Residential Photovoltaic Systems (PDF, 6 pp. 495K) – National Renewable Energy Lab (NREL)

www.nrel.gov/docs/fy09osti/43572.pdf

Solar PPA legislation status map – Database of State Incentives for Renewables & Efficiency (DSIRE)

www.dsireusa.org/documents/summarymaps/3rd_Party_PPA_map.pptx

Financing Tools and Resources

CHAPTER CONTENTS

- (1) Analytical Tools
- (2) Funding Databases
- (3) Guidance
- (4) Advisory Services and Toolkits
- (5) Webinars
- (6) Marketing
- (7) Definitions

1. ANALYTICAL TOOLS

The Cash Flow Opportunity Calculator, developed for EPA's ENERGY STAR program, uses building-specific data to help decision-makers quantify the financial benefits of energy efficiency investments. The calculator estimates how much new energy efficiency equipment can be bought with anticipated savings, compares the benefits of financing equipment immediately or waiting to use cash from a future budget, and evaluates money lost by waiting for a lower interest rate.

www.energystar.gov/ia/business/cfo_calculator.xls (XLS, 415k)

Portfolio Manager, EPA's ENERGY STAR measurement and tracking tool, allows users to assess energy and water consumption across an entire portfolio of buildings in a secure online environment. Whether the user owns, manages, or holds properties for investment, Portfolio Manager helps set investment priorities, identify under-performing buildings, verify efficiency improvements, and receive EPA recognition for superior energy performance.

www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

2. FUNDING DATABASES

Combined Heat and Power (CHP) Funding Opportunities - Provides information on state and federal incentives applicable to CHP and biomass/biogas projects. EPA's Combined Heat and Power Partnership updates the database information twice a month. www.epa.gov/chp/funding/funding.html

EPA's financial incentives page includes grants, tax incentives, low-interest loans, favorable utility rates, tradable allowances, and renewable portfolio standards. www.epa.gov/chp/funding/financial.html#tabnav

The Database of State Incentives for Renewables and Efficiency (DSIRE) provides routinely updated information about renewable energy and energy efficiency policies and incentives offered by federal and state agencies, utilities, and local organizations in each state. www.dsireusa.org

The Landfill Methane Outreach Program Funding Guide features innovative funding programs and strategies that can help developers overcome financial barriers, including loans, grants, renewable portfolio standards, renewable energy trust funds, and property, sales, and use-tax exemptions. This Guide is intended to provide information about a broad range of the types of funding options available for landfill gas-to-energy projects. www.epa.gov/lmop/publications-tools/funding-guide/index.html

RE-Powering America's Land features information about federal and state incentives available for renewable energy generation and contaminated land redevelopment in each state. Each fact sheet includes information on available funding (grants, loans, bonds, etc.), tax incentives (abatements, deductions, credits, etc.), technical assistance, and other incentives offered at the state level. www.epa.gov/renewableenergyland/incentives.htm

3. GUIDANCE

EPA's Clean Energy-Environment Guide to Action identifies and describes 16 clean energy policies and strategies that are delivering economic and environmental results for states. Chapters 4 and 5 provide detailed information about public benefits funds, also known as system benefits charges, for energy efficiency and clean energy. www.epa.gov/statelocalclimate/resources/action-guide.html

The Clean Energy Funds Manual is intended to help policy and program decision-makers identify the clean energy funding and administrative approaches that make sense for their jurisdiction. For each approach, the Manual provides an overview of advantages and disadvantages, implementation options, and state examples. The Manual also references other policies for promoting clean energy and briefly describes interactions and considerations related to setting up a clean energy fund. www.epa.gov/statelocalclimate/documents/pdf/clean_energy_fund_manual.pdf (PDF, 55 pp, 1.4M)

The Local Government Climate and Energy Strategy Guides provide a comprehensive, straightforward overview of local government greenhouse gas emission reduction strategies. Staff can use these guides to plan, implement, and evaluate climate and energy projects. Each guide provides an overview of project benefits, policy mechanisms, investments, key stakeholders, and other implementation considerations. Examples and case studies are incorporated throughout the guides. The guides cover topics such as energy efficiency, transportation, urban planning and design, solid waste and materials management, and renewable energy. www.epa.gov/statelocalclimate/resources/strategy-guides.html

EPA's State Lead by Example Guide identifies best practices and state examples of clean energy activities; highlights the benefits and costs of taking action; and identifies issues, strategies, and resources for implementing key steps in the development of a comprehensive LBE program. States lead by example (LBE) by setting up programs that achieve large energy cost savings within their own buildings and operations, and thereby proving the feasibility and benefits of clean energy to the larger market. Section 5.2 of the guide discusses how to finance an LBE program, including identifying financing options and funding sources and addressing financial barriers. www.epa.gov/statelocalclimate/resources/example.html

4. ADVISORY SERVICES AND TOOLKITS

The Supplemental Environmental Projects Toolkit provides state and local governments with information and resources for pursuing energy-efficiency or renewable energy projects through non-federal enforcement settlements. The toolkit has information about Supplemental Environmental Projects at the local and state level, particularly highlighting opportunities with energy efficiency and renewable energy. www.epa.gov/statelocalclimate/documents/pdf/sep_toolkit.pdf (PDF, 66 pp, 1.9M)

EPA's Environmental Finance Center Network provides state and local officials and small businesses with advisory services; education, publications, and training; technical assistance; and analyses on financing alternatives. www.epa.gov/efinpage/efcn.htm

EPA's Environmentally Preferable Purchasing Program can help state government purchasers find and evaluate information about green products and services, calculate the costs and benefits of purchasing choices, and manage green purchasing processes. Environmentally preferable purchasing (EPP) helps governments "buy green" and use their buying power to stimulate market demand for green products and services. www.epa.gov/epp

5. WEBINARS

ENERGY STAR's Live and Pre-Recorded Training Webinars offer no-cost online training sessions to help improve the energy performance of organizations. Webinars include: Maximize Stimulus Funding with Performance Contracting and ENERGY STAR, ENERGY STAR and Revolving Loan Funds, and Innovative Financial Solutions for Efficiency in Drinking Water Systems and Wastewater Treatment Plants. www.energystar.gov/index.cfm?c=business.bus_internet_presentations

State Technical Forum is a monthly EPA webinar series that explores analytical questions and key issues surrounding state climate change and clean energy efforts. Each forum is a facilitated discussion among state energy, environmental, and public utility commission officials, featuring peer exchanges, expert presentations, and targeted background documents. Forum resources for setting up funding mechanisms include information on tax incentives and economic recovery funding. www.epa.gov/statelocalclimate/web-podcasts/forum.html

6. MARKETING

ENERGY STAR Qualified New Homes identifies new homes meeting energy efficiency guidelines beyond most current building codes. More than one million homes have earned an ENERGY STAR label, saving their owners 20 percent to 30 percent on energy bills compared to typical homes. www.energystar.gov/index.cfm?c=new_homes.hm_index

Home Performance with ENERGY STAR helps homeowners improve their energy efficiency through retrofits and equipment upgrades. www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_index
http://www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_index

Home Energy Score, a new federal program announced in November 2010, will help homeowners and buyers estimate the energy efficiency of a home (primarily existing homes) and figure out steps to increase its efficiency. The program is in the pilot stage. <http://www1.eere.energy.gov/buildings/homeenergyscore>

Recovery through Retrofit is a report from the White House Council on Environmental Quality describing the three major barriers to a national retrofit market and discusses solutions. www.whitehouse.gov/assets/documents/Recovery_Through_Retrofit_Final_Report.pdf (PDF, 14 pp, 485K)

Recharge Colorado is a state website that serves as a single comprehensive resource for residential consumers and businesses looking for information on clean energy. www.rechargecolorado.com

Driving Demand, a study from Lawrence Berkeley Laboratory, discusses the challenge of motivating homeowners to invest in energy improvements and presents concepts and potential strategies for success. <http://drivingdemand.lbl.gov>

7. DEFINITIONS

ARRA – American Recovery and Reinvestment Act of 2009

Bond – A debt instrument in which an investor loans money at a fixed rate for a fixed period of time to a corporation or government. Bonds allow corporations and municipalities to raise capital for a variety of projects and initiatives.

Capital – Assets in the form of liquid cash or property used to generate more income.

Collateral – In the context of finance, collateral is an asset pledged by a borrower to secure a loan or other credit.

Credit Enhancement – An arrangement designed to increase the chances that a lender will be repaid. Loan loss reserves, mortgage insurance, and collateral are common examples of credit enhancements.

Debt-to-Income (DTI) – A ratio that compares a borrower's debts to the borrower's gross income. This is a key underwriting criterion in most lending practices. Higher debt-to-income ratios result in riskier loans.

EE – Energy Efficiency

Energy Efficiency Conservation Block Grant (EECBG) – A federal grant program designed to help state, local, and tribal governments in developing energy efficiency and conservation projects. A large number of ARRA grants, ranging from \$100,000 to \$10 million and more, were divided using a formula based on population (formulaic grants). Thirty large Retrofit Ramp-Up grants (later re-named Better Building grants) were awarded in a competitive process.

Energy Audit – A property inspection that reviews a building's systems and current energy usage and makes recommendations to improve energy efficiency.

FI - Financial institution

Interest Rate Buy-Down – An up-front lump-sum payment made to a lender to reduce a loan’s interest rate, either temporarily or for the entire term of the loan. The lump sum is the present value of the difference in the interest payment the lender would have received at the market rate and the interest payment the lender will receive at the new, lower interest rate. This lump-sum interest payment can be made by an interested third party.

Lease – A rental agreement in which a lessee (borrower) makes payments to a lessor (owner) in return for the use of equipment.

Leverage – The ability to increase capital. Borrowing money is a common way to obtain leverage, as is providing a credit enhancement to encourage a lender to make loans.

Lien – A legal right to retain possession of a property until the property owner fulfills a legal duty (usually repayment of some sort).

Loan Guarantee – A guarantee that covers all the portfolio losses of a lender or capital provider.

Loan Loss Reserve (LLR) or Loss Reserve Fund (LRF) – A type of credit enhancement that provides some risk protection for a lender. The reserve fund usually covers a set percentage of losses pre-determined in a LLR agreement, unlike a loan guarantee, which covers all losses.

Loan-to-Value (LTV) – A ratio that factors the total loan amount divided by the value of the property to which the loan is attached. CLTV (Combined Loan-to-Value) takes into account all loans secured by a property. This is often a key underwriting criterion in lending practices.

Mortgage – An instrument used to create a lien on real estate property that a borrower puts up as security until a debt is fulfilled.

Power Purchasing Agreement (PPA) – A contract between a party that produces electricity for sale and a party that purchases the electricity, as well as any other ancillary services.

Property Assessed Clean Energy (PACE) – A government-sponsored program that funds energy efficiency and renewable energy projects for property owners who voluntarily agree to a long-term (10 to 20 years) special assessment on their property taxes.

Qualified Energy Conservation Bond (QECB) – A qualified tax-rebate bond that can be issued by local and state municipalities and tribal governments to finance certain kinds of energy projects.

RE – Renewable Energy

Revolving Loan Fund (RLF) – A loan program often set up by a government entity that is typically designed to finance small projects. Funds are lent out, and as repayments are made, the funds are reallocated and lent out again.

Secondary Market – The mechanism through which investors can buy loans pooled for sale by the original lenders. Most conventional mortgages are sold in a secondary market.

Security – In the context of finance, securities are assets pledged to secure the fulfillment of a debt or obligation. Property is often used as security.

State Energy Program (SEP) – A federal program that provides financial and technical assistance to states through formula and competitive grants to create strategies that address energy priorities.