

State Energy Efficiency Policies Options and Lessons Learned

A Series of Briefs

Brief #1 **Funding Mechanisms for Energy Efficiency**

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**ALLIANCE TO
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Creating an Energy-Efficient World

Funding Mechanisms for Energy Efficiency

Issue

State governments are demonstrating an increasing level of interest in improving the efficiency of their facilities and in stimulating energy efficiency investments within the private sector. This interest derives in part from concerns about the affordability of energy, and in part from a realization that energy efficiency can be a cost-effective means to address pollution, energy security and climate change.

Often states respond to these concerns by setting goals to reduce energy consumption or energy sales. To achieve these goals, some states have implemented programs that offer energy efficiency loans and rebates, while others have developed general education and outreach campaigns on topics such as building codes and appliance standards.

Many states, however, are finding a lack of funding mechanisms to support these programs. This issue brief describes four major ways through which states can fund energy efficiency efforts:

- **ratepayer-supported energy efficiency funds**
- **funds from state treasuries**
- **state bonding authority;** and
- **funds from environmental fines.**

Background

The first states to fund energy efficiency programs did so by using federal funds

known as Petroleum Violation Escrow (PVE) funds. PVE funds are composed of fines paid in the 1980s by major oil companies, which had violated federal oil price caps that were in place between 1973 and 1981.

The total amount of PVE funds distributed to states was nearly \$4 billion. Approximately one-half of these funds were channeled through grants from the U.S. Department of Energy (DOE) and the U.S. Department of Health and Human Services (for low-income energy assistance). States were able to exercise a great deal of latitude in their use of these funds, as long as they supported energy efficiency and renewable energy projects. Today, however, PVE funds are essentially exhausted, so states have had to look beyond this funding source (i).

States also have the option of using their own general fund appropriations to support energy efficiency. Yet aside from state programs that direct appropriated funds toward the purchase of energy-efficient products or the construction of efficient facilities, states have made limited use of this option. In general, state governments tend to look to non-general-fund sources of money to support energy efficiency rebate, loan or other programs.

While the following sections describe the four major funding sources and outline the major advantages and disadvantages

of each, they do not attempt to evaluate the effectiveness of the loan, grant, rebate or outreach programs financed by these funding mechanisms. Such analyses are provided in separate briefs in this series.

Ratepayer-Supported Energy Efficiency Funds

Ratepayer-supported energy efficiency funding represents the largest single source of money that states use, or direct to be used, for energy efficiency programs, totaling approximately \$3.1 billion nationally in 2007, according to the Consortium for Energy Efficiency. The funding mechanisms typically come in one of two forms: (1) ratepayer funds that utilities collect through a tariff approved by a state regulatory commission, with programs operated by utilities; or (2) ratepayer funds that utilities collect in the form of a public benefit charge, which is typically authorized through state legislation (ii). The programs that the public benefit charge funds support may be implemented by utilities, state governments or third-party administrators. In some states, utilities collect the public benefit charge while the legislature appropriates funding.

Occurrences of utility programs being supported by a tariff date back to the 1980s. Public benefit charges, however, are more recent, having appeared in the mid-1990s when the debate about restructuring the electric industry was at

its height. At that time, many utilities were making major cuts to their ratepayer-funded energy efficiency programs, and state legislatures sought to replace these tariff rate funding mechanisms with public benefit funds. Although electric industry restructuring is by no means a prerequisite for having a public benefit charge, many states instituted public benefit funds as part of legislative negotiations to restructure their electric power industries.

Not all states have chosen to adopt public benefit funds, and after an initial surge of interest in the mid-1990s the number of new states adopting them decreased considerably. One political obstacle is that they often seem like a new tax, so state legislatures that have not yet adopted them often hesitate to do so.

The other disadvantage to public benefit funds is that, because they must often pass through the legislative budget and appropriations process, they can be an easy target for state legislatures looking to close budget gaps with whatever money they can find – even if that funding is nominally earmarked for other purposes. Wisconsin, which relied on its utilities to collect energy efficiency public benefit funds and remit them to the state, used its funds for purposes unrelated to energy efficiency for several years, beginning in 2001-2002 (iii).

Other states have tried to minimize the diversion of public benefit funds to other

purposes by requiring utilities to collect the funds and then either run efficiency programs on their own or, as in the case of Vermont and Oregon, to remit them to third-party program administrators, who then take responsibility for the programs. This way, the funds never appear on the state agency budgets and do not pass through the legislative appropriation process (iv).

Both types of ratepayer-supported energy efficiency funding mechanisms put a fee on electric and gas ratepayers, so that the funding source for electric and gas efficiency programs is directly tied to the level of end-use energy consumption. This is considered to be an effective approach because the supply of available funding rises and falls with the demand for such funding: more money is collected for energy efficiency programs when end-use energy consumption is higher.

These ratepayer funds also have the advantage of tremendous flexibility. Unlike several other mechanisms such as treasury funds or bond funding, ratepayer benefit funds do not have to be repaid to the funding source. Utilities, state agencies or third-party program administrators use these funds to support energy efficiency programs – including those providing rebates, loans, education and outreach – as well as evaluation and measurement of these programs.

Ratepayer-supported funds can be a large source of revenue; Vermont's fund

exceeds \$24 million annually for a population of about 600,000, and California's program is \$500 million annually for a population of approximately 36 million people. Figures 1 and 2 show per capita funding for each state's ratepayer-supported funding mechanisms for electricity and natural gas efficiency.

State Treasury Funds

State treasuries offer another source of funding for state energy efficiency programs, if those programs can offer at least a nominal return on investment for the state treasury. Although appropriate for capitalizing a loan fund, treasury funds generally cannot be used to support a rebate or an outreach program, or any other program that does not generate a financial return for the treasury.

Generally speaking, total funding from a state treasury is likely to be smaller than that which is available through bonding or ratepayer-funded mechanisms. Nonetheless, it is an alternative funding mechanism in any state, including those in which bonding or significant ratepayer funds are unavailable, as well as a supplemental source of funding in states that do have such funding sources.

In order to receive funding from the treasury, energy efficiency investments must compete against other investment opportunities, in terms of both the investment return and the public purpose

Figure 1: Estimated 2007 Per Capita Budgets for U.S. Electric Energy Efficiency Programs

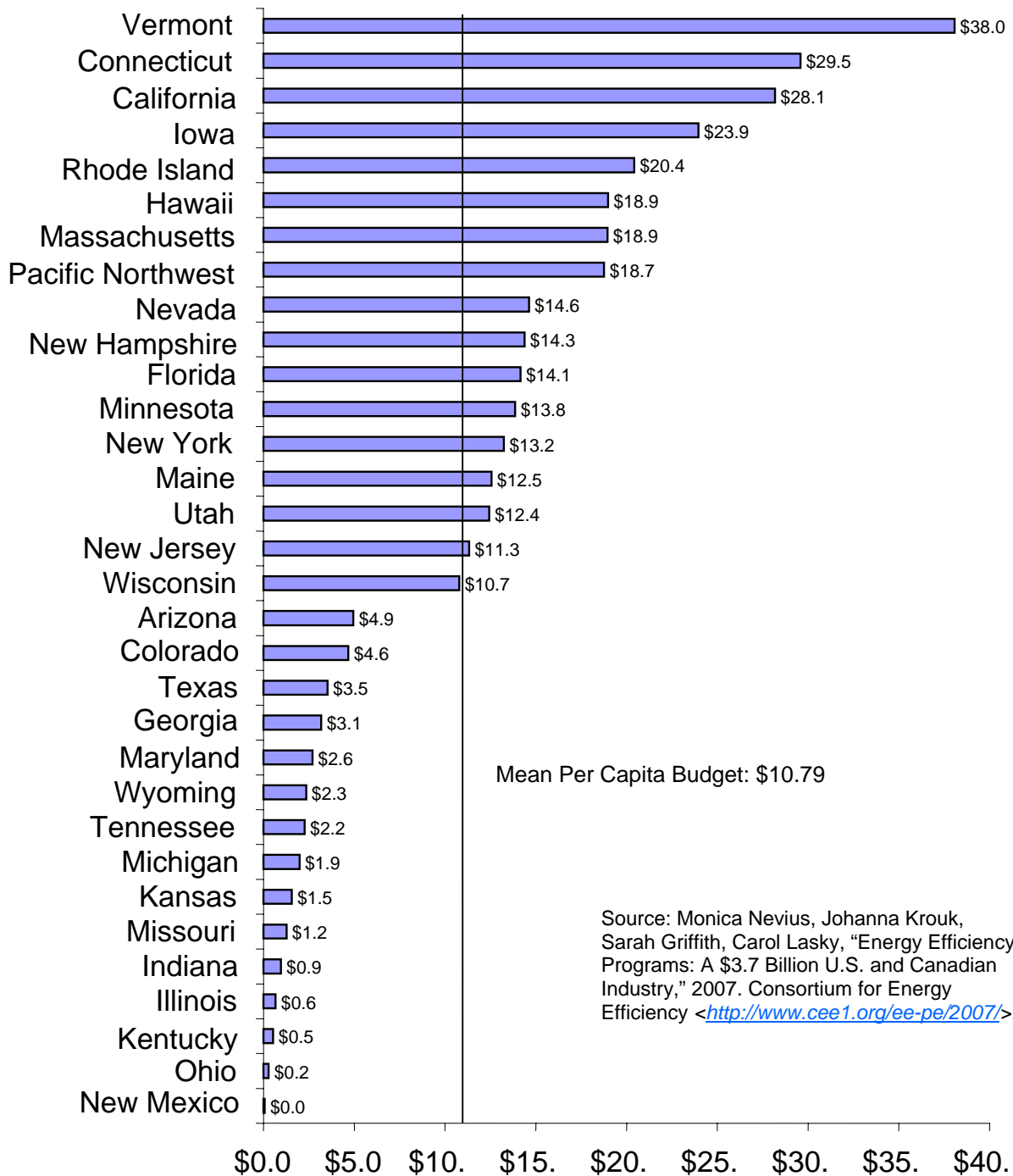
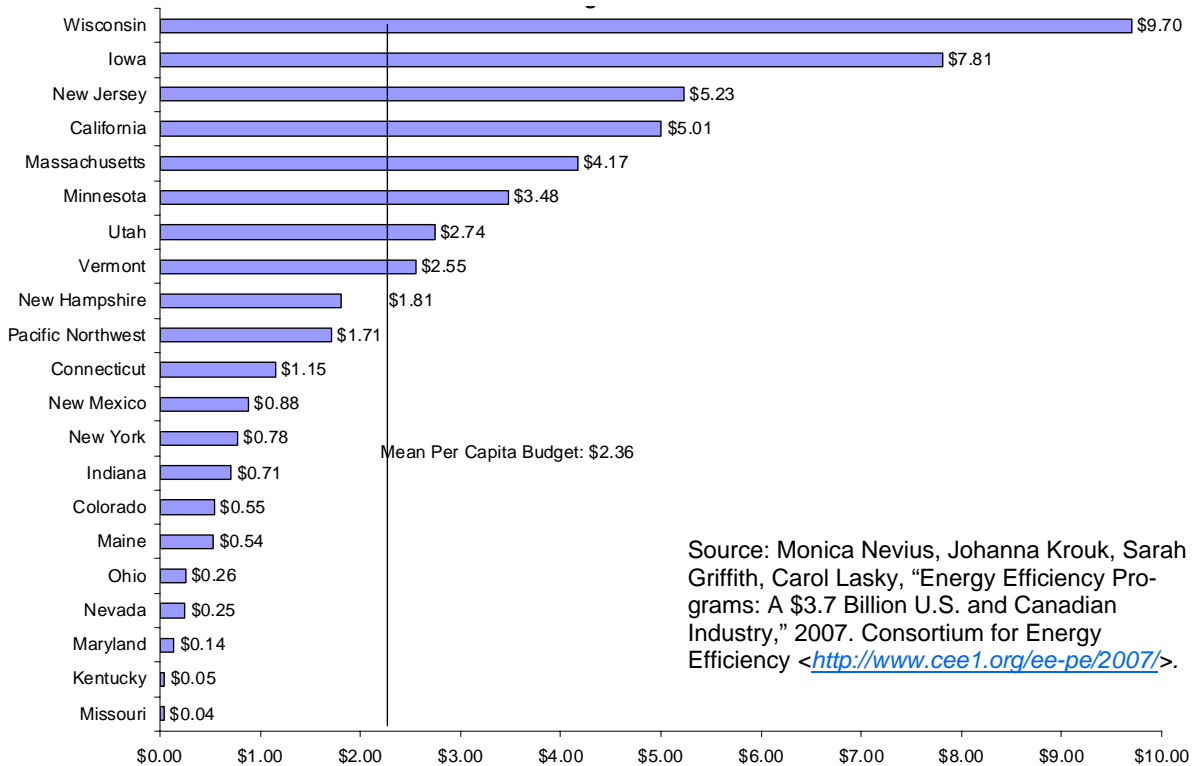


Figure 2: Estimated 2007 Per Capita Budgets for U.S. Natural Gas Energy Efficiency Programs



the investment serves. The amount of treasury funds available to support efficiency varies greatly from state to state, and depends on factors such as the size of the entire state budget; the allocation of its investment portfolio among long-, medium- and short-term investments; the need for liquidity in these investments; and the state government administration's prioritization of investments in energy efficiency. Generally speaking, investments in an energy efficiency loan fund are seen as

long-term investments that are less liquid than many other investments, such as publicly traded securities.

State treasurers tend to be conservative in the way they manage public funds. In some cases, however, they are open to making investments that serve a broader public purpose, even if the return earned on their capital is somewhat lower than the alternatives. State treasurers typically maintain several different pools of funds, each with different characteristics, which

they draw on for different purposes. Some of these funds must remain very liquid and easy to access, so state treasurers typically invest them in easily accessible, short-term funds. A proportion of state funds need not be as liquid and accessible, which means state treasurers can invest those funds for multi-year periods. In some cases, and depending on the statutory authorizations for the state treasury, these longer term investments may be appropriate for energy efficiency programs requiring commitments of funds for one, three or five years (v).

One option for states seeking funding for energy efficiency programs is to create a loan fund capitalized with state treasury money, with loans that originate from and are serviced through a lending institution (vi). In such a program, a state treasurer must invest state money in a manner consistent with the statutes that govern its operation.

These statutes vary from one state to another. For example, the Pennsylvania Treasury's governing statute states only that it must make "prudent" investments of state funds (vii). Colorado statutes, on the other hand, are much more prescriptive, not only requiring that the Treasury make prudent investments, but also providing an official list of the kinds of investments it can make. Colorado's Treasurer can only invest in rated, investment-grade securities. For this reason, making direct investments in energy efficiency loans in a state like Colorado can be more challenging than

making them in a state like Pennsylvania, where there are no such explicit lists (viii). In Pennsylvania, treasury investments in energy efficiency have reached \$20 million over a three-year period (ix).

Several factors contribute to the willingness of the Pennsylvania Treasurer to make such an investment in energy efficiency. The first is the political will of the Treasurer and the Governor to make 'green' investments, and particularly to invest money directly in energy efficiency.

Second, the Pennsylvania Treasury's money is secured in two ways that enable the Treasury to invest in the loan program, and at low interest rates: (1) the bank through which the Treasury loans money to consumers offers a 100-percent financial guarantee on the loans; and (2) the bank has access to a loan loss reserve equal to 5 percent of the total value of the outstanding loans. This loss reserve backs the potential losses of the financial institution in the case that it fails to collect principle and interest (x).

Finally, the loan default history for similar loans in Pennsylvania is very good. The Pennsylvania program has seen defaults on only 10 loans out of 2,200 (xi). The low level of risk allows the Treasury to offer low interest rates for these loans, creating Pennsylvania's favorable climate for both borrowing and lending for energy efficiency.

State treasurers have another option available to them, which is to make a

linked deposit. In a linked deposit program, the state treasurer deposits funds in a financial institution – such as a credit union or a local bank – at a low interest rate. The credit union or bank can then use this capital to loan money to fund energy efficiency purchases or offer a rebate. This enables an experienced entity to manage the lending process, thereby relieving the state of this responsibility.

Illinois uses a linked deposit program to fund an incentive for the purchase of hybrid vehicles. Consumers who borrow money from a qualified and participating state financial institution to buy a hybrid vehicle receive a \$1,000 rebate on the purchase. The financial institution is able to give that rebate because it receives a 12-month, \$25,000 Certificate of Deposit (CD) from the State. The state asks for a return on this CD that is four percent less than the market interest rate; this way the bank earns money on the four percent spread between what it needs to pay the treasury, and what it earns on the market. This four percent spread pays the bank for the rebate it gives to the loan customers while still giving the bank a return on its funds (xii).

State Bonding to Support Energy Efficiency

There are several ways in which states can use their bonding authority to finance energy efficiency. Bonding offers a potentially large source of funding for

energy efficiency loan programs, but the size depends on the types of bonds issued and the ability of the state government to take on new debt. Bonds, like treasury funds, are an obligation that must be repaid to the bondholders, and are therefore appropriate for capitalizing a loan program, although not appropriate for a rebate program. A limited portion of the proceeds from a bond could be used to support administration of a loan fund.

Bonds come in several forms, and the type of bond typically determines the way in which the state can spend the money.

General Obligation Bonds

General obligation bonds rely on the state's credit, and are repaid with funds derived from state tax revenues. The proceeds of general obligation bond issues are usually restricted to public use (for example, to support certain government operations), although in some cases these proceeds can be used for a private purpose that has a broader public benefit. State statutes and constitutional provisions on this topic vary from one state to another.

One state that has used general obligation bond issues to support energy efficiency is Montana. Since 1989, Montana has made seven, 15-year general obligation bond issuances, part of the proceeds of which fund state energy efficiency programs. The largest amount of funding for an energy efficiency program from these bond issues was \$4.25 million, and the

smallest was \$1 million (xiii). General obligation bonds such as these are not subject to federal income taxes and, if the state's credit is good, they typically get a lower interest rate than a revenue bond would. The disadvantage of this kind of a bond issue is that it typically requires legislative or other authorization.

Revenue Bonds (Non-Private Activity Bonds)

Unlike general obligation bonds, revenue bonds are not funded by state tax revenues. The underlying revenue stream for these bonds comes from specific revenue-generating sources. In the case of energy efficiency, such a revenue source would typically be an energy efficiency loan.

Revenue bonds are not subject to federal taxes if their proceeds are used to support government activities, such as a loan program that funds government agency energy efficiency investments. Bond issuances that support private activities, however, are generally taxable, and this increases their interest rates. It is difficult to determine just how much higher the interest rate would be for taxable bonds, but the tax effect alone would lead to a rate approximately one-third higher than the rate for a non-taxable bond (xiv). The "credit quality" of the energy efficiency loan – i.e., the likelihood that principal and interest will be repaid in full – as well as any credit supports such as guarantees of loan loss reserves, will also

affect the interest rate of these bonds.

One state that has issued non-private activity revenue bonds for energy efficiency is California. Here, two bond issues totaling \$66.7 million securitized the proceeds of an existing portfolio of loans supporting energy efficiency measures in state buildings. These bonds received an investment grade AA3 rating from Moody's due to the high quality of the underlying payment history on the energy efficiency loans (xv).

Revenue Bonds (Private Activity Bonds)

The U.S. Internal Revenue Service allows states to issue bonds that are not subject to federal income taxes if these bonds support certain types of private activity. Generally, private activity bondholders can avoid paying federal taxes if at least 90 percent of the bond proceeds are used to support specific, qualified measures that have public benefit, such as loans to help low-income families buy a home (xvi).

Unlike non-private activity bonds, private activity bonds have a volume cap, setting a maximum level for issuances in any given year in each state. The federal government imposes this volume cap to limit the tax revenues that it foregoes as a result of such private activity bond issuances.

In Colorado, for instance, the volume cap for the private activity bonds is slightly more than \$400 million, with one-half going to state entities (half of which is used by the Colorado housing finance agency) and the

other half going to local governments (xvii). States use their private activity bond volume cap allocations for many activities that have little to do with energy efficiency (such as financing assistance programs for first-time homebuyers) which means that energy efficiency programs often face competition getting a share of the allocation.

As with all revenue bonds, the interest and principal payments on private activity bonds come from a specific revenue stream – in the case of private activity bonds that support energy efficiency, from interest and principal payments on loans for energy efficiency investments. As a result, the interest rate depends less on the issuing entity as it does on the underlying security of the payment stream that will pay the principal and interest.

Some states have used a mix of taxable and non-taxable bonds to support energy efficiency measures for income-qualified homeowners. For instance, the Minnesota “Fix-up Fund” uses a mix of lower-rate, non-taxable bonds and higher-rate, taxable bonds that allows the housing authority to (a) offer loans at a blended interest rate that is lower than a purely taxable bond rate; and (b) fund the program at a higher level than would be possible if it were to use only non-taxable bonds (xviii).

Credit Enhancements

Several types of credit enhancements and supports can affect interest rates for these and other revenue bonds:

1. **Loss reserves** A state can put up a loss reserve to insure a portion of the projected losses. The limited history of state energy efficiency loan programs illustrates a tendency toward low default rates, although losses for an individual loan program depend heavily on its operation and structure, and require individualized analysis. A loss reserve could reduce interest rates because it reduces risk for the bondholders (xix).
2. **Guarantees** In some cases, a government, financial institution, utility or other organization may be willing to put its credit behind the loans – especially if that institution has access to a loss reserve that can further reduce its own exposure to losses.
3. **Payment streams secured through other means** Two additional models for financing energy efficiency can also secure payment streams:
 - a. *Tariff-based financing mechanisms or other mechanisms that provide a secure revenue stream through a utility bill:* Described in another brief in this series, this model ties loan payments to the utility bill through a tariff. Interest and principal payments for qualified measures must be less than the energy savings that result from the energy efficiency measures. Non-payment can result in disconnection, just as happens when any customer fails to pay a bill. This ease of payment

through the utility bill and the tariff establish a secure payment stream that can improve the credit quality of a portfolio of loans supporting revenue bonds.

- b. *Tying payments for loans to property tax bills:* A similar model currently being piloted in Berkeley, Calif., ties payments for loans to property tax bills. The Berkeley program allows homeowners to finance solar energy installations with loans that they repay through the property tax bill. This model effectively creates a secure payment stream that can improve the credit quality of loans underlying the revenue bonds (xx). This payment mechanism could be applied to energy efficiency measures as well as solar energy installations. Legislation passed in Colorado in 2008 replicated portions of the Berkeley program, but added energy efficiency as an eligible measure that could be financed through the program (xxi).

Supplemental Environmental Project Funding

Supplemental Environmental Projects (SEP) and funds result from settlement of violations by companies that fail to meet EPA regulations. States set out rules and regulations that are consistent with EPA SEP rules to oversee these projects and funds. Often, when a state assesses a fine

on a company that violates environmental regulations, the company is given two choices: it can pay the fine in its entirety; or it can pay a smaller monetary fine while also paying for another project deemed eligible for such funding by state laws and regulations. There must be a clear connection between such a project and the violation. For example, an energy efficiency SEP could be used to partially settle an air violation because energy efficiency reduces air emissions. However, it could not be used to settle a groundwater violation since no clear connection exists between groundwater quality and energy efficiency measures.

Several states fund energy efficiency measures with SEP funding. In Montana, SEP funds are deposited into a revolving loan fund that focuses on alternative energy projects. In some instances, this fund is used to pay for energy efficiency projects such as loan programs for energy efficiency measures in state buildings (xxii).

In Colorado, too, SEP funds can be used to finance energy efficiency projects, some of which are used to help settle violations. For example, an airport in Colorado agreed to spend close to \$60,000 to replace its incandescent light bulbs with efficient compact fluorescent bulbs in partial settlement of a violation (xxiii). In Colorado, many SEPs are administered through the non-profit StEPP (Strategic Environmental Project Pipeline)

Foundation which selects and oversees programs according to Colorado Department of Health guidelines (xxiv).

SEP funding is generally not a large source of funding; they may range from the tens of thousands of dollars to one million dollars. They also are unpredictable, as corporate inputs vary from one year to the next. They do however offer a flexible source of money that states can tap into for energy efficiency loans or rebates (xxv, xxvi).

Summary

Table 1 offers a tool for state officials to compare and contrast the four funding sources described in this brief. While each state's situation and needs are distinct, state officials can use this table to help determine which policies may be most appropriate.

Table 1: Summary of Funding Mechanisms for Energy Efficiency Programs*

Mechanism	Advantages	Limitations	Best Uses
Ratepayer-Funded Programs	<ul style="list-style-type: none"> Potentially flexible funding mechanism, depending on legislative authorizations; can be used to fund loans, grants, rebates, education, etc. Can often be quite large, and offer substantial funding support for energy efficiency measures. 	<ul style="list-style-type: none"> Not politically feasible in many states; often viewed as a new tax. Difficult to ensure proper use of PBFs. Several states have used PBFs to close state budget gaps. 	<ul style="list-style-type: none"> Can be used to support energy efficiency in many different ways. One innovative way may be to use PBFs as credit enhancements for loan programs, in which case they would serve as a loss reserve or an interest rate buy-down for income-qualified energy efficiency loans.
Treasury Funding	<ul style="list-style-type: none"> Potential to offer below-market interest rates if such rates and loans fit into treasury investment guidelines. 	<ul style="list-style-type: none"> Maximum dollar amount of loan often is more limited than that which comes from ratepayer-funded mechanisms, due to typical investment guidelines and liquidity needs. Typically limited to lending, rather than grants and rebates, due to strict state rules and guidelines. It is possible to structure rebates through the use of linked deposits. 	<ul style="list-style-type: none"> Treasury funds are best used to capitalize a loan fund; they generally cannot be used to support programs that do not generate a financial return for the treasury, such as rebate and outreach programs.
Bonding	<ul style="list-style-type: none"> The maximum dollar amount can be far larger than that typically available in treasury-funded programs. May offer a viable way to finance efficiency measures at low-interest rates, if the bonds receive a good investment rating. Government or qualifying private activity bonds may be non-taxable, providing a low-cost source of capital. 	<ul style="list-style-type: none"> Many states may require legislative or voter approval to issue bonds. Flexibility as to how funds are used is limited by the type of bonding and the need for high-quality credit ratings. Use is typically limited to loans, since bonds must be repaid. 	<ul style="list-style-type: none"> Bonds can support loan funds and are not appropriate to fund grants, rebates, etc.
Supplemental Environmental Project Funds	<ul style="list-style-type: none"> May be structured in a flexible way since (like ratepayer-funded measures) they do not need to be paid back. May serve as a way to not only fund energy efficiency but also to educate the private sector about energy efficiency through projects they take on to comply with EPA regulations. 	<ul style="list-style-type: none"> Funds are not predictable because they depend on fines that state environmental agencies issue, as well as on the interest that industry may or may not have in paying for a particular project. Companies sometimes view SEPs as a cumbersome alternative to simply paying a fine and moving on with business operations. Not likely to provide large amounts of funding. 	<ul style="list-style-type: none"> Could be used in numerous ways because they do not need to be paid back to the source.

*This table does not cover mechanisms such as PEV funds, since they are largely exhausted at this point. Nor does it cover state direct appropriations for energy efficiency programs.

Endnotes

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Additional Resources

The following resources offer additional information on the funding mechanisms described in this document.

The Alliance to Save Energy Web site features a state policy bulletin, published regularly, that tracks the status of state legislation pertaining to energy efficiency. This is available at [http://www.ase.org/section/ audience/policy/statebulletin](http://www.ase.org/section/audience/policy/statebulletin)

The North Carolina Solar Center and the Interstate Renewable Energy Council run the DSIRE database, which compiles state energy efficiency and renewable energy incentives and regulatory policies. This is available at www.dsireusa.org.

The American Council for an Energy Efficiency Economy (ACEEE) provides an online database of energy efficiency policies in states, searchable by state or by policy. This is available at <http://aceee.org/energy/state/index.htm>. ACEEE also has published a study of state public benefit funds entitled Five Years In: An Examination of the First Half-Decade of Public Benefits Energy Efficiency Policies. This is available at <http://www.aceee.org/pubs/u041.htm>.

The U.S. Environmental Protection Agency (U.S. EPA) has published a report that reviews funding mechanisms for environmental policies and programs, entitled Advancing State Clean Energy Funds: Options for Administration and Funding. The U.S. EPA also provides a variety of on-line resources for state officials, ranging from policy summaries to analyses of state policies. These are available at <http://www.epa.gov/cleanenergy/energy-programs/state-and-local/state.html>. Further information on Supplemental Environmental Projects is available from the U.S. EPA at <http://cfpub.epa.gov/compliance/resources/policies/civil/seps/>.

Links to the text of sample legislation related to energy efficiency funding mechanisms can be found at <http://ase.org/statepolicies>. For links to state legislature bill search pages, visit the National Conference of State Legislatures NCSLnet page at http://www.ncsl.org/public/leglinks_search.cfm.

About the Alliance to Save Energy

The Alliance to Save Energy is a coalition of prominent business, government, environmental and consumer leaders who promote the efficient and clean use of energy worldwide to benefit consumers, the environment, the economy and national security. The Alliance advances energy efficiency policies, conducts research on various energy-related topics, and increases awareness and knowledge about the many ways that energy consumption can be reduced in the United States and throughout the world. For more information about the Alliance and its activities, please visit www.ase.org.

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