

A large, light gray, stylized leaf graphic serves as a background for the title. It has a central vertical stem and two main lobes on either side, each with several smaller, rounded leaflets branching out.

State-level Legislation to Support Energy Efficiency: Dedicated Funding for Existing K-12 Schools

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Introduction

Much of the energy consumed in the United States is wasted due to the use of inefficient technology, which has a detrimental impact not only on the finances of American families but also on carbon emission levels and the natural environment.¹ In the U.S., 40% of primary energy is consumed by buildings. Energy for buildings includes 72% of U.S. electricity consumption and 36% of natural gas consumption. In addition, over the past 21 years electricity sales have grown 87% in large part due to high demand in the building sector.²

In schools, energy costs reach approximately \$8 billion annually. The U.S. Environmental Protection Agency (EPA) estimates that one fourth of these energy costs could be reduced if energy efficiency strategies were effectively implemented in K-12 school buildings.³ In order to reduce significant energy costs and obtain environmental, economic, and educational benefits, many schools nationwide have started to implement energy efficiency technologies in their buildings; but more can be done to accelerate energy efficiency in schools to save money and improve school facilities' performance for student and teacher occupants.

States can play an important role to support schools in increasing energy efficiency. State-level policies, in particular, have advantages in addressing school infrastructure. Policies can be tailored to a state's political landscape and economy and can have broad impact. States may also be in a position to work with utilities in creating energy efficiency incentives and to adopt more stringent building design standards.⁴

While there are published reports about the results of energy efficiency policies for residential and commercial buildings, such data are not readily found for school facilities. Considering the role of school facilities in supporting student learning and staff productivity, school budget challenges, as well

as schools' collective impact on communities and the environment, energy efficiency policies that target schools can have benefits that ripple throughout a community

This paper examines the effectiveness of state-level legislation that has targeted energy efficiency in existing school facilities by providing direct funding to school districts to implement energy efficiency measures. While the energy performance of new schools is often addressed within the context of building energy codes, enhancing energy performance of existing schools can be more challenging. Instead of focusing on standards for new schools, therefore, this research focuses on the enormous opportunity that exists to address energy use in existing school buildings in the U.S., which are on average over 50 years old.⁵

In the research conducted for this paper, the authors identified 90 pieces of energy efficiency legislation for school facilities passed in the U.S. These policies came from 29 states and Washington, D.C., and they range from longstanding policies enacted more than 10 years ago to those passed much more recently. To narrow the scope of the research, this paper considers only the pieces of state legislation that offer direct funding for energy efficiency projects in existing schools. The research examines how these policies are working in order to inform the evolution of existing programs, as well as to highlight key considerations for new legislation.

Purpose and Methodology

The research is divided into five parts:

- (1) Identification of energy efficiency legislation that applies to existing schools: Research into current policies was conducted through the U.S. Green Building Council (USGBC) Public Policy Library and the ACEEE DSIRE

¹ U.S. Department of Energy. (2017). Available [online](#).

² Doris, E., Cochran, J., & Vorum, M. (2009). Energy Efficiency Policies in the United States: Overview of Trends at Different Levels of Government. National Renewable Energy Laboratory. Colorado: National Renewable Energy Laboratory.

³ Environmental Protection Agency. (2011). *Energy Efficiency Program in K-12 Schools A Guide to Developing and Implementing Greenhouse Gas Reduction Programs*. Available [online](#).

⁴ Doris, E., Cochran, J., & Vorum, M. (2009).

⁵ Schneider, M. (2002). *Do School Facilities Affect Academic Outcomes?* National Clearinghouse for Educational Facilities. Available [online](#).

database.⁶ Ninety pieces of legislation were identified relating to energy efficiency for schools. Out of these 90, 57 were passed at the state level. And of these 57, 26 are related to existing schools.

- (2) Categorization of energy efficiency policies for existing schools: The 26 pieces of state legislation focused on existing schools were divided into 7 categories: funding, requirement, target, technical assistance and education, task force, competition, and recognition. Finally, the funding category was divided into 3 sub-categories: direct funding, financing options, and enabling legislation. The 7 pieces of state legislation related to direct funding were chosen for deeper analysis.
- (3) Policy research: Researchers reviewed relevant legislation, summary reports, and news articles online. The locatable reports were gathered from state agency programs that manage the direct funding to existing schools for energy efficiency improvements under the relevant state policy. Data collected included: (a) Size of program: number of school districts funded, number of projects implemented, and if possible the number of schools/districts that applied and the funds received, (b) funding source: from where are the funds allocated and who disburses the funds, (c) duration: how many years the policy has been in force, and (d) ease of use: how easily the programs can be navigated, from application to implementation.
- (4) Stakeholder interviews: Researchers conducted 6 interviews with program stakeholders in 5 states, including government officials and nonprofit organization staff. In addition to interviews, one personal communication with program staff in Colorado was conducted via email.

- (5) Identification of key considerations: Authors compared and contrasted elements of each state's policy to draw out lessons learned that can inform future policymaking in support of energy efficiency in existing school buildings.

Energy Efficiency Policies

The way schools in the U.S. are built and renovated continues to evolve in order to provide students and staff with a learning environment that meets current expectations, including those for healthier, energy efficient, more cost-effective, and more environmentally responsible spaces.⁷ There are more than 99,000 public schools in the U.S., and the student population is increasing. Student population growth presents a challenge for existing buildings that have to manage changing community expectations, growing student population, and potentially increasing energy bills.

Public policies related to energy efficiency for new schools are more common than those for existing schools—64 policies were found for new school construction or major renovations versus 26 for improvements to existing schools. Additionally, researchers could not identify any recent analysis that has focused on the effectiveness of state-level energy efficiency policies for existing schools.

The primary purpose of this report is to provide information to state legislators interested in making or amending laws to leverage direct funding as a strategy to help existing schools achieve energy efficiency improvements.

The first step was to define an appropriate way to categorize school energy efficiency legislation. Researchers explored two different classification systems for building energy efficiency legislation: (1) the National Renewable Energy Laboratory identified five categories in its publication *Energy Efficiency Policy in the United States: Overview of Trends at Different Levels of Government* and (2) USGBC utilized six categories within its online

⁶ Identifying pieces of legislation were found through the following two cites. USGBC Public Policy Library, available at <http://public-policies.usgbc.org> and the ACEEE DSIRE database, available at <http://database.aceee.org/state/financial-incentives>.

⁷ Filardo, M., Gutter, R., Rowland, M. (2016). State of Our Schools: America's K-12 Facilities. 21st Century Schools Fund, U.S Green Building Council, and the National Council on School Facilities. Available [online](#).

Public Policy Library (which focuses on green building policy). These classifications were not created to reflect the funding and management of public schools, however. The categorization applied herein recognizes 7 major types of energy efficiency legislation for

school facilities: funding, requirement, target, technical assistance or education, task force, competition, and recognition, with subcategories as appropriate (see Table 1).

Table 1. Classification of Energy Efficiency (EE) Policies for Schools Facilities.

Category	Subcategory	Definition
Funding	Dedicated funding	Schools receive grants or loans for EE improvements.
	Other financing options	Alternative financing methods, such as performance contracts, guaranteed energy saving contracts, and others.
	Enabling legislation	Political subdivisions, such as counties and cities, and NGOs are allowed to finance EE improvements.
Requirement	Planning	Schools are required to audit energy use and/or submit a plan to reduce energy use.
	Benchmarking	Schools are required to measure and report energy use for future comparison of energy performance
	Green certification for existing schools	Schools are encouraged or required to gain green certification, such as LEED certification, for existing schools.
Target	-	Schools must reduce energy consumption by a defined amount or proportion in a certain period of time.
Technical assistance/ education	-	Provision of technical assistance or training to implement EE improvements, including through staff time, websites, and other resources.
Task force	-	Creation of state-level task force or advisory group on EE improvements.
Competition	-	Authorizing or requiring state agencies to run a voluntary energy efficiency competition among schools; may be accompanied by technical assistance, recognition, and other elements.
Recognition	-	Recognition awards to schools that are demonstrating progress in reducing environmental impacts, such as energy use. Example: participation in the U.S. Department of Education's Green Ribbon Schools awards.

Table 2. State legislation researched for this paper.

State	Title	Year passed	Stated intent of policy
California	Prop 39: California Clean Energy Job Act SB-73	2012	The California Clean Energy Job Act allocates revenue to local education agencies to support energy efficiency and alternative energy projects, along with related improvements and repairs that contribute to reduce operating costs and improved health and safety conditions in public schools. (http://www.cde.ca.gov/ls/fa/ce)
Colorado	Renewable Energy and Energy Efficiency for Schools SB 14-202	2014	The Renewable Energy and Energy Efficiency (REEES) is a loan program for school districts to implement energy efficiency projects if they are unable to secure financing through the private sector. (https://www.colorado.gov/pacific/energyoffice/reees-loan-program)
* Illinois	Illinois State Board of Education Energy Efficiency Grants HB-0012	2011	Illinois State Board of Education (ISBE) Energy Efficiency Grants are a matching grant program. The program was purposed to provide funding for energy efficiency projects in schools. Two rounds of grants occurred. Once in 2011 and in 2014. (http://programs.dsireusa.org/system/program/detail/4455)
Maine	Schools Revolving Renovation Fund SP 419 LD 1356	1997	The Schools Revolving Renovation Fund (SRRF) provides funding assistance to school administrative units (SAU) to ensure that students have a safe, healthy and appropriate learning environment. (http://www.maine.gov/doe/facilities/renovation/)
Oregon	Cool Schools HB 2960	2011	Cool Schools was enacted with the purpose of providing loans and grants to support energy efficiency or clean energy projects in K-12 schools. The program was a four year pilot program consisting of 5 phases. (http://www.oregonpublichealth.org/index.php?option=com_content&view=article&catid=20:site-content&id=113:hb2960-cool-schools)
Tennessee	Energy Efficient School Initiative SB 4039	2008	Energy Efficient Schools Initiative (EESI) was created to improve the energy efficiency in Tennessee's public K-12 schools. (https://www.tn.gov/eesi/section/about-us)
Washington	Energy Operational Savings Project Grants ESHB 227 (2009)	2009	The Energy Grants Program is a competitive grant program for energy operational cost saving improvements in K-12 facilities. (http://www.k12.wa.us/SchFacilities/Programs/EnergyImprovement/default.aspx)

* Illinois is not included in this report because no reliable information about the program had been located online or through interviews at publication time.

Policy Profiles

California

California's Proposition 39 (SB-73), The California Clean Energy Jobs Act, is a non-competitive grant program approved by voters during the November 2012 statewide general election.^{8,9} Eligible applicants include all local education agencies (LEAs). The California Clean Energy Jobs Act changed the corporate income tax¹⁰ and allocated the projected revenue for state appropriation up to \$550,000,000 annually from its General Fund to establish the Clean Energy Job Creation Fund. The allocation is appropriated by the legislature for energy efficiency and clean energy projects; oversight is primarily performed by the Energy Commission and the Superintendent of Public Instruction.

Due in large part to the economic downturn in the late 2000s, California schools began receiving less support for capital improvements than in previous years. Proposition 39 was approved by voters in November 2012 and was established to provide funds to schools

specifically for energy efficiency and renewable energy projects. Each LEA has access to a specific level of funding by state formula, and each year the Department of Education posts and releases approved allocations for that year.¹¹ To receive project approval a school must provide an energy expenditure plan, proving the savings-to-investment ratio (SIR)¹² of at least 1.01, as well as their analysis of baseline energy use before improvements. The initial baseline measurement is necessary for comparison to future reports regarding energy savings; the first report is due 12 months after project completion. The application must first receive approval by the Energy Commission, and then the Department of Education may disburse funds.^{13,14}

The SIR standard is based on the cumulative present value of the savings benefit realized over the lifetime of the eligible energy project.¹⁵ HVAC projects generally have too long of a payback period to be a standalone project, so they are often combined with lighting and energy management systems to meet the ratio requirements. Close to 50% of the approved projects are related to lighting, 20% to control

Table 3: The California Clean Energy Jobs Act (2013-2016)

Fiscal Year	EEP Approved	Project School Sites	Funding Approval
2013-2014	33	78	\$16,000,000
2014-2015	409	1,328	\$257,000,000
2015-2016	539	2,113	\$400,000,000
TOTAL	981	3,519	\$673,000,000

Source: California Energy Commission, Commission Report, Proposition 39: California Clean Energy Jobs Act, K-12 Program and Energy Conservation Assistance Act of 2015-2016 Progress Report.

⁸ The California Clean Energy Jobs Act was an initiative approved by voters and then passed in Senate.

⁹ SB-73, Energy: Proposition 39 Implementation. (2013). Available [online](#).

¹⁰ The corporate tax change requires out-of-state business to calculate their California income tax liability based on the percentage of sales in California. Repeals an existing law that gives out-of-state businesses and option to choose a tax liability formula that provides favorable tax treatment for businesses with property and payroll outside of California. Dedicates \$550 million annually for five years from the initiative's anticipated increase in revenue in order to fund projects that create energy efficiency and clean energy jobs in California. Available [online](#).

¹¹ See Interviewee A in Appendix

¹² See Savings-to-investment ratio in Glossary

¹³ Stakeholders involved to implement the California Clean Energy Jobs Act include California Department of Education, California Community College Chancellor's Office, California Department of Finance, California Public Utilities Commission, California Workforce Investment Board, and California Conservation Corps.

¹⁴ California Department of Education. (2017). California Clean Energy Jobs Act (Proposition 39). Available [online](#).

¹⁵ California Energy Commission. (2013) Proposition 39: California Clean Energy Jobs Act - 2013 Program Implementation Guidelines. Available [online](#).

measures, 15% to HVAC, and 12% other.¹⁶ It should be noted that some districts choose to save their allocated funding year over year before applying for project approval so that the total amount of funding can be taken in one larger lump sum.

Colorado

Colorado's Renewable Energy and Energy Efficiency for Schools (REEES) program is a loan program created through state legislation in 2014 (SB 14-202).¹⁷ Eligible applicants include all Colorado school districts, and loans are administered by the State Treasurer's Office out of the Colorado Education Fund. The goal of the program is to provide low interest loans to school districts with the purpose of installing renewable energy systems and undertaking energy efficiency improvements.¹⁸ However, to date, no schools have applied for loans.

One personal communication¹⁹ suggested that the lack of applications could be attributed to the availability of private financing for energy projects. As part of the application, school districts need to present to the State Treasurer's Office proof that they have sought funding from private banks for energy improvements. According to a program stakeholder interviewed, private banks offer rates that are more enticing than what the State Treasurer's Office is able to offer, and so school districts have not been applying to the Treasurer for loans.

Maine

Maine's School Revolving Renovation Fund (SRRF) is a loan program available to all school administrative units (SAUs). The program began in 1997 after the passage of LD 1356 (SP 419),²⁰ and there have been multiple amendments over time, most recently in 2011²¹. The program received around \$100 million

from the state to begin the loan program, mostly supplied through state appropriations and to a lesser extent through state bonds. However, since the initial allocation, there have been no additional cash infusions.

According to the state employee interviewed for this report, the policy resulting in SRRF was based on a study indicating that many schools in Maine were in dire need of renovation. The SRRF consists of 5 priorities, and no priorities beyond priority 2 have received funding to date. Most, but certainly not all, energy efficiency projects fall under priority 3, and no projects with priority 3 objectives have so far received funding. The five priorities of the program²² are:

- Priority 1: Repair renovation needs (Repair or replacement of roof on a school building; meet the design standards for disabilities; improve air quality; repairs related to safe, health, and compliance)
- Priority 2: Repairs related to building structure, windows and doors, and systems
- Priority 3: Repairs related to energy and water conservation
- Priority 4: Upgrade of learning spaces
- Priority 5: Other projects

The Maine Department of Education (DOE) reviews and rates²³ the applications, giving each a rating certificate. Based on the rating certificates, loans are allocated to applicants, and the certificates can be used for funding approval from the Municipal Bond Bank.

A school can apply for up to \$1 million in loans every 5 years. Typically, 30-70% of the loan will be forgiven based on the district's state share percentage of debt service.²⁴ The remaining loans have a 0% interest rate over a 5-10 year

¹⁶ SB 14-202. (May 2014). Available [online](#).

¹⁷ REEES Program legislation, SB15-252. Available at, http://www.statebillinfo.com/bills/bills/15/252_01.pdf

¹⁸ Department of Education. (2014). Colorado State Board of Education, Rules for Governing the Renewable Energy and Energy Efficiency for Schools Loan Program. Available [online](#).

¹⁹ See Personal Communication G in Appendix A.

²⁰ §6006-F. School Revolving Renovation Fund. (1997). Available [online](#).

²¹ LD 1356. (2011). Available [online](#).

²² Maine Department of Education. (2017). School Revolving Renovation Fund. Available [online](#).

²³ Review criteria for Priority One and Two: Percentage of student population impacted, extent or severity of the problem, location within the facility, code violations, and structural condition of the facility. Criteria for priority three: Number of years of avoided costs necessary to pay for project, percentage of energy saved annually based on gallons of oil, cubic feet of natural gas, kilowatt hour of electricity, etc., percentage of annual dollar savings for energy costs in the affected facility, life of the facility following the proposed project, and other benefits gained. Available [online](#).

²⁴ Maine Municipal Bond Bank. (2017). School Revolving Renovation Program. Available [online](#).

repayment period. Overall, 355 schools have received funding for 622 projects, totaling close to \$165 million in loans. The Department of Education must wait for schools to pay back loans before they are able to re-distribute funds to new school projects. The payback waiting period and lack of investment from the state have resulted in a relatively low volume of project approvals over the long lifetime of the program.

As noted, no projects have been funded to date through the program's priority 3: energy efficiency; funds have been needed for priority 1 and 2. Although projects categorized as energy efficiency have not yet been implemented, it is likely that several projects approved through priority areas 1 and 2 have contributed to school energy efficiency. For example, priority 2 includes "repairs related to building structure, windows and doors, and systems," which would include upgrading structure, insulation, and HVAC to comply with current building codes and energy efficiency expectations.

Oregon

Oregon's HB 2960²⁵ Cool Schools program was a loan and grant program available to all Oregon school districts. The Cool Schools program began in 2011 as a 4 year pilot program and consisted of 5 phases for each school district's participation. To administer the program, the state's Department of Energy established the Clean Energy Deployment Program to provide grants and loans for energy efficiency projects in K-12 schools.²⁶ The Clean Energy Deployment Fund was then established

by the State Treasury. The policy states that the department may accept grants, donations, contributions or gifts from any source and deposit them into the Clean Energy Deployment Fund. The program began with funds from a variety of existing state accounts.²⁷ School districts were given the option to pay for projects through zero to low-interest loans from the Clean Energy Deployment Fund or Small Scale Local Energy Project Loan Funds.

Initial projections for participation in phase 1 and 2 both fell short. No further quantitative data was found by researchers regarding phases 3, 4, and 5 (see Table 4). Only 18 out of 197 school districts participated in the program's first two phases. Phase 5 offered \$400,000 in the form of grant money from the Oregon Department of Energy.²⁸ However, researchers did not find evidence that the program proceeded to Phase 5, nor of any revision to the program approach, e.g. to focus on early phases. As of the date of this report, the state agency has not responded to a request for interview.

Tennessee

Tennessee's Energy Efficient School Initiative (EESI) is a revolving loan program with reimbursement grants, put in place by a state-level policy (SB 4039) passed in 2008.²⁹ Eligible applicants include all school districts in the state. EESI was appropriated \$90 million in a single amount from the state lottery fund in 2008. The \$90 million was proportioned as

Table 4: Oregon Cool Schools Program Phases 1 & 2 Overview

Phase	Projected # of Districts Participation	Actual # of Districts	Loan Total
1	28	8	\$5,512,606
2	27	10	\$4,944,525

Source: Department of Energy. State of Oregon Department of Energy 2013-2015 Biennial Energy Plan.

²⁵ HB 2960. (2015). Available [online](#).

²⁶ House Bill 2960, legislation on the Cool Schools Program, available at <https://olis.leg.state.or.us/liz/2011R1/Downloads/MeasureDocument/HB2960>

²⁷ Cole, M. (2011). *Oregon House passes' Cool Schools' bill establishing fund for energy efficiency schools*. The Oregonian. Available [online](#).

²⁸ Kalez, J. (2015). *Oregon Department of Energy Announces \$400,000 in Grants to Improve Energy Efficiency in Schools*. Oregon Department of Energy. Available [online](#).

²⁹ SB 4039. (2008). Available [online](#).

follows: \$20 million to be awarded in grants and the remaining \$70 million allocated in loans.

The \$20 million to be awarded in grants was split between reimbursement for loans and a separate program known as the Energy Management Grant Program. The Energy Efficient School Council, also established by the Tennessee General Assembly, oversees and allocates the funds to school districts.

The limit for each school district's application is \$3 million per loan, per year. The interest rates on loans range from 0-1%, but the majority of loans are at 0% interest. The loan term duration is 5-12 years, depending on energy saving estimated payback. Projects are chosen based on three criteria: (1) energy conservation measure simple payback, (2) projected school energy utilization index reduction, and (3) financial need.³⁰

With the cycle of loan payback, the state has been able to invest and grow the initial \$70 million allocation for project loans. The Energy Efficient School Council has disbursed almost \$100 million to school districts. The EESI program has completed one round of loan disbursements and is beginning the second round (see Table 5). Round 2 of loan allocation is currently in progress. In this most recent round, projects totaling \$13.8 million have been completed, and projects totaling \$9.2 million have been approved and are working toward construction.

Most school districts across the state have benefitted: 134 school districts out of 144 have received some form of financial assistance for implementing energy efficiency projects. The state agency employee interviewed projected that each month the program is recovering around half a million dollars from the loans.³¹

The scope of projects includes HVAC, lighting, building controls, parking lot lighting, and a few others categories.

Washington

Washington's Energy Operational Cost Savings Grant program is a competitive grant program created through legislation passed in 2009 (ESHB 2020).³² Eligible applicants include all K-12 school districts in the state. Beginning in 2009, the Department of Commerce with consultation from the Superintendent of Public Instruction began awarding 3-to-1 matching grants (that is, grants for 25% of project cost), which were sourced from the state's capital budget through general obligation bonds. In 2010 the Department of Commerce was asked to oversee a separate energy operation savings grant program, in addition to the program for K-12 schools. This separate program included grants for public higher education buildings, local government facilities, and state agencies. In 2015, K-12 schools were grouped into this other, broader program.

The program's last report specific to K-12 facilities includes data from the 9 rounds of grants that occurred during 2009-2013, before programs were combined. During this period 263 projects were implemented in 172 (out of 295) school districts. The total amount of awards granted was \$133,900,000, while the total amount spent on school projects was \$339,847,530. The scope of school district projects primarily consisted of HVAC, lighting, and controls. The majority of projects focused on HVAC and lighting, with a lesser focus on controls. Table 6 displays the amount received from the state budget, amount granted to school districts, and the total spent per year.

Table 5: Tennessee EESI Loan Overview (2010-2017)

Round of Revolving Loan Program	Duration	Loans Amount Allocated	Grants Amount Awarded
1	2010-2016	\$69,700,000	\$19,000,000
2	Jan-Jun 2017	\$23,000,000	-

Source: Interviewee D (see Appendix A).

³⁰ See Interviewee C in Appendix A.

³¹ See Interviewee D in Appendix A.

³² ESHB 277. (2009). Available [online](#).

School districts that apply for grants must provide a letter of intent including the results of an investment grade audit along with predetermined cost effectiveness criteria.³³

School districts are highly encouraged to use a state-approved energy savings performance contracting (ESCO) firm to recommend energy efficiency improvements and service providers, but they have the option of using other methods to complete projects. The energy performance contractor recommended by the program provides assistance in finding a project manager and assistance in hiring an energy services company. The energy performance contractor provides a list of pre-qualified energy services companies who are aware of state requirements, and school districts are able to choose candidates from the list. Schools are also provided guidance during the selection process and assistance whenever necessary.

Grants are awarded on a point-based system, and more than \$1 million cannot be awarded to a single district per year. The evaluation system consists of three categories established by the state legislature and additional categories established by the program operators. The three categories established by the state legislature have varied over time, but most recently included: (1) leverage ratio,³⁴ (2) whether or not the school district had previously received an award, and (3) the overall energy savings projected. If a school had received a prior grant they would receive 0 points in that category; the intent is to provide

schools with no previous funding a higher priority.

Additional evaluative criteria have been established by the program operators. These criteria take into account the particular nature of school buildings; one recent category involved energy saving goals relative to school size. Instead of total energy savings payback, the category created a percentage of payback relative to building size. This adjustment addressed an issue that had arisen in past grant cycles, where larger schools were ranking higher due to total energy payback simply because their building was physically bigger.

The state grants match school district funding to provide about one fourth of the total project cost. Grant recipients can also apply for state loans to help pay the match. Some schools apply for loans through private banks to pay their share of the match; paperwork for private loans can be easier, but private banks' loan interest rates were reported to be higher than the state's in this case. For the duration of 2009-2013, 41 school districts applied for loans from the state treasurer in conjunction with the grant program, and none were turned down.

Reporting on project completion and energy savings achieved is required and expected, but there have been some difficulties acquiring all the measurement and verification reports. Having a consultant assess the energy payback initially and again 12 months later has proven costly and time-consuming for school districts.

Table 6: Washington Grant Program budget received, granted, and total spent

Year	Budget Amount Received by Program	Amount Granted to Applicants	Total Project Costs
2009	\$16,900,000	\$16,530,105	\$43,309,832
2010	\$50,000,000	\$49,346,606	\$138,296,692
2011	\$20,000,000	\$25,465,803	\$51,811,992
2012	\$40,000,000	\$33,549,148	\$68,035,816
2013	\$7,000,000	\$9,008,338	\$38,393,198
Total:	\$133,900,000	\$133,900,000	\$339,847,530

³³ 2010 Sessions Laws of the State of Washington established the requirements for the grant application. Source: Interviewee E (see Appendix A).

'Predetermined cost effectiveness' refers to the state's understanding of whether or not new equipment will create payback within its lifetime. Available [online](#), page 2803.

³⁴ The current proposed leverage ratio for projects funded by the program is 3:1, which means that for every \$3 that the school district provides, the grant will provide \$1. The evaluation of grant applications includes a consideration of how close the project is to this 3:1 ratio. Provided by Interviewee E, See Appendix A.

Researchers interviewed two people involved in operating the program, and both believed that providing an option for a state-selected performance contractor plays an integral role in the positive results from the Energy Operational Savings Project Grants program. The program eases school districts' access to energy savings projects and makes project implementation less daunting. In addition, the program provides one means to accomplish school building improvements where the state cannot allocate the full amount of capital funding for repairs and replacements in school district buildings.

Key Considerations for Policymakers

Drawing lessons learned from across the six policies examined for this publication can help inform efforts to develop or amend state legislation aiming to use direct funding to achieve energy efficiency in existing schools. The following discussion is not meant to be exhaustive but to reflect some of the themes observed during research. The authors hope these observations will spark further research into the critical topic of effective policies for energy efficient schools.

General considerations

An initial baseline energy audit of all schools in the state is one way to assess the problem of inefficiency and to draw attention to the need for school energy efficiency retrofits. This approach was particularly encouraged by interviewees in Tennessee and California.

The programs in Washington, Tennessee, and Maine involved a combination of grants and loans. Programs should take into account the overall financial health of school districts in a state and address the particular financial mechanisms that will best serve schools. Washington's program is based on grants but provides additional loans. On the other hand, Tennessee's program is based on a revolving loan fund that provides low interest rates, but it also provides reimbursement grants. These types of combined programs provide an opportunity for additional funding options in case not all of the districts' needs can be met through one channel.

Each state's program has had difficulties with effective reporting at both project and programmatic levels. Reporting is a crucial step

in tracking overall performance of both school districts and a state program's success. Some legislation requires measurement and verification assessment after a project's completion. Establishing a strong reporting process for energy savings projects would provide necessary information about the actual payback period and financial savings resulting from the energy efficiency projects.

All of the programs have made changes or amendments after their initial implementation. Allowing the flexibility to evaluate the program and make necessary adjustments can contribute to the longevity of a program. The interviewee from Washington, for instance, explained that the program's evaluation criteria for project applications are constantly evolving based on what the agencies learn through administering the program.

Grants versus loan programs

Both grant and revolving loan programs have the potential to support energy efficiency projects in existing K-12 schools.

Grants provide the opportunity for faster rates of project implementation. This quicker timeline is exemplified by California's grant program; within three years, 981 school districts have received funding approval. However, grant programs have to depend on regular funding allocations from the state.

Revolving loan programs, according to interviewees from Maine and Tennessee, result in a slower project implementation rate. With revolving loans, the initial allocation may be the only funding needed to set up an effective program for many years. However, the program must wait for school districts to pay off debt from prior loans before funding new projects. Revolving loan programs are potentially more durable than grant programs; Maine's SRRF, for instance, has existed for 20 years.

Allowing schools to pay back loans at a low interest rate and through energy savings, similar to Tennessee's program, has the potential to encourage participation by decreasing risk. Additionally, operators in Tennessee suggest that legislators' visible and vocal support can prove beneficial to a policy's successful implementation. Schools can be hesitant about taking on debt through a revolving loan fund; legislator support can reassure school districts that participation will

not lead to financial instability. In Tennessee, a recent senate resolution³⁵ emphasized state legislator support for the EESI.

Loan programs can be difficult to administer and can struggle to get participation. Lack of participation in Colorado's program, according to one state agency official, could be attributed to the complexity of the loan application. In addition, participation in Oregon's Cool Schools program was much lower than expected even though it had been created with the intent of administering both loans and grants. The initial phases of participation may have proven too onerous for school districts.

Ease of Access

Designing programs that are easily navigated may also boost school district participation. The key elements of participating in a grant or revolving loan program include the application process, contracting, implementation, and reporting. For schools or districts that are not well-versed in grant or loan programs, the process of pursuing funding may be daunting. However, if state resources are allocated to educate and inform school districts about the application process, step by step, and they have a clear point of contact, then they may be more likely to apply. If a program is able to suggest trusted contractors and advisors who understand state requirements, exemplified by Washington's program, then one more element of risk is removed for schools.

Direct funding programs, no matter how complex, will usually result in implemented projects because there will be school districts that have the staff know-how and tenacity to figure out how to access funding. However, providing additional guidance and a streamlined process for school districts may create opportunities for schools in need and schools that would otherwise be hesitant to pursue an energy efficiency projects.

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³⁵Tennessee Senate Joint Resolution 83. (2017). Available [online](#).

Appendix A.

Interviewee A. Interview with Anna Ferrera, Executive Director of School Energy Coalition in California. June 25, 2017.

Interviewee B. Anonymous. Interview with Department of Education stakeholder in Maine. June 17, 2017.

Interviewee C. Interview with Scott Slusher, Energy Service Consultant for EESI in Tennessee. June 18.

Interviewee D. Anonymous. Interview with EESI program operator in Tennessee. June 18, 2017.

Interviewee E. Anonymous. Interview with energy program manager in Washington. June 13, 2017.

Interviewee F. Anonymous. Interview with Energy Operational savings Project Grants Program Operator in Washington. June 18, 2017.

Personal Communication G. Anonymous. Personal communication via email with REEES program operator in Colorado. April 18, 2017.

Glossary of Terms

Energy Conservation Measures – Measures that are applied to a [...] building that improve energy efficiency and are life cycle cost effective and that involve energy conservation, cogeneration facilities, renewable energy sources, improvements in operations and maintenance, or retrofit activities. (“DOE Guidance on the Statutory Definition of Energy/Water Conservation Measures (ECMs), and Determining Life-Cycle Cost-Effectiveness for ESPCs with Multiple or Single ECMs,” U.S. Department of Energy. Retrieved [online](#), June 2017.)

Energy Service Company (ESCO) – ESCOs develop, design, build, and fund projects that save energy, reduce energy costs, and decrease operation and maintenance costs at their customer’s facilities. ESCOs are distinguished from other firms that offer energy-efficiency improvements in that they use the performance-based contracting methodology. When an ESCO implements a project, the company’s compensation is directly linked to the actual energy cost savings. (“Energy Service Companies,” U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. Retrieved [online](#), June 2017.)

Energy Use Intensity / Energy Utilization Index (EUI) – Expresses a building’s energy use as a function of its size or other characteristics. EUI can be expressed as energy per square foot per year. (“What is Energy Use Intensity (EUI),” ENERGY STAR. Retrieved [online](#), July 2017.)

Grants – A financial award given by the state government to an eligible grantee. Government grants are not expected to be repaid. (“Government Grant,” Investopedia. Retrieved [online](#), July 2017).

HVAC – Heating, ventilation, and air conditioning. The system used to provide heating and cooling services to buildings. (“HVAC,” Business Dictionary. Retrieved [online](#), June 2017)

Loans – Giving money, property or other material good to another party in exchange for future repayment of the principal amount with interest charges. (“Loan,” Investopedia. Retrieved [online](#), June 2017).

Revolving Loans – Pools of capital which loans can be made for projects – as loans are repaid, the capital is then re-loaned for another project. (“Revolving Loan Funds,” U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. Retrieved [online](#), June 2017.)

Green revolving funds (GRF) - GRFs invest in energy efficiency and conservation projects and reinvest cost savings in future projects. They are “revolving” because GRFs loan or allocate money for efficiency, track savings in utility bills, and “revolve” them back into the fund. (“The Billion Dollar Green Challenge,” Sustainable Endowment Institute. Retrieved [online](#), June 2017.)