School-Based Energy Education Programs: Goals, Challenges, and Opportunities

White Paper

October 2015

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EXECUTIVE SUMMARY

School-based energy education programs are an integral component of many energy and water efficiency portfolios. While program specifics vary, all provide energy education lessons and activities and many include free energy efficiency devices for students ("take-home kits"). Programs may be sponsored by electric, natural gas, or water utilities and are typically designed around achieving one or more of the following objectives:

- Educating students on the science of energy and energy efficiency and teaching students about electricity and natural gas safety.
- Encouraging students to conserve energy now and in the future.
- Reaching other household members through participating students.
- Helping families save energy and lower utility bills.
- Generating measurable resource savings that utilities can count toward meeting resource savings goals.
- Fostering a feeling of goodwill and customer satisfaction.

Given the prevalence of school-based energy education programs, ILLUME conducted a review of programs drawing on evaluation reports, market data, and education research. Our review found:

Active programs in 21 states, in all regions of the United States.

Program models vary by curriculum requirements, such as instructional time and delivery approach, but most programs commonly target students in fifth and sixth grade. Installation rates of energy efficiency devices vary more by device than by program model.

Program benefits include energy savings, water savings, and harder-to-quantify financial, learning, and customer satisfaction benefits for teachers, families, students, and utilities.

Best practices for program implementation include: careful tracking systems, response cards for documenting installation rates, alignment with state standards, and consideration of education research.

Future opportunities for school-based programs include leveraging programs to introduce efficiency to new populations and new markets as a gateway to future energy efficiency program participation. Furthermore, the natural synergies between saving energy and saving water open up new opportunities for partnerships and expansion of kit contents and may open up additional new markets for school-based programs.

INTRODUCTION

School-based energy education programs are an integral part of energy efficiency portfolios, providing a cost-effective approach for utilities to generate energy savings, work with their communities, and foster goodwill with their customers. To illustrate the prevalence of programs, Figure 1 shows states with utility-sponsored school-based energy education programs, demonstrating the wide-spread adoption of school-based programs.

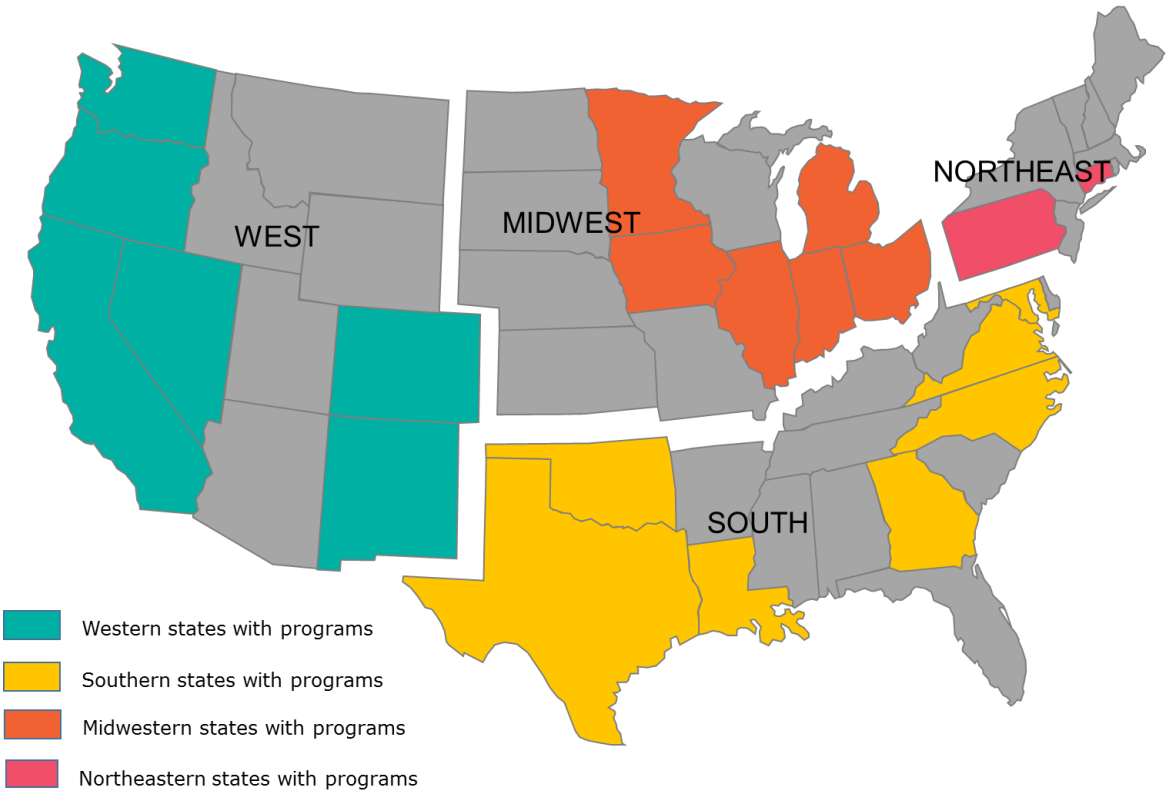
Programs can take different forms but share commonalities in goals, approaches, benefits, and challenges. To explore these facets of school-based programs, ILLUME reviewed evaluation reports from 10 implementations of school-based programs in eight states across the United States. These programs were selected to capture the variation in school-based programs' designs, including fuel source targeted, grades targeted, type and level of education, and program implementer. We selected programs with published, independent, third-party evaluation reports. While these reports are not an exhaustive accounting of programs, they represent the variation of approaches to school-based energy education and have been evaluated.

We also referenced energy efficiency market data and educational research to understand programs in the context of efficiency portfolios and educational principals. Following is a synthesis of our research on school-based programs with particular emphasis on:

- Program objectives
- Program models
- Benefits of programs
- Best practices
- Future opportunities

Complete details on sources and programs reviewed can be found in Appendix A.

Figure 1. States with Utility-Sponsored School-Based Energy Education Programs, 2013-2015



OVERVIEW OF SCHOOL-BASED PROGRAMS

PROGRAM OBJECTIVES

School-based energy education programs come in many forms, but all provide energy education lessons and activities and many include free energy efficiency devices for students (often referred to as "kits" or "take-home kits"). Programs are typically sponsored by electric and gas utilities, but may also be sponsored by water utilities or other entities. Program offerings vary, but share similar goals and objectives that often include one or more of the following:

- Educating students on the science of energy and energy efficiency and teaching students about electricity and natural gas safety.
- Encouraging students to conserve energy now and in the future.
- Reaching other household members through participating students.
- Helping families save energy and lower utility bills.

- Generating measurable resource savings that utilities can count toward meeting resource savings goals.
- Fostering a feeling of goodwill and customer satisfaction.

In the next section we discuss different program models for education programs.

PROGRAM MODELS

As shown by the map in Figure 1, students in many regions of the United States are participating in school-based energy education programs. Program approaches vary greatly by the specific program sponsor and/or program implementer. Key differences in the structure and approach of programs include: instructional time devoted to lessons, approaches to presenting educational materials, targeted ages/grades, and availability of take-home kits. For example, some programs provide a one-time educational presentation while others provide teachers with several lessons to cover throughout the school year. Additionally, many programs distribute kits to all students, while others only send kits to those who request them, or do not include energy saving devices at all.

INSTRUCTIONAL TIME AND PRESENTATION APPROACH

Teachers have many demands on their classroom time throughout the school year. Fitting in additional material can be a barrier to participation in school-based energy education programs. To overcome this barrier, program developers and implementers try to craft programs that balance depth of the energy curriculum with the time needed to implement the curriculum. For example, programs that provide teachers with a series of lessons and hands-on activities may foster students' deeper knowledge of energy, but will require more classroom time. One-time events demand less instructional time, but may result in a glancing understanding of the material.

To help overcome the time barrier, programs usually show teachers how the lessons align with their science and math standards often by linking portions of the lessons to the exact state standards that are addressed by each lesson. In addition, programs that include multiple lessons usually allow teachers to implement the lessons throughout the semester or school year at the times of their choosing that fit best into their overall curriculum and classroom schedules.

Most school-based programs can be categorized into four different approaches based on the amount of instructional time devoted to energy education. We describe these approaches below and summarize them in Figure 2.

Educational materials only programs refer to programs that distribute educational materials such as posters and activity books to classrooms and students, but do not include formal lesson plans for teachers to follow. These

programs do not give students energy efficient devices and do measure energy savings.

One-time events present students with information on energy and energy efficiency through a special event that is often theatrical or entertaining. The lesson may include hands-on activities for students to complete or they may watch the presenter demonstrate key concepts in energy and efficiency. Some programs combine an event with classroom lessons and/or kits, which we describe below.

Classroom lesson-based programs, teachers receive lesson plans and materials to teach students about energy and energy conservation in a few lessons. These programs usually offer students a kit of energy saving devices and pamphlets.

Energy curriculum programs teach students about energy and conservation through an expanded series of lessons that teachers deliver over a semester or school year. These may include more hands-on science experiments as well as kits of items for students to install at home.

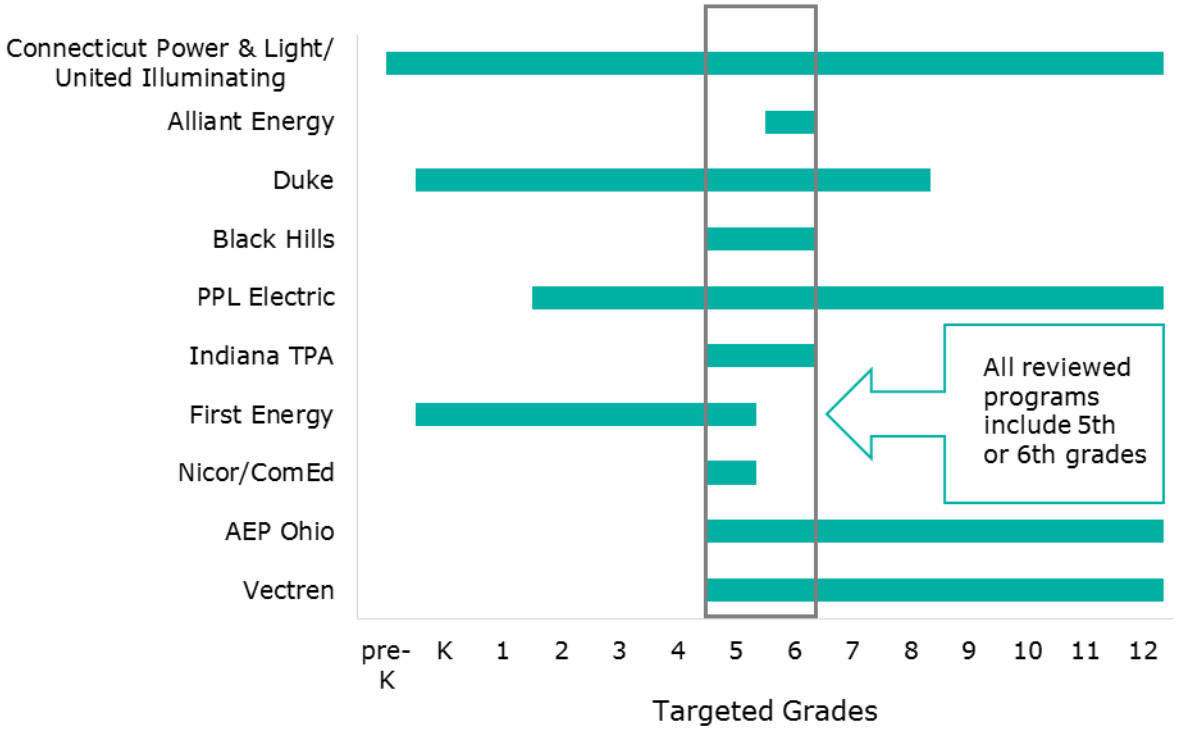
Figure 1. Illustration of the Variation in Educational Program Efforts

Curriculum Type			
Educational Materials Only	One-Time Event	Classroom Lesson-Based	Energy Curriculum
Description			
Posters, activity books distributed to students.	Teacher or implementer delivers a one-time lesson on energy and efficiency.	Teacher delivers two to four lessons on energy and efficiency.	Teacher delivers five or more lessons throughout the school year.
Less Instructional Time			**More Instructional**

TARGET AGES AND GRADES

Some school-based energy programs target specific grades while other programs are available to a range of grades. In our review of program models, the most common grades for program implementation are fifth and sixth grades. Four programs target only fifth and/or sixth grade while the remaining seven programs target a range of grades that includes fifth and/or sixth grade. Programs typically provide correlations between the energy education curriculum and state-specific grade level science (and other applicable subject-area) standards. As grade-level standards change, correlation documents are updated or, in some cases, the program curriculum may be changed. The best grade levels for implementing a program may vary by state, may change over time, and should be reviewed frequently.

Figure 3. Target Grades of Reviewed Programs



KIT CONTENTS

In addition to teaching students about the science of energy and energy efficiency, many programs also distribute kits of energy efficiency devices and information for students to take home. The kits provide a hands-on companion to the school lessons and empower students to take actions in their homes to save energy. The kits also provide measurable energy and water savings for utilities to credit toward their savings goals. By tracking kit distribution and documenting installation rates, utilities can estimate, and evaluators can later verify, energy and water savings associated with the school-based program.

Kit contents vary by type of program sponsor (e.g. electric, gas, or water utility) and the curriculum. Minimally, kits contain efficient light bulbs or low flow devices. Most kits contain additional monitoring, educational, and energy conservation tools. Overall, the most common kit items are:

- CFL and LED light bulbs
- Faucet aerators and showerheads
- Nightlights
- Shower timers
- Light switch stickers
- Water temperature gauge cards
- Water flow meter bags
- Digital thermometers
- Furnace whistles

- Outlet and light switch gaskets
- Weather stripping
- Smart power strips
- Mercaptan scratch and sniff cards
- Educational materials such as booklets, resource fact charts, and installation instructions

PROGRAM BENEFITS

Process and impact evaluations have identified many benefits of school-based energy education programs. Resource benefits such as electricity, natural gas, and water savings are typically measured using engineering-based savings estimates for the items distributed in the take-home kits. Evaluations have also identified other non-energy benefits for students and teachers with impacts that are more difficult to quantify such as professional development activities and engaging families in school activities.

ENERGY SAVINGS

Electric and natural gas utilities track the energy saved from the distribution of take-home kits and count these savings toward their energy saving goals. Kit savings are typically calculated by applying deemed savings values or formulas to each item in the kit, adjusting for measured or assumed installation rates. The claimed savings values or formulas for individual kits items come from state-level technical reference manuals (TRMs). Savings estimates can vary by state or utility territory since calculations incorporate assumptions about factors such as hours of use, number of household members, and ground water temperature, depending on the device. These assumptions can vary by home type (multi vs. single family), geography, and type of hot water heater. Finally, the type of devices (e.g. aerators, CFLs, weather-stripping) and number of devices (e.g. number of CFLs) impact the overall estimate of kit savings.

Formal impact evaluations typically review the assumptions and calculations of savings of kit items and verify installation rates. Figure 4 illustrates the range in kit savings values drawn from evaluation reports for select programs. Among the reviewed programs, differences in electricity savings are primarily driven by the kit contents: Programs with higher savings tend to have more lightbulbs and showerheads. Remaining differences are due to differences in installation rates and TRM savings calculations.

Figure 4. Take-Home Kit Electric and Natural Gas Savings

Program Sponsor	Kit Savings		Kit Contents		
	kWh	Therms	Lightbulbs	Showerheads	Aerators
Vectren/DP&L† (OH)		37.5	4	1	3
Indiana TPA (IN)	421	11.6	6	1	1
Nicor/ComEd (IL)	332	12.9	3	1	2
PPL Electric‡ (PA)	330		varied	varied	varied
Duke (KY)	267		2	1	2
Alliant Energy (IA)	234	12.7	3	1	1
First Energy (OH)	177		4	0	2

†The Vectren/DP&L program is administered jointly by the two utilities. The evaluation report covered only gas-savings measures paid for by Vectren within their service territory.
‡PPL Electric distributed different kits at different grade levels. The kit savings reported is the average across the different kits.

WATER SAVINGS

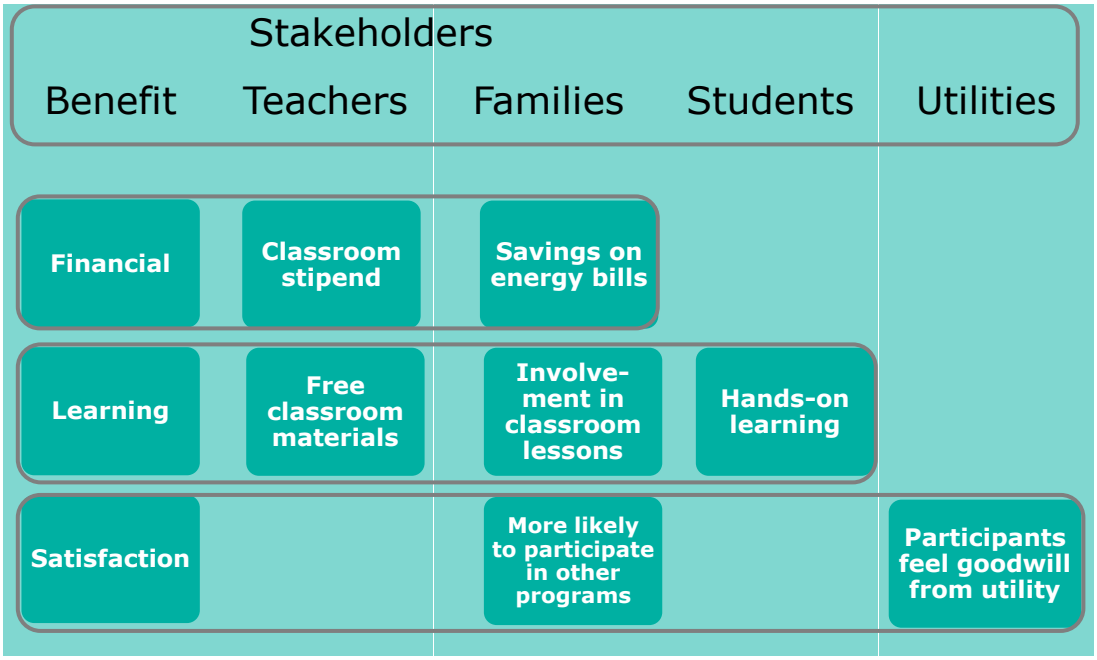
Take-home kits often contain devices such as faucet aerators and showerheads that save water as well as energy. Calculations for estimating water savings are included in TRMs as steps in the calculation of energy savings, however, evaluations of utility-sponsored energy efficiency programs do not typically report water savings. Some utilities use water savings in their cost-benefit analysis calculations if their state allows them to include non-energy benefits.

Programs sponsored by water utilities focusing purely on water savings have not yet undergone the same level of rigorous evaluation as energy efficiency programs. Thus our review does not include any programs focusing specifically on water. Later in this report we suggest that partnerships between water and energy utilities provide good opportunities for future school-based programs.

OTHER PROGRAM BENEFITS

Process evaluations have identified additional benefits of school-based programs to utilities, families, students, and teachers. These additional benefits are not easily quantified, but are important to program participants and stakeholders. These include financial benefits, educational benefits, and customer satisfaction as shown in Figure 5.

Figure 5. Non-Resource Benefits of School-Based Energy Education Programs



KEY CONSIDERATIONS FOR PROGRAM SUCCESS

PROGRAM TRACKING SYSTEMS

School-based energy programs involve the transfer and delivery of numerous program materials. For a program to be successful, classroom materials and take-home kits need to be delivered to the correct classrooms on time. Effective program implementers utilize systems to carefully track school and teacher enrollments, delivery of classroom materials, and the distribution of take-home kits. Furthermore, programs that are claiming electric, natural gas, or water savings from the take-home kits need to document the installation of energy-saving devices in students' homes.

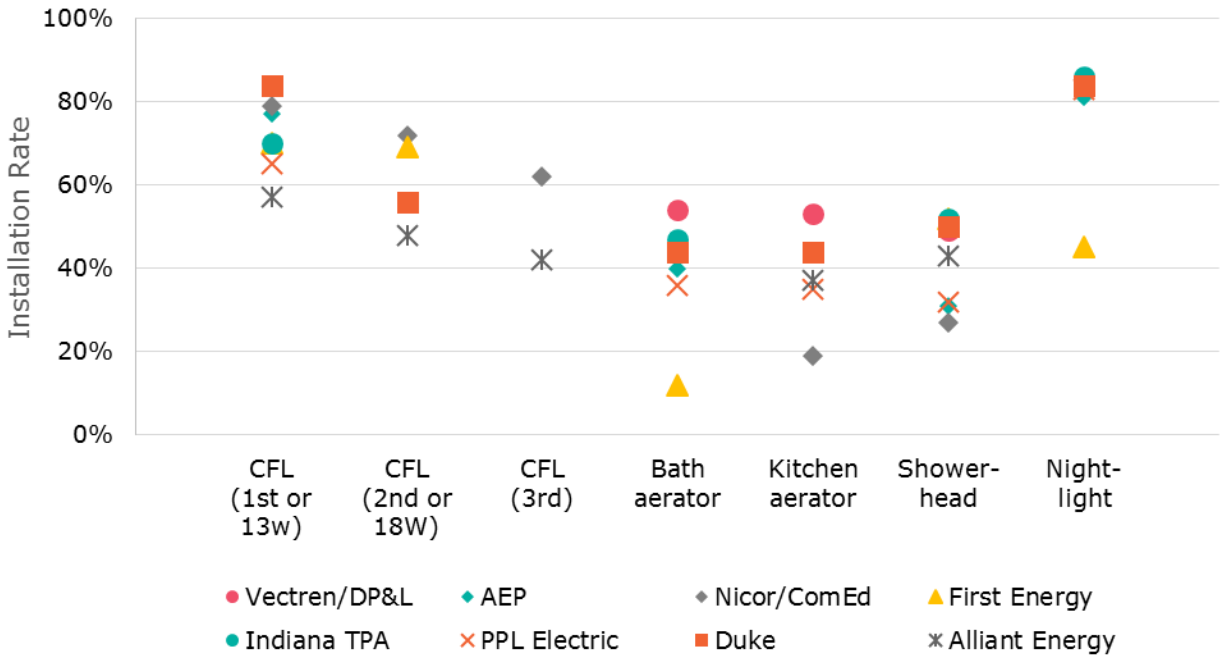
Most programs track device installations through the use of response cards that are completed by parents or students. These cards are often included in the kit and include questions on the installation of the devices including identifying which devices were installed, where in the home the devices were installed, and what equipment was replaced. The cards may also ask about the student's home including the type of heating and cooling equipment, age and size of the home, and number of occupants.

Many programs offer incentives to teachers to encourage students and parents to return the response cards. Some programs offer $50 or $100 stipends or mini-grants to teachers if they meet a certain goal for number of returned response cards. For example, the program implemented by the Indiana TPA offers teachers a $50 stipend if the teacher returns 80 percent of the family response cards. In our review of programs, teachers needed to attain at least a 50 to 80 percent response rate to be eligible for the stipend. Some programs use drawings for larger prizes to encourage responses. FirstEnergy Ohio's program awarded three $250 prizes to teachers and one $1,000 prize to a family. One program we reviewed did not provide a stipend or award based on response cards. As a result, this program collected responses from only 0.1 percent of students compared to other programs whose response rates ranged from 50 to 80 percent. Independent third-party evaluations typically account for non-returned surveys in one of three ways: 1) apply the installation rates reported on returned parent surveys to all distributed kits; 2) assume no installation of items from kits associated with non-returned surveys or; 3) conduct additional surveys of parents.

INSTALLATION RATES

Program implementers use student and parent response cards to document installation rates of energy saving devices and to apply those installation rates to calculations of energy and water savings. Installation rates are often verified by independent third-party program evaluations through additional surveys of parents of participating students. As shown in Figure 6, our review of programs found that installation rates vary more by device type than by individual program. CFLs and nightlights tend to have higher installation rates while faucet aerators and showerheads have lower installation rates. Note that because there is a time lag between program implementation and the availability of evaluation reports, none of the program evaluation reports reviewed included installation of LED light bulbs. More recently, programs have included LED bulbs in take-home kits, which will be reflected in future evaluation reports.

Figure 6. Installation Rates of Kit Items



To maximize energy savings, programs need to encourage families to install the kit items. Evaluators and program implementers have identified several barriers to installation such as lack of interest, uncertainty about how to install items, and perception of not needing devices if home is newer. Programs employ varied strategies for overcoming these barriers.

Foremost, programs work to engage and motivate students so that they will bring an enthusiasm and motivation for saving energy into their homes. Incorporating installation into homework assignments and having students complete worksheets related to installation provides a specific timeframe and a concrete incentive to install devices to ensure follow-through.

To overcome uncertainty about how to install items, programs may review installation instructions in school, provide written installation instructions to bring home, and direct families to instructional videos that can be accessed online. Programs also address concerns related to students' type of housing through letters to parents.

OTHER BEST PRACTICES FOR SCHOOL-BASED PROGRAMS

Thoughtfully designed school-based energy education programs increase the adoption of energy conserving behaviors and devices and provide other benefits to teachers, students, and families. Figure 7 summarizes some of the approaches used by programs and the benefits those approaches confer.

Figure 7. Benefits of Best Practice Approaches to School-Based Energy Education Approaches

Approach	Benefit
Alignment with state standards	Explicit alignment of classroom lessons to state standards helps teachers overcome the barrier of limited time. The lessons can do double-duty of teaching about energy and fulfilling curriculum requirements.
Professional development credit for teachers	Programs that offer teacher professional development help teachers gain a deeper understanding of the material, foster a sense of shared purpose among participants and increase teachers' commitment to the program.
Parent/home involvement	Programs that provide specific activities for students to complete with other household members may get more parents on board with the program and provide an opportunity for parents to be involved in students' school work. Copious education research has linked parent involvement with positive academic outcomes.[1]
Hands on/experiential learning	Hands-on activities engage students and promote their understanding of science topics.[2] Programs that provide hands-on activities may deepen students' comprehension.

FUTURE OPPORTUNITIES

School-based energy education programs coupled with take-home kits should continue to be an integral part of efficiency portfolios. School-based programs engage segments of the population not reached by other programs, serve as a "gateway" to additional actions, and provide an important public service by contributing to student learning about the science of energy and, just as

[1] For example, see: https://www.nea.org/tools/17360.htm

[2] For example, see: Ruby, Allen. 2001. Hands-on Science and Student Achievement. RAND Dissertation.

importantly, about safety around electricity and natural gas. Future opportunities lie in new and emerging markets, encouraging cross-program participation, leveraging synergies with water conservation, and exploring opportunities to expand into school-wide behavior-change approaches.

NEW AND EMERGING JURISDICTIONS

School-based kit programs are good options for jurisdictions in the early phases of energy efficiency. School-based programs foster positive feeling toward utilities which are particularly helpful when new efficiency programs are working to establish their brand and create program recognition. They are also a good way to jump start programs by quickly getting efficient devices into a large segment of demographically and geographically diverse customers' hands. School-based programs can introduce new jurisdictions to the benefits of energy efficiency and prime customers for receptivity to additional programs in the future. By introducing efficiency through school, energy efficiency and conservation gain credibility through the authority of the school. Through school programs, customers who are new to energy efficiency gain access to, and experience with, efficiency which may increase their receptivity to future program opportunities.

EQUITY IN EFFICIENCY PROGRAM PARTICIPATION

In jurisdictions with established energy efficiency programs, school-based programs provide an avenue to reach customers that are not participating in other programs such as rebate or audit programs. Families that live in multifamily housing, those who cannot afford the upfront costs of some efficiency measures, or those who have simply have not heard their utility's efficiency messages, are not participating in rebate-based efficiency programs. School-based programs can reach diverse populations and expand the reach of efficiency programs into broader segments of a utility's customer base.

WATER CONSERVATION

Take-home kits often contain faucet aerators and low-flow showerheads, devices that save water as well as energy. With the increased focus on water conservation across North America, and particularly in the west and southwest, partnerships between water utilities and energy utilities can open up opportunities to more cost-effectively deliver programs. By partnering with water utilities, kits could also include additional devices that save water such as toilet displacement bags, leak detectors, and water conservation educational materials.

BEHAVIOR SAVINGS: HOME AND SCHOOL

The majority of school kit evaluations fail to capture savings generated by increased adoption of energy efficient behaviors, despite the fact that many program curricula include behavioral tips for saving energy. Evaluations that have measured these savings have found that additional savings exist for behaviors adopted in the home[3]. Spillover effects from kit programs may also exist and be measured at the school. Energy-use constitutes the second-highest portion of school budgets and the EPA estimates that approximately 25% of energy used at school is wasted.[4] School kit program savings have the potential to be augmented by incorporating additional behavioral elements into education programs, such as school-wide challenges or competitions, goal-setting, and consistent feedback on energy use.[5]

CONCLUSIONS

School-based energy efficiency programs benefit utilities, teachers, families, and students. By delivering programs through schools, programs reach diverse populations, bestow credibility on efficiency and conservations, help families save energy and money on utilities bills, and promote student understanding of the science of energy and energy safety. Programs can boost brand recognition and foster a feel of goodwill between customers and the utility. Carefully designed programs pay close attention to program and device installation tracking, align lessons with state standards, and draw from education research for best practices in the design of the curriculum.

Future opportunities for school-based programs lie in leveraging the program's reach into diverse populations and the credibility bestowed by introducing efficiency through schools. School programs can introduce efficiency to new populations and new markets and serve as a gateway to future energy efficiency program participation while also generating quantifiable savings in the present. Furthermore, the natural synergies between saving energy and saving water open up new opportunities for partnerships and expansion of kit contents, opening up additional new markets for school-based programs. Additional opportunities may exist in finding ways to encourage school-wide behavior change.

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[3] Cadmus. 2014. Alliant Energy School-Based Energy Education.

[4] See http://www.centerforgreenschools.org/sites/default/files/resource-files/Behavior-based-Efficiency.pdf

[5] See http://www.centerforgreenschools.org/sites/default/files/resource-files/Behavior-based-Efficiency.pdf

APPENDIX: SOURCES AND PROGRAMS REVIEWED

REFERENCES

ADM. 2013. *Home Performance Program: Evaluation, Measurement, and Verification Report*.

Cadmus. 2011. *Vectren Ohio 2011 DSM Portfolio Evaluation*.

Cadmus. 2014. *Alliant Energy School-Based Energy Education*.

Cadmus. 2014. *Process Evaluation Report: PPL Electric EE&C Plan, Program Year Five.*

Center for Green Schools. 2013. *Powering Down: A Toolkit for Behavior-based Energy Conservation in K-12 Schools.*

Goodman Research Group. 2008. *eesmarts: Process Evaluation Follow-up*.

Navigant Consulting. 2012. *Program Year 2011 Evaluation Report: e3smart Program Evaluation.*

Navigant Consulting. 2013. *Evaluation Report: Elementary Energy Education Program.*

Papazian, A., Noam, G., Shah, A., & Rufo-McCormick, C. 2013. *The Quest for Quality in Afterschool Science.*

TecMarket Works. 2013. *Process Evaluation of the Energy Efficiency for Schools Program (The National Theatre for Children (NTC)) in Kentucky.*

TecMarket Works, Cadmus, Opinion Dynamics, Integral Analytics, and Building Metrics. 2015. *2014 Energizing Indiana Evaluation Report.*

Tetra Tech. 2013. *Black Hills Energy: 2012 Black Hills Living Wise Evaluation Results, Colorado Electric Territory. Final Report.*

SUMMARY OF PROGRAMS REVIEWED

Program Sponsor (State)	Program vendor	Grade-levels (Year of report)	Overview of curriculum	Kit contents	Claimed savings	Installation rates of kit items	Installation Tracking Method
Vectren/ Dayton Power & LIght (OH)	OEP	5th-12th (2011)	Seven lesson plans to be taught throughout the school year. Kit items can be distributed with each lesson or as full kit. Includes take-home activities.	-4 CFLS (DP&L) -1 LED night light (DP&L) -1 showerhead -1 kitchen aerator -2 bathroom aerators	38.57 ccf (gross)	showerhead: 49% kitchen aerator: 53% bathroom aerator 1: 54% bathroom aerator 2: 21%	Family installation survey. Teachers receive a $100 stipend once they submit 50-60% of surveys
AEP Ohio (OH)	OEP	5th-12th (2011-2012)	Seven lesson plans to be taught throughout the school year. Kit items can be distributed with each lesson or as full kit. Includes take-home activities.	-2 23 W Bright White CFLs -2 13 W Soft White CFL -1 Showerhead -1 LED Nightlight -1 Combination pack of Outlet/Switch Gaskets -1 Closed Cell Foam Weather Strip (17 roll) -1 Self-adhesive Door Sweep -1 Hot Water Temperature Gauge Card -1 Small Roll of Teflon Tape -1 Flow Meter Bag -1 Furnace Filter Alert Whistle -1 Refrigerator/Freezer Thermometer -1 Energy Use Gauge Calculator -1 DOE Energy Savers Booklet	277.46 kwh (gross)	-CFLs: 77% -Aerators: 40% -LED Nightlight: 81% -Lower water heater temperature: 30% -Showerhead: 31% -Weather stripping/door sweep/gaskets: 58%	Installation rate based on student returned surveys, $100 stipend once surveys returned

Program Sponsor (State)	Program vendor	Grade-levels (Year of report)	Overview of curriculum	Kit contents	Claimed savings	Installation rates of kit items	Installation Tracking Method
Nicor/ComEd (IL)	National Energy Foundation	5th (2011-2102)	Single interactive presentation, 45 minutes w/hands-on activities	-1 Showerhead -1 Kitchen faucet aerator -1 Bathroom faucet aerator -Additional faucet plastic fittings -Three 14-watt CFL bulbs (joint kits only) -Shower timer -Flow rate test bag -Digital water and ambient temperature thermometer -Fun Facts Slide Chart -Scratch 'n sniff mercaptan stickers -"Turn it Off" light switch stickers -Nicor Gas Energy Efficiency Program (EEP) sticker with website address -Parent Comment Card (Business Reply Mail back to program implementer) -Earn a wristband participation promotion card -Product Installation Instructions -Energy efficiency program promotional brochures	332 kWh 12.9 therms (gross)	Showerhead: 27% Kitchen aerator: 19% Bathroom aerator: 24% CFL 1: 79% CFL 2: 72% CFL 3: 62%	Scantrons: teachers get $100 if 80% of scantrons returned, students get wristbands for returned cards.
First Energy (OH)	AM Conservation Group	K-5th (2013)	Live performances 25 min, plus curriculum for the classroom	-Three 13-watt CFLs -One 18 watt CFL -Two faucet aerators -LED Night Lights	176.8 kWh (gross)	13W CFLs: 70% 18W CFLs: 69% LED Night Lights: 45% Faucet aerator: 12%	Customer survey (evaluation). Contest drawing: (3) $250 teacher prizes and (1) $1,000 family prize.
Indiana TPA (IN)	AM Conservation Group	5th-6th (2014)	Several lesson topics to be taught at once or throughout the semester	-Three 13-watt CFLs -Three 23-watt CFLs -Kitchen faucet aerator -Energy-efficient showerhead -LED night light -FilterTone® alarm -Flow rate test bag -Digital thermometer -Reminder sticker and magnet pack -Parent/guardian comment card	421.4 kWh/11.59 therms (net)	13W CFLs: 70% 23W CFLs: 63% Showerhead: 52% Faucet aerator: 47% LED Night Light: 86% Filter tone alarm: 43%	Scantrons: Teachers get $50 stipend if 80% of surveys returned.

Program Sponsor (State)	Program vendor	Grade-levels (Year of report)	Overview of curriculum	Kit contents	Claimed savings	Installation rates of kit items	Installation Tracking Method
PPL Electric (PA)	National Energy Foundation	2nd-12th (2013-2014)	Teachers received NEF education presentation, classroom activities, Think!Energy poster, kit with items that could be used in classroom (although many used at home)	-CFLs -low-flow showerheads -faucet aerators -smart-power strops -1 electroluminescent nightlights -light switch stickers -shower timer -furnace whistle	330 kWh (not evaluated)	-CFLs: 65% -Nightlight: 83% -Showerhead: 32% -Kitchen Aerator: 35% -Bathroom aerator: 36% -Furnace whistle: 15% -Smart strip: 80%	Home Energy Worksheets
Black Hills (CO)	Resource Action Programs	5th-6th (2012)	Multiple lessons plans that can be taught at once or throughout the school year	· Compact fluorescent lamps · High-efficiency showerhead · Faucet aerators · Digital thermometer · FilterTone® alarm · Electroluminescent LimeLite® nightlight · Flow rate test bag · Natural resource fact chart · Mini tape measure · Toilet leak detector.	NA	NA	Scantrons distributed with kit and returned to Resource Action Programs
Duke (KY)	National Children's Theater, AM Conservation Group	K-8th (2013)	Classroom curriculum with take-home assignments, school posters, teacher guides, and classroom/family activity books	- 1.5 GPM low flow shower head -1.5 GPM kitchen faucet aerator with swivel and flip valve - Water flow meter bag - Water temperature gauge card - 13 watt Energy Star CFL - 18 watt Energy Star CFL - 1.0 GPM needle spray bathroom faucet aerator - Combination Pack of switch and outlet gasket insulators - 8 outlets and 4 socket gaskets - Energy Efficient Limelight style night light - Duke Energy labeled DOE "Energy Savers" booklet - Roll of Teflon tape for showerhead - Product information and instruction sheet - Glow Ring Toy	267 kWh (net)	-13W CFL: 84.4% -18W CFL: 56.3% -Showerhead: 50% -Kitchen aerator: 43.8% -Bathroom aerator: 43.8% -Switch and outlet gasket: 43.8% -Water flow meter bag: 15.6% -Water temp card: 31.3% -Night light: 84.4% -Booklet: 71.9%	-Student family participant surveys (evaluation)

Program Sponsor (State)	Program vendor	Grade-levels (Year of report)	Overview of curriculum	Kit contents	Claimed savings	Installation rates of kit items	Installation Tracking Method
Alliant Energy (IA)	Resource Action Programs	6th (2013-2014)	In class lessons and home assignments	-Three 13-watt compact fluorescent lamps (CFLs) -High-efficiency showerhead (1.75 gallons per minute [GPM]) -Kitchen faucet aerator (1.5 GPM) - Digital thermometer -Flow-rate test bag - Installation instruction booklet - Teflon tape - Parent comment card - Natural resource fact chart - Wristband postcard - Alliant Energy brochures: “101 Ways to Save” and “Rebates” - Installation DVD - Quick Start Guide	234 kWh/12.7 therms	-13W CFL: 57% -2nd CFL: 48% -3rd CFL: 42% -Showerhead: 43% -Kitchen aerator: 37%	Post-program surveys (evaluation)
Connecticut Power and Light and United Illuminating (CT)	PIMMS	PreK-10 (2006-2008)	Packaged Curriculum Units that tie into existing units on energy, electricity, citizenship, consumerism, the environment, and the use of the scientific method.	None	None	None	None