4.5 Lead by Example

Policy Description and Objective

Summary

State and local governments are implementing a range of policies and programs that advance clean energy within their own facilities, fleets, and operations. These "lead by example" initiatives help state and local governments achieve substantial energy cost savings and greenhouse gas (GHG) reductions while promoting adoption of clean energy technologies by the public and private sectors.

"Lead by example" programs offer states opportunities to achieve substantial energy cost savings within their own operations, demonstrate environmental leadership, and raise public awareness of the benefits of clean energy technologies.

States are leveraging their purchasing power, their control of significant energy-using resources, and the high visibility of their public facilities to demonstrate clean energy technologies and approaches that lower their energy costs and reduce emissions. They also work closely with local governments, schools, colleges and universities, parks and recreation facilities, and other public sector organizations to promote clean energy within their operations. Lead by example programs take many forms, including:

- Incorporating clean energy principles into statewide energy policies.
- Adopting energy efficiency savings goals for existing public buildings.
  - Benchmarking building energy performance using ENERGY STAR Portfolio Manager and identifying under-performing buildings to target for energy efficiency improvements.
  - Assessing the energy efficiency of a building in terms of its design, construction, and energy systems by using the U.S. Department of Energy's (DOE) Asset Scoring Tool.[38]
- Establishing above-code energy efficiency performance standards for new and renovated public buildings.
- Developing and adopting green building standards with minimum energy efficiency requirements for public housing.
- Procuring energy-efficient equipment for public facilities, including implementing "green fleets" programs, using electric vehicles, and establishing electric vehicle charging infrastructure.
- Purchasing and using renewable energy in public facilities.
  - Increasing use of green power through programs such as the Green Power Partnership.
- Developing innovative financing mechanisms, including:
  - Approving legislation enabling state agencies (and local governments) to enter into energy savings performance contracts (ESPCs), which require that the energy savings cover the cost of financing the improvements out of current and future operating budgets.
  - Establishing energy efficiency revolving loan funds to finance improvements in state and local facilities.
  - Establishing commercial property assessed clean energy (PACE) legislation or ordinances that enable repayment of clean energy measures through property assessments.

[38] DOE's: http://energy.gov/eere/buildings/building-energy-asset-score.

  - Creating a statewide master financing program, such as a lease-purchase agreement, that enables government agencies to own the equipment at the end of the lease term.
  - Directing public pension fund trustees and managers to establish energy-efficient investment strategies for real estate and securities portfolios and/or allocate investment funds for energy-efficient and renewable energy technology development.
- Providing technical assistance and training to state and local facility managers and their staff, including:
  - Developing advanced building design and commissioning guidelines.
  - Assisting with energy audits and implementation of verified savings using ESPCs.
  - Building operator certification training.

Substantial energy and cost savings can be achieved through energy-efficient improvements in public facilities. DOE's State Energy Program has implemented energy-efficient retrofits in more than 150 million square feet of state and local buildings, resulting in annual cost savings of more than $250 million (DOE 2014b).

Objective

The objectives of state lead by example programs vary from state to state. They include:

- Serving as a leading component of comprehensive statewide clean energy programs and initiatives, and encouraging action by a broad range of public and private sector organizations.
- Accelerating adoption of clean energy in the marketplace by setting an example and demonstrating cost-effectiveness.
- Sponsoring research, development, and demonstration projects to promote commercialization of early-stage clean energy technologies and practices.
- Educating and informing policy-makers and stakeholders and raising public awareness about the multiple environmental, economic, and energy benefits that clean energy offers.
- Demonstrating cost-effective ways to reduce GHGs and address climate change.
- Achieving cost savings through adoption of energy-efficient technologies and clean generation.

Benefits

Lead by example programs provide direct operational benefits to state and local governments, including:

- Reducing facility operation costs and increasing funding available for non-energy-related expenditures.
- Encouraging clean energy development in the state and region and demonstrating environmental leadership.
- Achieving substantial cost savings through aggregated purchasing of energy-efficient products and green power.

New York's Energy-Efficient State Buildings

New York's Executive Order 88, issued by the governor's office in 2012, establishes a target to reduce energy consumption in state buildings by 20 percent in 2020 relative to 2010–2011 levels.

The order includes requirements such as developing a comprehensive operations and maintenance plan for the state's building portfolio, and performing an energy efficiency analysis in the design phase of all capital project plans. Onsite renewable energy generation may be used as a credit toward meeting the target (New York State Governor's Office 2012).

- Supporting the development of in-state markets for clean energy products, manufacturers, and services (e.g., ESPCs, renewable energy systems manufacturers, installers, energy-efficient product retailers).
- Attracting businesses that commercialize clean energy technologies to their state.
- Understanding how they use energy and where best to focus energy savings efforts.

Many state lead by example programs focus on improving the energy efficiency of equipment and building systems. Programs can achieve additional benefits, however, by purchasing or generating clean power for public facilities. A number of options are available to state and local governments:

- Purchasing green power for public facility consumption.
- Using combined heat and power (CHP) technologies to reduce energy use through higher efficiency.
- Developing onsite clean energy facilities, such as solar photovoltaic (PV), wind, and CHP.
- Using existing government resources for clean power production (e.g., electricity generation from landfill gas, methane recovery at sewage treatment plants, and biomass resulting from tree and garden trimming).

Types of State Lead by Example Programs

While the possibilities for state lead by example initiatives are broad, state lead by example initiatives typically fall into one of the following categories:

- *State clean energy plans.* Several states are incorporating specific clean energy goals and objectives for state facilities in their state energy plans. States that show leadership in this area include California, New Hampshire, and Texas. (See the *State and Local Examples* later in this section.)
- *Energy savings targets.* States also set energy savings goals for existing facilities, typically expressed as percentage targets with calendar milestones (e.g., reducing energy use per square foot by 20 percent by 2010). Several states have enacted legislation to set these targets. For example, in 2012, the governor of Oregon released a 10-Year Energy Action Plan, which set a statewide goal to reduce energy consumption in all state-owned buildings by 20 percent by 2023 (OR 2012). Connecticut, California, Minnesota, New Hampshire, New York, Vermont, and others have also adopted energy savings targets.
- *Energy efficiency performance standards.* A growing number of states and localities are establishing sustainable design principles that incorporate energy efficiency criteria in performance standards for new and renovated buildings and facilities. As of 2013, 16 states have set energy efficiency targets for public facilities (NCSL 2013).
- *Energy-efficient purchasing.* States are setting minimum energy efficiency specifications for a range of products (e.g., appliances, office equipment, green fleets of vehicles that use alternative fuels). In some cases, states establish procurement policies that require vendors to provide them with products that have earned ENERGY STAR certification. Where mandatory low-bid requirements are in place, legislative authority might be required to modify procurement regulations. States that have issued executive orders and/or legislation to require procuring energy-efficient products include Alabama, Arizona, California, Colorado, Connecticut, Delaware, D.C., Hawaii, Illinois, Kentucky, Louisiana,

Iowa's Executive Order 41

Iowa's Executive Order 41 was adopted on April 22, 2005; it directs state agencies to obtain at least 10 percent of their electricity from renewable energy sources by 2010. To satisfy this requirement, agencies may generate their own renewable energy or participate in their utility's green power programs (Iowa DNR 2005).

Maryland, Massachusetts, Michigan, Nevada, New Hampshire, New Jersey, New York, North Carolina, Texas, Vermont, and Virginia.

- *Energy-efficient public housing*. State housing authority programs can promote clean energy in public housing and other residential buildings through measures such as establishing minimum energy performance criteria. For example, the Michigan State Housing Development Authority requires windows, patio doors, and appliances (refrigerators, dishwashers, washers, and room air conditioners) in public housing to be ENERGY STAR qualified (MSHDA 2009).

In Maryland, the State Agency Loan Program provides 0 percent loans to state agencies for cost-effective, energy-efficient improvements in state facilities. This self-sustaining fund is capitalized with national oil overcharge funds. Since 2007, Maryland's program has provided more than $10.5 million to upgrade lighting, controls, boilers, chillers, and other energy equipment, with projected energy cost savings of more than $32 million (DSIRE 2014).

- *Clean energy generation and procurement.* Purchasing and using renewable energy and clean energy generation for state and local facilities is another way states are leading by example. State and local agencies have established clean energy supply targets that are met through onsite generation or by purchasing green power electricity or renewable energy certificates. An increasing number of state and local governments, including New Jersey, New York, and Iowa, are aggregating electricity demand to purchase green power. States are also identifying opportunities to generate clean onsite power, such as CHP systems, and to use clean onsite generation technologies for backup or emergency power.
- *Innovative financing.* States are developing a wide range of innovative financing mechanisms, including revolving loan funds, commercial PACE financing, tax-exempt master lease-purchase agreements, lease revenue bonds, pension funds, and performance contracting. These mechanisms, used to finance programs to implement energy efficiency improvements in existing buildings, renovation projects, and new state facilities, are usually administered by the state energy office or other lead agency, which coordinates the program across multiple state agencies.
- *Technical support.* Many states lead by example by providing technical assistance, training, and evaluation support to state and local agencies and facility operators. State examples include California's new building design and commissioning guidelines and Oregon's Building Commissioning Program. California's Energy Partnership Program provides a variety of services including conducting energy audits, preparing feasibility studies, and reviewing existing proposals and designs. In Washington, school districts are advised to seek the assistance of the General Administration's ESPC program for energy performance contracts and for project oversight. Missouri has trained more than 100 building operators to Building Operator Certification Level I/II so that they have the requisite knowledge to operate building systems at peak efficiency.

Examples of State and Local Green Power Purchasing Contracting

- In 2010, Delaware entered a cooperative electricity purchase of renewable energy for service to schools, offices, state parks, clinics, emergency responders, and prisons. As of 2013, state and local partners procured more than 80 million kilowatt-hours (kWh) of renewable energy and saved more than $1 million annually (Delaware DFM 2014).
- In 2013, Houston, Texas, signed a 2-year agreement to purchase more than 620 million kWh of Green-e certified renewable energy credits for wind projects annually. This purchase accounts for half of the city's municipal power needs (EPA 2014a).
- Peterborough, New Hampshire, uses 100 percent green power for all of its public facilities through Green-e certified renewable energy credits. Peterborough also plans to increase its use of onsite renewable energy and is currently constructing a solar array to power its new wastewater treatment facility. Once completed, it is expected to be the largest solar array in the state at one megawatt; it will save the town between $400,000 and $800,000 in electricity costs over a 20-year period (EPA 2014a).
- The Cape Light Compact in Massachusetts negotiates lower cost electricity and other benefits for all members, which includes all 21 towns in Cape Cod and Martha's Vineyard. It offers customers green power products with up to 100 percent renewable energy (Cape Light Compact 2014; Connecticut 2009; DSIRE 2012).
- In 2014, Oak Ridge, Tennessee, launched a community challenge to encourage greater participation in the region's renewable energy program, resulting in 5.5 percent community-wide green power use and a participation rate nearly three times the rate at the start of the challenge. Residents, businesses, and the local government used more than 73 million kWh of renewable energy annually, including more than 126,000 kWh of onsite solar power at the Oak Ridge National Laboratory (EPA 2014a).

Designing an Effective Lead by Example Program

Although specific program designs vary from state to state, a number of common elements have helped states develop effective lead by example programs. These include involving multiple agencies and levels of government, identifying funding sources, and leveraging federal and state programs.

Participants

- *Executive branch.* The executive branch plays a key role in lead by example initiatives. Many state governors have issued executive orders that set energy savings targets for existing buildings, define energy and environmental performance standards for new buildings, set fuel economy targets for state-owned or -leased vehicle fleets, create green power purchasing policies, and create efficiency guidelines for purchasing energy-using equipment. Since most lead by example initiatives involve state-owned or -leased property, the executive branch typically has broad powers to change policies and practices involving state facilities, fleets, purchasing operations, and other aspects of state government. New York's Executive Order 88, for example, sets a goal of reducing energy consumption by 20 percent in state-owned and -managed buildings by 2020, relative to a 2010/2011 baseline.
- *State legislature.* In many cases, legislative authority is not needed to launch lead by example initiatives. However, legislative authority may be required when modifying procurement regulations (e.g., to release state agencies from mandatory low-bid requirements when purchasing green power or to enable agencies to enter into

New Hampshire has a master lease program for state facilities that leverages energy savings from current and future operating budgets to cover the financing cost of new equipment. California offers a revenue bond program to provide low-cost financing of alternative energy equipment and for energy and water conservation measures by state and K–12 facilities. While performance contracts are not financing agreements, per se, they can assist with project funding and implementation. In Louisiana, state agencies will be able to issue requests for proposals that essentially follow the performance contract model developed by the state Energy Fund. Colorado passed enabling legislation authorizing performance contracting in the early 1990s, and is now ranked fourth in the United States for energy performance contracts completed by state. As of 2013, Colorado's program had completed $330 million in projects and had $82 million in current performance contracts (Colorado Energy Office 2014).

long-term energy service agreements for performance contracting). For example, Connecticut has used a series of legislative actions to incorporate lead by example principles in its General Statutes, beginning with Public Act 06-187 in 2006, which directed the Connecticut Office of Policy and Management to adopt building construction standards for state facilities that meet or exceed the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) Silver rating. This was followed by Public Act No. 07-242 in 2007, which established mandatory efficiency requirements for certain equipment purchased by the state, and Public Act No.11-80 of 2011 established goals for reducing state energy consumption. Most recently, Public Act No. 13-298 was adopted in 2013, allowing the Department of Energy and Environmental Protection to benchmark energy and water consumption of all state-owned buildings larger than 10,000 square feet (DSIRE 2013).

- *State energy offices.* In many states, the energy office develops and administers a range of clean energy programs and provides technical assistance and training to state and local agency staff and facility managers. State energy offices are deeply involved in energy efficiency programs and allocate or oversee more than $7 billion of energy efficiency funds derived from ratepayers and state appropriations each year (NASEO 2015). They often direct efforts to implement state lead by example efforts. State energy offices also work with other state agencies, local governments, school districts, and other public organizations to identify clean energy opportunities statewide.
- *State department of general services and department of the treasury.* One of these agencies typically serves as the custodian of state facilities. It administers state capital construction programs and establishes guidelines for construction, operation, and purchasing practices. For example, the Maryland Department of General Services (DGS) helps Maryland state agencies track energy use and costs, reduce energy consumption, and procure renewable energy and deregulated energy for state facilities. DGS has installed solar panels on four of its own buildings and works with state agencies to develop renewable energy projects (Maryland DGS 2015).
- *State housing and economic development offices.* These agencies may operate a variety of programs, including low- and moderate-income housing and development programs, state mortgage financing programs, and enterprise zone and brownfield redevelopment initiatives. For example, the Iowa Economic Development Authority supports a variety of clean energy programs, including the Economic Development by Gaining Efficiency initiative (a statewide recognition program that engages industrial stakeholders in energy efficiency projects to reduce energy costs), as well as a collaborative effort with the Iowa Department of Natural Resources to streamline the CHP permitting process (Iowa Economic Development Authority 2015).
- *Local governments.* Many local governments have initiated and adopted their own lead by example programs. For example, in Maryland, Montgomery County has developed a green power purchasing program to leverage the buying power of multiple local jurisdictions. Some states work with local governments to educate local officials about these opportunities and to coordinate, pool, and set common criteria for such initiatives. States can also provide financial assistance, education, training, and technical assistance to local governments. For example, the California Energy Commission's (CEC) Energy Partnership Program offers technical assistance to cities, counties, hospitals, and colleges and universities. The program helps these local groups identify energy efficiency improvements in existing buildings and energy-efficient options in new construction. The CEC also helps these groups identify state loans and other financing sources for project installation (CEC 2013).
- *School districts, colleges, and universities.* There are many opportunities to improve energy efficiency and purchase or generate clean onsite power at K–12 schools, colleges, and universities. One option is to use efficiency savings in operating budgets to finance new energy projects, thereby freeing up capital budget

dollars for other uses. In fact, some colleges and universities have found that investing in energy efficiency projects provides better yields than conventional investments such as the stock market. For example, Duke University has used endowment funds to finance energy efficiency and renewable energy projects.

- *Utility energy programs.* Utilities are often responsible for achieving energy efficiency or renewable energy targets established by state legislatures. Utilities that have energy efficiency and onsite generation programs can support a state's lead by example efforts by providing technical assistance to state facility managers and new facility design teams. In some cases, utilities provide funding and incentives to state agencies for clean energy projects. Utilities that administer public benefit funds or that have regulated efficiency acquisition or renewable energy mandates are typically best positioned to provide this kind of assistance.
- *Nonprofit organizations.* Some states designate and work with third-party nonprofit organizations to develop and administer lead by example programs. For example, Iowa established the State of Iowa Facilities Improvement Corporation, a nonprofit corporation that helps agencies implement energy efficiency measures (EPA 2009).
- *State treasurers and public pension fund managers.* The role of pension fund trustees and state treasurers is to provide policy direction for fund managers, who are increasingly looking for opportunities to improve the value of their portfolios. Some state treasurers and public pension fund managers invest in clean energy programs and energy audit investments to identify cost savings. For example, New York State's comptroller established the Green Strategic Investment Program, which commits $500 million over three years to invest in renewable energy and clean technology under the $154.5 billion New York State Common Retirement Fund (New York Office of the State Comptroller 2013).

Funding and Financial Considerations

States sometimes pay for energy efficiency and renewable energy projects with general funds allocated through the budget and appropriations process. Another source of funding is DOE's State Energy Program, which annually allocates Congressional-appropriated funds to 56 states, territories, and the District of Columbia. However, because of fiscal constraints, states are developing new funding approaches for their clean energy investments. One popular strategy involves redirecting the operating budget dollars saved from the utility budget when energy conservation improvements are made and using the savings to pay for the financing of the needed equipment.[39] Several states have adopted innovative funding mechanisms to support lead by example programs, including:

- *Revolving loan funds.* This mechanism involves making loans and re-lending current loan payments to fund new projects. The original capitalization can come from a variety of sources, including system benefits charges and oil overcharge refunds. They are typically low-interest, long-term loans for energy conservation or renewable energy projects. They may cover all capital expenditures or may be on a cost-shared basis. The Texas LoanSTAR (Saving Taxes and Resources) program, described in the *State and Local Examples* later in this section, provides an example of how Texas has structured its loan program. (For more detailed information on revolving loan funds, see Chapter 3, "Funding and Financial Incentive Policies.")
- *Commercial PACE.* PACE is an innovative financing structure that enables commercial and industrial property owners to finance energy efficiency and renewable energy conservation upgrades to buildings.

[39] For example, the South Carolina Energy Office provides a number of resources to help public institutions and local governments use ESPCs. For more information, see http://www.energy.sc.gov/perfcont.

PACE can pay for new heating and cooling systems, lighting improvements, solar panels, water pumps, insulation, and more for almost any property: homes, commercial, industrial, nonprofit, and agricultural. An example is the BetterBuildings Northwest Ohio Challenge. The Toledo-Lucas County Port Authority administers a PACE program that enables virtually every type of building owner to be eligible for fixed rate competitive financing to pay for 100 percent of the high-efficiency improvements to their buildings. The BetterBuildings Challenge has completed 84 projects worth $18 million at an interest rate between 5 and 6 percent (PACE 2015).

- *ESPCs.* The ESPC industry has developed over the past 25 years in response to the need for major new capital investments in energy efficiency, particularly in public and institutional facilities. Energy savings performance contracting is a construction method that allows a facility to complete energy-saving improvements within an existing budget by financing them with money saved through reduced utility expenditures. Facilities make no initial capital investment and instead finance projects through guaranteed annual energy savings. Although only a few states have developed model programs, several states have created enabling legislation helping to develop an industry capable of bringing significant capital investment to state governments. (See Chapter 3, "Funding and Financial Incentive Policies.")
- *Aggregated purchasing contracts for green power.* An increasing number of organizations, including state and local governments, reduce their need for funding by aggregating electricity demand to purchase green power. By combining the electrical needs of a number of agencies, state and local governments can often negotiate lower prices for green power. It is easier to achieve savings from aggregated green power purchases in restructured markets where there are competing energy suppliers.
- *Qualified Energy Conservation Bonds (QECBs) or other public bonds.* Bonds are one of the most common forms of financing used by states because they are a low-cost capital source available to most entities. States may consider using bonds for a variety of clean energy purposes, including financing a specific set of energy upgrades in their own facilities (which can be combined with an ESPC) and/or capitalizing finance programs for public sector energy upgrades (e.g., revolving loan funds; see above). A variety of bonds are available to states for clean energy initiatives. Municipal/public bonds are the most traditional, and there are also federally subsidized-option debt products aimed specifically at supporting clean energy, such as QECBs and Qualified Zone Academy Bonds. States may also wish to partner with state-chartered bond authorities, such as housing finance authorities, which can provide tax-exempt bond financing to nonprofits and industry. A successful example is Massachusetts' "green bond" issuance, the first of its kind, which capitalizes the state's Clean Energy Investment Program.
- *Leasing arrangements*. Leasing energy-related improvements, especially the use of tax-exempt lease-purchase agreements for energy efficiency equipment, allows states to finance retrofits and then use the energy savings to pay for the financing cost. Leases are contracts that allow an entity to obtain (or purchase) equipment or real estate. They are similar to long-term rental agreements where the lessee gets to use the equipment for a period of time in return for regular payments to a third party (lessor). Leases come with a purchase option that can be exercised at the end of the lease period. Leases often have slightly higher rates than bond financing; however, they can be a faster and more flexible tool. States can also establish programs to aggregate lease-purchase financing demand from public entities across the state and issue Certificates of Participation to fund these projects. Participants can then get more attractive rates than they would otherwise have access to and avoid the time and effort required to set up their own individual financing options. Washington's Local Option Capital Asset Lending program is an example.
- *Pension funds.* Some states use pension funds to invest in clean energy projects. Pension fund managers seek a mix of investments that ensure stable returns for their contributors when they retire. Energy cost

savings are captured over a set period to pay off the capital investment, and generate a solid return to the pension fund.

For example, Washington Real Estate Holdings (a real estate manager for the Washington State Investment Board, which manages the state's pensions) completed a $3.5 million energy efficiency upgrade of Union Square that lowered the building energy costs by 40 percent and created 30 jobs for a year (Feldman 2005).

- *Use of life-cycle cost accounting for energy efficiency projects.* Cost-effective energy efficiency investments more than pay for themselves in the form of reduced energy bills over the life of the investment. However, government procurement and capital budgeting practices frequently do not take life-cycle costs into account. Procurement rules (e.g., those applicable to small purchases, such as equipment replacement) often require states to accept the lowest bid, on a first-cost-only basis. Similarly, capital budgeting (e.g., applicable for larger investments such as new buildings or major renovations) often accounts only for the debt service obligations to the government and does not recognize operating budget savings that can more than offset the debt service payments. These practices often result in the rejection of cost-effective energy efficiency investments because the accounting rules do not fully recognize the benefits of these investments.

  To overcome these problems, states have modified procurement rules by 1) specifying minimum efficiency levels for designated types of purchases (such as requiring certain product types to be ENERGY STAR certified) or 2) instituting a life-cycle cost bid procedure, where vendors provide both equipment investment costs and estimated lifetime energy costs for designated equipment types. For capital projects, a similar approach can be used: either requiring projects to meet specified energy performance targets or including life-cycle energy costs in the project accounting analysis.

Interaction with Federal Policies

Several federal programs, described below, provide resources for states as they develop lead by example programs.

DOE Better Buildings Challenge

The Better Buildings Challenge is a voluntary leadership initiative that highlights leaders who have committed to upgrading buildings and plants across their portfolio and providing their energy savings data and strategies as models for others to follow. DOE offers technical assistance and helps Challenge participants create energy efficiency implementation models to support their commitment to measure, track, and improve portfolio-wide energy performance. The Challenge involves, but is not limited to, states, municipalities, commercial businesses, and industrial corporations that make a public commitment to reduce energy consumption in their facilities (DOE 2014a).

ENERGY STAR®

The U.S. Environmental Protection Agency (EPA) offers its ENERGY STAR program to governments, schools, and businesses as a straightforward way to achieve superior energy management and realize the cost savings and environmental benefits that can result. EPA's guidelines for building energy management promote a strategy that starts with the top leadership, engages the appropriate employees throughout the organization, uses standardized measurement tools, and helps an organization prioritize and gets the most from its efficiency investments. The following ENERGY STAR initiatives may offer resources for states as they lead by example.

- *National Building Competition*. This annual "Biggest Energy Loser" competition, first held in 2010, focuses on reducing energy consumption in government buildings, educational and healthcare facilities, and commercial buildings. Between 2013 and 2014, contestants in the 2013 National Building Competition saved more than $20 million and reduced GHG emissions by more than 130,000 metric tons, equivalent to the annual electricity use of nearly 18,000 homes (ENERGY STAR 2014a).
- *Targeted assistance to states.* ENERGY STAR provides targeted information resources, technical assistance, tools, and communications and outreach support to help state and local governments improve energy efficiency within their own operations. ENERGY STAR tools include guidelines for energy management that are helpful to states in improving their energy and financial performance, as well as a Portfolio Manager, which provides tools related to benchmarking, measurement and verification, and investment priorities (ENERGY STAR 2014b).
- *Purchasing and procurement.* As part of its targeted assistance to states, ENERGY STAR provides a comprehensive guide to purchasing energy-efficient products. These purchasing and procurement resources include sample procurement language and energy efficiency specifications for many products. For products not covered under ENERGY STAR, EPA provides links to the DOE's recommended energy-efficient products used by federal government procurement officials (ENERGY STAR 2014c).

EPA Combined Heat and Power Partnership

The CHP Partnership is a voluntary program to reduce the environmental impact of power generation by promoting the use of CHP. The partnership works closely with energy users, the CHP industry, state and local governments, and other stakeholders to support the development of new projects and promote their energy, environmental, and economic benefits (EPA 2014b).

EPA Green Power Partnership

The Green Power Partnership is a voluntary program developed by EPA to boost the market for clean power sources that do not result in the environmental and health risks associated with conventional electricity generation. State and local governments participating in the partnership receive EPA technical assistance and public recognition (EPA 2014d).

DOE State Energy Program

The State Energy Program is a federally funded program administered by DOE that provides funding and technical assistance resources to state energy offices. Many states have used State Energy Program resources to support their lead by example programs and activities (DOE 2005d). It provides funding to states through "formula grants," which are annual grants that states can use for a variety of energy efficiency activities, including lead by example efforts. DOE

CHP Partner: Texas A&M University

EPA's CHP Partnership helped develop a CHP project with Texas A&M University. The system can operate during a power outage to the grid, ensuring that the university can maintain critical operations, such as emergency housing, research facilities, and a veterinary hospital, without grid power. The system produces 45 megawatts of power, while simultaneously providing space cooling, space heating, and hot water to the 5,000-acre campus. Over the last 10 years, the CHP system has reduced the university's energy consumption by 40 percent per square foot and saved $150 million. The system reduces carbon dioxide emissions by 99,600 tons per year, equivalent to the annual emissions of more than 9,000 homes (EPA 2013).

Green Power Partner: Western Pennsylvania Energy Consortium

The Western Pennsylvania Energy Consortium, which won a Green Power Purchasing Award in 2009, seeks to save the city of Pittsburgh and Allegheny County money on their electricity bills. By collectively procuring green power, Consortium members saved nearly 20 percent per unit of green power energy relative to traditional sources. In 2013, the Consortium purchased 42 million kWh of green electricity, 25 percent of its total consumption, in support of Pittsburgh's GHG reduction goals of 20 percent below 2003 levels by 2023. The Consortium also provides guidance for similar organizations across the state of Pennsylvania looking to procure green energy and realize similar cost savings (EPA 2014c).

also awards funding competitively to states to fund innovative projects that are designed to meet DOE's national focus on fundamentally and permanently transforming markets across all sectors of the economy.

DOE Federal Energy Management Program

The Federal Energy Management Program (FEMP) works to reduce the operating costs and environmental impacts associated with federal facilities by advancing energy efficiency and water conservation, promoting the use of onsite generation and renewable energy, and improving utility management decisions at federal facilities. Although the FEMP focuses mainly on federal facilities, it offers online information resources, an annual training conference, and workshops that are available to state and local government energy managers (DOE 2005a). The FEMP website also provides a compendium of energy efficiency purchasing recommendations, interactive energy cost calculators, and other resources to help purchase energy-efficient products (DOE 2003, 2005b).

DOE Building Technologies Office

The Building Technologies Office (BTO) partners with private and public sector organizations to improve building efficiency through the development of innovative, cost-effective energy saving solutions. The BTO conducts work in three key to continually develop these solutions: research and development, market stimulation, and building codes and equipment standards. State and local governments can access and utilize BTO resources, including guidelines, training information, funding opportunities, partnerships, and technical assistance. BTO resources include step-by-step guidance for developing and implementing energy efficiency programs for residential buildings, commercial building design guides and performance data, and case studies (DOE 2015).

Housing and Urban Development Housing and Community Development Programs

The U.S. Department of Housing and Urban Development's (HUD's) Energy-efficient and Green HOME Housing program encourages the use of energy-efficient and environmentally friendly designs and conservation measures. Through the HOME Investment Partnership Program, HUD provides resources to state and localities during the building, buying, and/or rehabilitating of affordable housing. In addition to providing formula grants, HUD also collaborates with EPA and DOE to promote ENERGY STAR qualified housing and provides training and technical assistance on how to conserve energy in HOME-assisted housing (HUD 2015).

Interaction with State Policies

A variety of state programs and policies can be further leveraged by lead by example programs. Key opportunities include:

- *Procurement policies and accounting methods.* Over the last 30 years, some states have modified their public procurement and accounting methods to encourage energy efficiency investments and renewable energy procurements. These innovations include:
  - Permitting long-term contracts, which are often needed for performance contracting agreements.
  - Modifying low-bid requirements, since performance contracts and other energy-saving investments might increase up-front capital costs, but produce lower overall life-cycle costs.
  - Revising leasing regulations, so that private entities can be owners of equipment for tax purposes. This can be key to attracting private investment in public facilities.

  - Modifying budgeting and accounting practices, so that facilities (e.g., schools) are allowed to keep some portion of energy savings from efficiency projects. Otherwise, energy bill savings could simply result in reduced budget outlays in subsequent years and would not encourage facility managers to develop energy efficiency projects.
  - Changing state budget "scoring" rules, so that performance contracting, bond issues, or other debt obligations are treated comprehensively rather than simply as costs. Even though these state obligations are often covered by guaranteed-savings agreements, legislative budget procedures often fail to give them a net savings accounting treatment.
  - Requiring that state facilities procure a percentage of electricity demand from renewable resources.

- *State bonding authority.* States can use public financing mechanisms, such as educational, health, and environmental bond issuance authorities, to help develop clean energy projects or add clean energy features to planned facility bond issues.
- *Air quality planning.* EPA encourages states to use energy efficiency and renewable energy resources to achieve emissions reductions. Some states have developed specific calculation methods for quantifying the contribution that energy efficiency projects can make to emission reduction targets.

  For example, through the Texas Emissions Reduction Plan (also known as "Senate Bill 898"), Texas works with local governments in "nonattainment counties" (those below air quality standards) to reduce electricity consumption by 5 percent per year, in each year from 2011 to 2021.

Important Considerations for Lead by Example Programs

- *Learn from your peers.* Consult with other states that have implemented lead by example initiatives.
- *Secure support from leaders and stakeholders*. The support of top-level leadership and key stakeholders can be critical to the successful revision of clean energy practices that affect state-owned facilities and fleets. For example, in some cases it may be appropriate for the governor (and legislature, if enabling laws are needed) to establish overall goals and/or to require specific rule changes. Involving stakeholders in planning can ensure their buy-in and support.
- *Follow up with administrative support.* While a law or executive order provides the initial structure for lead by example programs, it is also important to design a strong administrative structure. This entails 1) establishing a lead agency with the authority to implement key targets, 2) setting up a coordinating structure among affected agencies to ensure that the agencies remain involved and that targets are met, 3) developing an approach for evaluation of savings, 4) developing an annual reporting system to track progress against goals, and 5) ensuring that funds are available for programs that exceed current staff and budget capacities.
- *Leverage federal programs.* Review and assess existing federal programs to identify those that provide resources for designing and implementing a lead by example program. For example, the ENERGY STAR program provides energy efficiency specifications for products and building energy performance benchmarking tools.
- *Review and update the program.* Periodically (e.g., every 5 years or less) review and update the state's efforts to bring clean energy investments to its facilities and fleets. Expand efforts that show success and/or potential for success and revise or eliminate unproductive programs.

Program Implementation and Evaluation

Because states can choose from a wide range of lead by example programs, specific design and implementation approaches might differ by program. For example, state policy-makers may identify one state agency or department to administer and implement their energy efficiency programs and a different agency to lead efforts to encourage onsite generation or renewable energy. While multiple agencies may be involved in program design and implementation, the more successful state efforts typically include a multi-agency coordination structure.

Successful program implementation flows from a sound design, which in turn flows from a carefully developed overall strategy or plan. For example, some states have developed clean energy plans that set targets for percentage reductions in state facility energy use by certain dates, followed by an implementation plan that includes the specific measures, budgets, timetables, and other details needed to reach those targets.

Evaluation

Evaluation of lead by example programs is important in determining the effectiveness of an initiative. While procedures for evaluating lead by example initiatives will vary according to specific project features, the following general guidelines are applicable to all programs:

- *Develop baselines.* Baselines will vary depending on the type of initiative. For existing buildings, current energy use or current building practices define baselines for energy performance. For fleets, estimated current fuel economy averages can serve as baseline data. For procurement procedures, baseline information can be based on product data or efficiency standards.
- *Measure and verify savings.* Develop reporting and database systems as needed to document the energy savings and other benefits of program initiatives (e.g., cost savings, job creation, pollutant reductions, health impacts). DOE's Uniform Methods Project is developing a framework and a set of protocols for determining the energy savings from specific energy efficiency measures and programs. The protocols provide a straightforward method for evaluating gross energy savings for common energy efficiency measures (DOE 2014c). For larger and more complex efficiency projects, a project-specific measurement and verification method might be more appropriate (EVO 2014). For example, eProject Builder is a secure, online tool that enables energy savings performance contractors and their customers to upload and track project-level information and benchmark proposed ESPC projects against historical project data. (For more information, see Section 4.1, "Energy Efficiency Resource Standards"; Chapter 3, "Funding and Financial Incentive Policies"; and Section 4.2, "Energy Efficiency Programs.")
- *Communicate results.* Use monitoring and tracking information to document the energy, economic, and environmental benefits derived from the program. By communicating results and benefits to key audiences, states can document progress toward their lead by example goals and promote the benefits of clean energy, describe recommendations for improvement, and obtain continued support for their programs and projects. Reporting results also enhance transparency and comparability of information while encouraging participation from public and external stakeholders. To enhance visibility and accessibility, states can consider reporting results via a dedicated, public website.
- *Review and reinforce effectiveness.* Many worthy initiatives fade into inactivity after initial efforts are complete. Use evaluation efforts to ensure that innovations result in lasting changes in institutional behavior and become part of the organizational culture.

Best Practices: Implementing Lead by Example Programs

- *Coordinate across state agencies.* Involve multiple parties during the design, implementation, and evaluation stages of program development.
- *Assess energy use.* Identify opportunities for energy efficiency improvements or more efficient generation and assess the potential energy savings from these options.
- *Develop an intervention strategy*. A number of incentives, financing mechanisms, and education/outreach opportunities are available to states seeking to implement lead by example initiatives. States can provide education and training to contractors and vendors that provide associated services (which also supports local economic growth and job creation), provide a comprehensive range of cost-effective options for participants, provide a high-quality customer service experience, and accurately track program activities in a way that facilitates savings measurement. When implementing innovative financing approaches, note that states may need to modify their rules to allow agencies to use certain mechanisms (e.g., performance contracting) or accounting methods (e.g., extended payback periods). (See Chapter 3, "Funding and Financial Incentive Policies," for more detailed information on financing options.)

State and Local Examples

California

The CEC administers several lead by example programs. In addition, local governments participate in state programs and have developed their own lead by example programs.

- *Assembly Bill 758 and American Recovery and Reinvestment Act (ARRA) Funds*. Assembly Bill 758, known as the Comprehensive Energy Efficiency in Existing Buildings Law, requires the CEC to develop a comprehensive program to achieve greater energy efficiency in the state's existing residential and nonresidential building stock that falls significantly below the efficiency required by the current version of Title 24 Building Energy Standards. The law also requires the California Public Utilities Commission to investigate each electrical and gas corporation's ability to provide energy efficiency financing options to their customers for implementing the program. The first phase began with the ARRA of 2009's implementation period (2010–2012). The CEC used ARRA funds ($251 million in total) to finance a portfolio of programs that supported energy efficiency efforts through state and local upgrade programs, workforce training, and financing. Through these programs, more than 14,000 homes and 7,700 nonresidential buildings had energy efficiency retrofits. In addition, more than 10,000 individuals participated in workforce education and training. Overall, evaluation results indicate that energy savings exceeded 184 gigawatt-hours (GWh) and 3.8 million therms annually. Furthermore, 4.2 GWh in annual electricity generation has resulted from the implementation of renewable energy generation projects.

  Websites:
  Assembly Bill 758: http://www.energy.ca.gov/ab758/
  CEC ARRA Programs: http://www.energy.ca.gov/ab758/pilot-programs.html
  Evaluation of CEC ARRA Programs: http://www.energy.ca.gov/2014publications/CEC-400-2014-011/CEC-400-2014-011.pdf

- *PACE*. In July 2008, California amended its state law to enable cities and counties to offer PACE financing programs to property owners. PACE allows private property owners to pay for energy efficiency and renewable energy projects through an addition to their property tax bill, overcoming the high upfront costs that prevent most property owners from investing in such retrofits.

  Financing may be used for improvements to developed property only if the property owner agrees to a contractual assessment (that is, agrees to repay the loan) on his/her property tax bill for up to 20 years. In

California, local governments that have implemented programs using this property tax financing mechanism include:

- CaliforniaFIRST
- California Home Energy Renovation Opportunity (HERO) Program
- Green Finance San Francisco
- Los Angeles County Commercial PACE Program
- Clean Energy Chula Vista
- Placer County (mPower Placer)
- City of Folsom (mPower Folsom)
- Berkeley Financing Initiative for Renewable and Solar Technology
- Sonoma County (Energy Independence Program)
- Western Riverside Council of Governments HERO Program
- San Bernardino Associated Governments HERO Program

Website: General information and list of California PACE providers:
http://energycenter.org/policy/property-assessed-clean-energy-pace

- *Senate Bills 77/96 and Assembly Bill 14—California PACE programs.* Senate Bill 77 of 2010 required the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) to develop and administer a PACE Bond Reserve program to help reduce overall program costs. The bill appropriated $50 million to the authority through January 1, 2015. Due to legal issues raised by the Federal Housing Financing Agency in 2010, many jurisdictions in California put a hold on developing PACE programs; CAEATFA therefore appropriated half of its PACE funding to the Clean Energy Upgrade Financing Program through Assembly Bill 14. Under this program, CAEATFA offers financial assistance in the form of a loan loss reserve to participating financial institutions that provide loans to finance the installation of energy efficiency improvements or onsite generation renewable energy sources on residential properties. The goal of the Clean Energy Upgrade Financing Program is to increase access to retrofit financing by reducing its cost and to grow the number of green jobs in the state.

  In 2013, Senate Bill 96 directed CAEATFA to develop the PACE Loss Reserve Program to mitigate the potential risk to mortgage lenders associated with residential PACE financing. The $10 million Loss Reserve Program will protect mortgage holders from losses associated with a PACE lien on the property.

  Websites:
  CAEATFA PACE Loss Reserve Program: http://www.treasurer.ca.gov/caeatfa/pace/index.asp
  CAEATFA Clean Energy Upgrade Financing Program:
  http://www.treasurer.ca.gov/caeatfa/abx1_14/index.asp
  CAEATFA report on Senate Bill 77: http://www.treasurer.ca.gov/caeatfa/pace/2011.pdf
  Senate Bill 96: http://leginfo.ca.gov/pub/13-14/bill/sen/sb_0051-0100/sb_96_bill_20130911_enrolled.pdf
  Assembly Bill 14: http://leginfo.ca.gov/pub/11-12/bill/asm/ab_0001-0050/abx1_14_bill_20110802_chaptered.pdf

- *California Executive Order B-18-12.* Issued in April 2012, this order requires all new state buildings and major renovations beginning design after 2025 to be constructed as zero net energy facilities with interim targets, and directs agencies and departments to reduce their energy consumption by 20 percent from

2003 levels by 2018. The order requires new and renovated state-owned facilities larger than 10,000 square feet to meet USGBC LEED Silver certification,[40] requires existing state buildings over 50,000 square feet to complete LEED-Existing Building (EB) certification by December 31, 2015, requires new and existing buildings to incorporate building commissioning procedures to improve building operations, and sets procurement policies for ENERGY STAR qualified electrical equipment. The order further instructs the CEC to establish energy use intensity threshold targets to set requirements for commissioning of existing buildings.[41]

Websites:
Executive Order B-18-12: http://gov.ca.gov/news.php?id=17508
Green Building Action Plan: http://www.climatechange.ca.gov/climate_action_team/documents/Green_Building_Action_Plan.pdf

- *Energy Efficiency Financing Program.* Through this program, the CEC provides low-interest loans for public schools, public hospitals, and local governments to fund energy audits and install energy efficiency measures. The CEC offers 0 percent and 1 percent interest rates, depending on eligibility, and the maximum loan per application is $3 million. The interest rates are fixed for the entire length of the loan. The repayment schedule is based on the annual projected energy cost savings from the aggregated projects, and loans must be repaid within 20 years.

  Website: http://www.energy.ca.gov/efficiency/financing/

- *Energy Partnership Program.* The CEC offers this program to help cities, counties, hospitals, and other facilities target energy efficiency improvements for existing facilities and energy-efficient options for new construction. The CEC provides a variety of services, including conducting energy audits, preparing feasibility studies, reviewing existing proposals and designs, developing equipment performance specifications, reviewing equipment bid specifications, and assisting with contractor selection and commissioning. The CEC also helps identify state loans and other financing sources for project installation.

  Website: http://www.energy.ca.gov/efficiency/partnership/

- *Assembly Bill 1103*. Passed in 2007, this bill requires electric and gas utilities to record consumption data for all non-residential customers for at least 12 months. These data can be uploaded to ENERGY STAR Portfolio Manager in case a building owner or operator requests the data. Additionally, the bill requires all non-residential building owners to disclose ENERGY STAR Portfolio Manager benchmarking data and ratings to any potential buyer, lender, or lessee.

  Website: http://www.energy.ca.gov/ab1103/documents/ab_1103_bill_20071012_chaptered.pdf

- *Proposition 39*. This proposition changed the corporate income tax code in order to make up to $550 million available annually for eligible energy projects at California local education agencies. The change went into effect for the 2013–2014 fiscal year and is set to last for 5 years. Under the program, these agencies—including public school districts, charter schools, state special schools, and county offices of education—can submit a proposal and receive funding for projects that upgrade energy efficiency or

[40] USGBC certifies new buildings based on a cumulative 69-point system at several possible levels: Certified (26–32 points), Silver (33–38 points), Gold (39–51 points), and Platinum (52–69 points). Points are based on a variety of criteria, including energy efficiency, ozone impacts, site development impacts, materials choices, and indoor air quality.

[41] The commissioning process for existing buildings is defined as adjusting energy systems to operate at their intended efficiency levels. Commonly referred to as re-commissioning, commissioning of buildings is a periodic check on system performance.

promote clean energy generation. These projects may include new or repaired HVAC systems, lighting, windows, thermostats, or onsite energy generation.

Website: http://energy.ca.gov/efficiency/proposition39/

- *Other local programs.* Local governments in California are actively involved in developing or purchasing clean energy supplies. For example, Yolo County developed a 7-megawatt-capacity onsite solar energy project with the capacity to generate almost 14 million kWh of solar energy, equivalent to 152 percent of the county's electricity needs. As of 2013, this project avoided carbon dioxide emissions equivalent to those of 2,000 passenger vehicles per year. Santa Monica became the first city in the United States to convert to 100 percent renewable energy in municipal buildings. Many other California cities have installed renewable energy systems. For example, the municipal facilities in Tulare, San Jose, and Santa Clara have installed solar PV and biogas fuel cell technology to generate onsite renewable energy.

  Websites:
  Onsite renewable energy generation: http://www.epa.gov/greenpower/toplists/top30onsite.htm
  Green power procurement:
  http://epa.gov/statelocalclimate/documents/pdf/greenpowerprocurement508final.pdf

New Hampshire

The state government is the largest energy user in New Hampshire, with heating, cooling, and electricity costs of more than $22 million annually in 2010. New Hampshire has implemented several projects to measure energy efficiency, track energy savings, and fund related projects for public entities.

- *Executive Order 2011-1.* Under a previous executive order issued in 2005, New Hampshire's state government reduced its energy use by 16 percent per square foot over 5 years. Executive Order 2011-1, issued April 15, 2011, sets a new target to reduce statewide fossil fuel use by 25 percent from 2005 levels by 2025, with interim goals for 2015 and 2020. State staff are required to purchase equipment with an ENERGY STAR rating. Every state agency must also implement a "clean fleets" program to reduce transportation fuel use.

  Website: http://sos.nh.gov/ExecOrderLynch.aspx

- *Executive Order 2004-7.* This order requires the New Hampshire Department of Administrative Services to develop an energy information system, which includes an energy efficiency rating system. State staff were required to conduct an inventory of annual energy use by each of the state's 1,200 facilities starting in 2001 and use EPA's Portfolio Manager to assess each facility's energy efficiency. Procedures for tracking and reporting energy use information by each state department are currently being developed.

  The executive order also authorizes a steering committee to develop an energy reduction goal and plan, a procedure for conducting audits of facilities that score between a 40 and a 60 on the rating system, procurement policies that require ENERGY STAR products, new energy efficiency standards for new construction, and a procedure for commissioning new facilities that ensures adoption of energy-efficient design specifications and equipment operations. The executive order also establishes specific policies for the transportation sector. The order stipulates that all new vehicles purchased by the state must achieve a highway fuel economy of 30 miles per gallon or better and an emissions classification for a low-emission vehicle or better. Other efficiency measures affecting transportation include the purchase of low-rolling-resistance tires, an anti-idling initiative, and the promotion of ride-sharing among agencies.

  Website: http://sos.nh.gov/ExecOrderBenson.aspx

- *Senate Bill 409, Building Requirements for State Funded Buildings*. Passed in July 2010, S.B. 409 requires state buildings or structures that are larger than 25,000 square feet and constructed or renovated with state funding to meet specific energy-efficient and sustainable building design standards. This law went into effect on July 1, 2011.

  Website: http://www.gencourt.state.nh.us/legislation/2010/SB0409.html

Texas

Texas' State Energy Conservation Office (SECO) administers and delivers a variety of energy efficiency and renewable programs in all market sectors, including state and local facilities.

- *Alternative Fuels Program.* This program promotes using alternative transportation fuels in Texas by demonstrating their positive environmental impact, technical feasibility, and energy efficiency.

  Website: http://www.seco.cpa.state.tx.us/transport/alt-fuels/

- *LoanSTAR Revolving Loan Program.* The Texas LoanSTAR Program is SECO's most visible program. As of January 2014, the program had provided more than $395 million in over 237 loans for energy efficiency projects, financed for state agencies, institutions of higher education, school districts, and local governments. The program's revolving loan mechanism allows borrowers to repay loans through the stream-of-cost savings generated by the funded projects.

  Website: http://www.seco.cpa.state.tx.us/ls/

- *Senate Bill 898, the Texas Emissions Reduction Plan.* This bill established a goal to reduce electricity consumption by at least 5 percent each year until 2021, beginning in 2011. This policy imposes new energy efficiency requirements on political subdivisions (i.e., cities and counties) in 41 urban and surrounding counties. The affected political subdivisions must implement energy efficiency measures designed to decrease electric consumption while improving air quality. SECO provides assistance and information to the political subdivisions to help them meet their goals.

  Website: http://www.seco.cpa.state.tx.us/energy-reporting/history.php

- Senate Bill 700, Relating to Energy and Water Management Planning and Reporting by State Agencies and Institutions of Higher Education. The Texas legislature passed this bill in June 2014. The bill requires state agencies and institutions of higher education to set percentage goals for reducing their use of water, electricity, gasoline, and natural gas, and to include those goals in their comprehensive energy plans.

  Website: http://legiscan.com/TX/text/SB700/2013

What States Can Do

States have chosen from a wide variety of approaches and goals in developing their lead by example programs. These programs have reduced energy costs for state agencies, increased funding for non-energy-related expenditures, and helped stimulate development of clean energy projects and resources. States have also used lead by example programs to encourage other organizations to take actions that support clean energy.

Action Steps for States

Based on the best practices and examples of effective state programs described above, states can take the following action steps when developing their lead by example programs.

- Look across the entire government to identify opportunities for the state to lead by example on clean energy. Communicate with state agencies, local governments, schools, and other public sector organizations to identify effective ways to incorporate clean energy into their activities. Engage facility managers and agency staff for program planning, implementation, training, tracking, and evaluation.
- Explore requirements to ensure that cost-effective energy efficiency improvements are implemented in both new and existing buildings, since these have provided a major opportunity for energy savings in many states. This includes:
  - *Standards for new buildings.* Most states require that their new facilities meet the most recent version of the ASHRAE 90.1 standard. However, some states have adopted more advanced standards, such as CEC's Title 24 Building Energy Standards (CEC 2005). Voluntary advanced building energy efficiency guidelines are available from ENERGY STAR and the New Buildings Institute (ENERGY STAR 2015; NBI 2004). Some states have adopted green building standards (USGBC is leading this effort through its LEED certification program; see USGBC 2005). (For more information on building codes, see Section 4.3, "Building Codes for Energy Efficiency.")
  - *Performance targets for existing buildings.* Typical targets have been set at 20 percent reduction in current energy use per square foot of floor area, using a recent base year and setting a compliance date of between 5 and 15 years from enactment of the target.
- Consider procurement policies for products, equipment, and green power.
- Investigate targets for using renewable energy to power state and local facilities, allowing flexibility for different agencies to either develop onsite generation or purchase green power, depending on local conditions. States can also explore opportunities to use CHP at state facilities.
- Develop and enable financing mechanisms. States have developed a range of financing methods, including adoption of legislation or rules that ensure that state facilities can use financing strategies such as performance contracting and revolving loans. (See also Chapter 3, "Funding and Financial Incentive Policies.")
- Offer staffing, technical assistance, and training to facility managers and staff on developing energy efficiency programs. Some states have established accountability structures within and between agencies so that procurement, facility management, and accounting departments are all engaged in a common effort to save energy.
- Ensure that agencies are authorized to use and are using ESPCs and performance contracting to implement energy savings projects in their facilities, if internal sources of project financing are lacking. States can adopt legislation authorizing the use of performance contracting in public facilities.

Information Resources

General Information about State and Local Programs

Title/Description	URL Address
American Council for an Energy-Efficiency Economy: State and Local Energy Efficiency Policy Database. Database of energy efficiency policies implemented at the state and local level across multiple sectors.	http://aceee.org/sector/state-policy
CEC: How to Finance Public Sector Energy Efficiency Projects. Describes strategies and funding sources that public sector agencies can use to finance energy efficiency projects.	http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001A.PDF
CEC: Title 24 Building Energy Standards. Describes the energy standards for residential and nonresidential buildings.	http://www.energy.ca.gov/title24
California Energy Partnership Program. Provides technical assistance to cities, counties, special districts, public or nonprofit hospitals, public or nonprofit public care facilities, and public or nonprofit colleges/universities to improve energy efficiency in new and existing facilities. Helps arrange financing to conduct projects.	http://www.energy.ca.gov/efficiency/partnership/
California Executive Order S-20-04. This order established a goal of reducing energy use in state-owned buildings by 20 percent by 2015 and directs compliance with the Green Building Action Plan, which provides details on how the state can achieve these goals. The commercial sector is also encouraged to comply with these two policies. They require CEC to develop a building efficiency benchmarking system and commissioning and retro-commissioning guidelines for commercial buildings.	Executive Order S-20-04: http://gov.ca.gov/news.php?id=3360 Green Building Action Plan: http://gov.ca.gov/docs/Green_Building_Action_Plan_B.18.12.pdf
California Tier 1 and Tier 2 Energy Efficiency and Sustainable Building Measures Checklists. These checklists ensure that energy efficiency and sustainable building measures are included in new building construction and renovations. Tier 1 checklist items have been evaluated as "cost effective" and must be incorporated into projects when part of the project scope. Tier 2 checklist items may or may not be cost-effective, but should be considered for inclusion. While the checklists include some performance standards, they are primarily prescriptive in nature.	http://www.calrecycle.ca.gov/GreenBuilding/Design/Tiers.pdf
Cape Light Compact. This regional services organization provides energy efficiency programs and aggregated power cost negotiations for its members.	http://www.capelightcompact.org/
Consortium for Energy Efficiency: State and Local Government Purchasing Model Program Plan: A Guide for Energy Efficiency Program Administrators. A step-by-step guide for developing and adopting a successful state and local government procurement program.	http://ncprojectgreen.com/Documents/StateLocalGovModelPP.pdf
Efficiency Vermont. Vermont's statewide energy efficiency utility provides technical assistance and financial incentives to help residents as well as public- and private-sector organizations identify and pay for cost-effective approaches to energy-efficient building design, construction, renovation, equipment, lighting, and appliances.	http://www.efficiencyvermont.com/index.cfm
Energy Efficiency's Next Generation: Innovation at the State Level. A guide for model policy measures for energy efficiency.	http://www.aceee.org/research-report/e031

Title/Description	URL Address
New Jersey Clean Energy Program. The New Jersey Board of Public Utilities administers this program, which provides information and financial incentives to help New Jersey residents, business, and communities reduce their energy use, lower costs, and protect the environment.	http://www.njcleanenergy.com/
New Jersey's Green Power Purchasing Program. This program allows the state to aggregate electricity purchases for 200 facilities and negotiate lower costs.	http://www.state.nj.us/dep/dsr/bscit/GreenPower.pdf
New York Guidelines: Executive Order No. 88 "Build Smart NY" New York State Government Buildings. This document elaborates on the requirements of the Executive Order and provides details on the policies and protocols for implementation.	https://www.nypa.gov/BuildSmartNY/Guidelines.pdf
North Carolina Division of Energy, Mineral, and Land Resources: Energy Section. The Resources for Government Web page describes North Carolina's Utility Savings Initiative, a comprehensive, multi- programmed approach to reducing utility expenditures and resources in state buildings.	http://www.energync.net/home/efficiency/government.html
Commissioning for Better Buildings in Oregon. Provides technical assistance to ensure that building systems are designed, installed, functionally tested, and capable of being operated and maintained according to the owner's operational needs.	http://www.oregon.gov/ENERGY/CONS/BUS/comm/docs/commintr.pdf?ga=t
Oregon SEED. This program provides energy efficiency assistance for new and renovated public buildings.	http://egov.oregon.gov/ENERGY/CONS/SEED/SEEDhome.shtml
Texas A&M Energy Systems Laboratory. This laboratory provides tools, technical assistance, and training to help government and building industry users design and evaluate a wide range of energy savings projects.	http://esl.tamu.edu/

Examples of Legislation and Model Language

State	Title/Description	URL Address
California	Executive Order S-20-04. This executive order establishes energy conservation standards for state-owned buildings and encourages commercial building owners, local governments, and schools to take similar measures.	http://gov.ca.gov/news.php?id=3360
	Energy Efficiency Revenue Bond Program. This website provides official documents from the program.	http://www.energy.ca.gov/efficiency/revenuebonds/
Colorado	Public Energy Performance Contracting. This website provides sample guidance and documents to assist with energy performance contracting.	http://www.colorado.gov/cs/Satellite/GovEnergyOffice/CBON/1251599983018
Connecticut	Chapter 298: Energy Utilization and Conservation. This general statute requires the state Department of Energy and Environmental Protection to establish an energy management plan that maximizes energy efficiency for state-owned and leased buildings.	http://www.cga.ct.gov/2011/pub/chap298.htm
Hawaii	Revised Statutes 196-9. This bill requires newly constructed or substantially renovated state-owned facilities to be built to meet LEED Silver standards.	http://www.capitol.hawaii.gov/hrscurrent/vol03_ch0121-0200d/HRS0196/HRS_0196-0009.htm

State	Title/Description	URL Address
Maryland	Senate Bill 267. This 2006 bill sets energy performance standards in state buildings.	http://mlis.state.md.us/2006rs/bills/sb/sb0267e.pdf
	House Bill 376. This 2008 bill requires new or renovated state and new school buildings to be constructed as high performance buildings.	http://mgaleg.maryland.gov/2008rs/fnotes/bil_0006/hb0376.pdf
New Hampshire	Executive Order 2004-7. Signed in October 2004, the order requires 10 percent efficiency improvement in 1,200 state buildings.	http://sos.nh.gov/ExecOrderBenson.aspx
New York	Executive Order 88. This order directs state agencies and authorities to improve the energy efficiency of state buildings.	http://www.governor.ny.gov/news/no-88-directing-state-agencies-and-authorities-improve-energy-efficiency-state-buildings
Oregon	ORS 276.900-915, State Agency Facility Energy Design. This law established the Oregon SEED program in 1991. SEED helps ensure that state facilities are designed, constructed, renovated, and operated to "minimize the use of nonrenewable energy resources and to serve as models of energy efficiency."	http://www.oregon.gov/energy/CONS/SEED/docs/AppendixA.pdf
	Senate Bill 1149. Adopted in 1999, this bill restructured the electric power industry and created a Public Purpose Fund to finance specified energy-related capital projects, including building commissioning.	http://energytrust.org/About/PDF/sb1149.pdf
All States	Consortium for Energy Efficiency: Model Energy Efficiency Purchasing Policy. This document includes model language to be used by state and local governments interested in directing agencies to purchase energy-efficient products.	http://ncprojectgreen.com/Documents/StateLocalGovModelPP.pdf

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CalRecycle. 2005. Sustainable Building Guidelines. California Department of Resources Recycling and Recovery.	http://www.calrecycle.ca.gov/GreenBuilding/Design/Guidelines.htm
Cape Light Compact. 2014. Cape Light Compact.	http://www.capelightcompact.org/
CEC. 2005. Building Efficiency Program. California Energy Commission.	http://www.energy.ca.gov/title24/
CEC. 2013. Energy Partnership Program. California Energy Commission.	http://www.energy.ca.gov/efficiency/partnership/index.html
Colorado Energy Office. 2014. Public Energy Performance Contracting.	http://www.colorado.gov/cs/Satellite/GovEnergyOffice/CBON/1251599983018
Connecticut. 2009. EPA Recognizes Connecticut As One of Nation's Top Green Power Purchasers. March 9.	http://www.ct.gov/governorrell/cwp/view.asp?A=3675&Q=435526

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DFM. 2014. Clean, Renewable Energy. State of Delaware Division of Facilities Management.	http://dfm.delaware.gov/enrgenv/clnrenew.shtml
DOE. 2003. States and Cities Follow Federal Lead in Energy-Efficient Purchasing. U.S. Department of Energy.	http://www1.eere.energy.gov/femp/news/news_detail.html?news_id=7214
DOE. 2005a. Federal Energy Management Program. U.S. Department of Energy.	http://www.eere.energy.gov/femp/index.cfm
DOE. 2005b. Energy-Efficient Product Procurement. U.S. Department of Energy.	https://www4.eere.energy.gov/femp/training/training/energy-efficient-product-procurement
DOE. 2005c. State Energy Program: Projects by Topic—What Are State and Local Government Facility Projects in the States? U.S. Department of Energy.	http://www.eere.energy.gov/state_energy_program/topic_definition_detail.cfm/topic=115
DOE. 2014a. Better Building Challenge: Frequently Asked Questions (FAQ). U.S. Department of Energy.	https://www4.eere.energy.gov/challenge/sites/default/files/uploaded-files/BBChallengeProgramFAQ_FINAL2_5-8-14.pdf
DOE. 2014b. State Energy Program Impacts: Energy and Cost Savings from the State Energy Program. U.S. Department of Energy.	http://energy.gov/eere/wipo/state-energy-program-impacts
DOE. 2014c. Uniform Methods Project for Determining Energy Efficiency Program Savings. U.S. Department of Energy.	http://energy.gov/eere/about-us/initiatives-and-projects/uniform-methods-project-determining-energy-efficiency-progr-0
DOE. 2015. Key Activities in Energy Efficiency. U.S. Department of Energy. Accessed March 5, 2015.	http://energy.gov/eere/buildings/key-activities-energy-efficiency
DSIRE. 2013. Connecticut: Incentives/Policies for Energy Efficiency: Energy Efficiency Requirements for State Government. Database of State Incentives for Renewables and Efficiency. Accessed July 3, 2013.	http://programs.dsireusa.org/system/program/detail/2390
DSIRE. 2014. Maryland: Incentives/Policies for Renewables and Efficiency: State Agency Loan Program. Database of State Incentives for Renewables and Efficiency. Accessed October 16, 2014.	http://programs.dsireusa.org/system/program/detail/163
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