Best Practices in Developing State Lead-by-Example Programs and Considerations for Clean Power Plan Compliance

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About the Author

Mary Shoemaker analyzes state and federal legislation and agency regulations that affect energy efficiency. In particular, she explores the role of energy efficiency in complying with air pollution regulations, with an emphasis on the Clean Air Act and Section 111(d) obligations for states. Mary also manages ACEEE's technical assistance for state energy efficiency policies. She joined ACEEE in 2014.

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Abstract

This is the second in a series of papers intended to guide states as they embark on the path to Clean Power Plan (CPP) compliance. As one of many approaches to reducing pollution and complying with the CPP, states and local governments can advance clean energy technologies and practices in the marketplace by promoting energy efficiency in their own operations, a practice commonly known as leading by example (LBE). This guide discusses some best practices for implementing state LBE programs, walking through the steps policymakers and program administrators can take to identify an LBE approach that will work best for their city or state. We focus on energy savings targets for public facilities and energy savings performance contracts with private parties, and we highlight states that have shown leadership in one or more aspects of LBE program design. LBE programs communicate to the public that state agencies are committed to reducing energy consumption, preserving government facilities, and protecting taxpayer dollars. States can use these programs to create jobs, strengthen local economies, and meet pollution reduction targets under the CPP.

Introduction

State and local governments can advance clean energy technologies and practices in the marketplace by promoting energy efficiency in their own operations, a practice commonly known as leading by example (LBE). In this guide we discuss some best practices for implementing state LBE programs. States may use these best practices to reduce pollution and comply with environmental regulations such as the Clean Power Plan (CPP).

This guide walks through key steps a policymaker or program administrator can take to identify the LBE approach that will work best for her city or state. We recommend adopting energy savings targets for public facilities and entering into energy savings performance contracts (ESPCs) with private parties. We also highlight states that have demonstrated leadership in one or more aspects of LBE program design.

Determine the Best LBE Program Approach

LBE efforts typically begin with a commitment to save energy, improve sustainability, or reduce pollution. After making these commitments, state and local governments have a range of options for financing building upgrades and investments in new technologies that will help them achieve their goals. Some best practices for each of these steps are discussed below.

ENERGY SAVINGS TARGETS FOR PUBLIC BUILDINGS

Energy savings targets for public buildings are one common mechanism to promote and enable investments in new and existing state facilities. Targets typically include a baseline year from which energy savings will be measured and an end year by which the savings will be achieved. The target may be annual, requiring a certain amount of energy savings in one year, or it may be spread out over the span of a program, requiring a percentage reduction over a number of years (without yearly targets). In North Carolina, for example, state agencies and universities were required to reduce energy consumption per gross square foot by 30% by 2015, from an FY2003–2004 timeline (Authority and Duties 2005).

If a state already has an energy savings target for public facilities, it can expand or renew its target, or broaden the subset of participating buildings to include smaller government buildings, state-leased buildings, or universities and schools if they are not already included. While voluntary targets can be effective, a mandatory target can better hold program participants accountable for delivering expected savings. Mandatory commitments can be more reliable and therefore lend themselves better to the long-term planning that states must conduct for the CPP.

Spotlight on Colorado

In 2007 Colorado Governor Bill Ritter Jr. signed Executive Order D0011 07 ("Greening of State Government"), charging all state agencies and offices to reduce energy consumption by 20% by FY2012, from FY2006 levels. The state reached this goal, and in 2015 Governor John Hickenlooper signed Executive Order D 2015-013, setting another energy savings target of 12% by FY2020, from an FY2015 baseline. This order also established a new Greening Government Leadership Council with representatives from every state agency, tasked with supporting efforts to make government operations more sustainable.

ENERGY SAVINGS PERFORMANCE CONTRACTING

Once energy savings goals are set, state and local governments must find ways to finance and install energy efficiency measures. ESPCs allow state agencies to enter into contracts with private energy service companies (ESCOs) and pay the cost of services and energy efficiency measures as energy savings accrue. This payment mechanism helps government agencies invest in their facilities without significant up-front costs. All 50 states, Puerto Rico, and Washington, DC, have passed enabling legislation for use of ESPCs in public buildings (Durkay 2013), but degrees of implementation vary.[1] Given their track record in documenting projects and achieving energy savings, ESPCs are a viable tool for meeting energy savings targets and complying with air regulations such as the CPP.

In many states the agencies administering state ESPCs provide resources to help interested state and local agencies and performance contractors identify, scope, implement, and evaluate projects. The US Department of Energy (DOE) and the Energy Services Coalition offer model ESPCs, steps and criteria for selecting and engaging ESCOs, and other key tools and resources.[2]

A state can achieve greater energy and pollution savings by looking beyond buildings occupied by state executive agencies. Other public buildings include correctional facilities, hospitals, colleges and universities, public K–12 schools, libraries, and local government buildings. Approximately 78% of electricity savings from ESCO projects in 2012 were from customers in the so-called MUSH market (municipalities, universities, schools, and hospitals) (Carvallo, Larsen, and Goldman 2014).

Much of the public sector's experience in financing, projecting, and guaranteeing electricity savings from energy efficiency projects can be leveraged to expand ESPCs into the private sector. Resources, templates, and best practices developed for public-sector ESPCs can be shared with interested private entities. ESCO market potential in the private commercial building sector is estimated to be $14–34 billion (Stuart et al. 2014).

Identify Players and Their Responsibilities

LBE programs involve coordination across government agencies, so identifying participants and their responsibilities up front facilitates more-successful program implementation. Through the work of a leadership team, supporting agencies, and energy service providers, state governments can reduce energy consumption and set a statewide example.

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[1] To view states' enabling legislation and the specific buildings to which these laws apply, visit Oak Ridge National Laboratory's map of ESPC Enabling Legislation in the United States: web.ornl.gov/info/esco/legislation/newesco.shtml.

[2] DOE provides templates and guidance documents to help states solicit ESCOs, conduct an investment-grade audit and present a project proposal, prepare an ESPC, and solicit financing: energy.gov/eere/wipo/model-documents-energy-savings-performance-contract-project#espc. The Energy Services Coalition has identified 10 key attributes for Guaranteed Energy Savings Performance Contracting Program Readiness, including several tools and guidance documents: www.energyservicescoalition.org/10-key-attributes.

LBE LEADERSHIP TEAM

In many states the department of general services or facilities management oversees performance contracting, so this department will likely play a prominent advisory role. These agencies often work in partnership with the State Energy Office (SEO) to develop and refine plans to meet energy savings targets for public buildings. SEOs also help identify energy savings opportunities by conducting energy audits and collecting consumption and cost data. This team oversees LBE programs by assessing program implementation and progress. In using LBE programs for CPP compliance, the team should communicate with the agency spearheading compliance plan development—often the state air office—to ensure that the state's compliance plan includes LBE efforts.

SUPPORTING AGENCIES

States with robust LBE programs have identified key officers in all agencies involved. These officers oversee the implementation of energy efficiency projects such as building retrofits, energy-efficient appliance procurement, and behavioral energy-conservation practices for state employees. Officers are also often responsible for submitting regular progress reports to the LBE leadership team on energy savings and general successes or challenges they face.

Spotlight on Maryland

In 2013 the Maryland Department of General Services (DGS) and Maryland Energy Administration (MEA) proposed a 20% energy savings target for all state buildings by 2020, from a 2008 baseline. The state requires each agency to identify an agency energy coordinator (AEC), who will submit an Agency Energy Plan (AEP) and agency energy performance goals to DGS. The AEC must identify an Energy Management Team, update the AEP at the beginning of each fiscal year, describe the status of current projects, and identify new project ideas. On the same timeline the AEC must also submit a progress report to the governor and work directly with her agency secretary on all energy matters. To guide this process, DGS and MEA developed an AEP template, a list of potential energy conservation measures, and an AEC checklist—among other resources.[3] To date, 26 agencies have named an AEC and submitted energy plans.

ENERGY SERVICE COMPANIES

ESCOs are private entities selected to implement energy efficiency programs for their clients (state or local agencies). Many states have established a list of prequalified ESCOs with which agencies may initiate projects. From this list participating agencies can use a request for proposals (RFP) process to select the ESCOs best suited for their projects. Institutions in states without a pool of prequalified ESCOs can use an RFP process to solicit and select an ESCO.[4] In order to understand the opportunities for performance contracting under the CPP, ESCOs and third-party evaluators—often hired by the program administrator to

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[3] energy.maryland.gov/govt/Pages/stateBuildAct.aspx.

[4] DOE has assembled a variety of model documents to help states launch energy efficiency projects through ESPCs. DOE has included documents to help states solicit ESCOs through the prequalification approach as well as through a standard request for proposals: energy.gov/eere/wipo/model-documents-energy-savings-performance-contract-project.

conduct measurement and verification—should engage with state air offices independently or through ongoing public outreach efforts.

Design a Robust Program

FINANCE THE PROGRAM

States can fund LBE programs through a variety of mechanisms. One common approach used in performance contracting involves funding energy efficiency projects through money accrued from energy savings. States can also leverage utility incentives to cover a portion of project costs, or they can use capital budgets, loans, public bonds, lease-purchase agreements, grants, and rebates. Massachusetts, for example, requires agencies to take advantage of utility incentives on all energy efficiency projects. States may also use bond funding as well as revolving loan funds—which states can offer at no or low interest and with repayment schedules based on energy cost savings (EPA 2009).

PROVIDE TECHNICAL RESOURCES TO GOVERNMENT AGENCIES

During LBE program implementation the LBE leadership team can offer technical assistance to participating agencies. This assistance may include training energy managers on how to use the state's data collection platform, offering financial support, or dedicating staff time at the administering agency (e.g., the department of general services) to help participants as needed. The administering agency can also offer tools to help local governments participate, for example, by allowing them to use the state's energy data collection platform, helping them dissect consumption data, and identifying energy-saving opportunities.

Spotlight on Connecticut

The Institute for Sustainable Energy (ISE) formalized a benchmarking assistance protocol to help towns, state agencies, and schools with their questions on ENERGY STAR® Portfolio Manager. Through its Benchmarking Help Desk ISE provides customized, one-on-one assistance to interested parties. In addition, the Connecticut Department of Energy and Environmental Protection (DEEP)'s Energy Savings Performance Contracting Program offers many tools to state agencies and municipalities to standardize and simplify performance contracting implementation, including standardized contract documents, lists of qualified ESCOs and technical support providers, and support for project financing. DEEP also funds the positions of several program managers to help municipalities and state agencies begin the ESPC process.[5]

TRACK, EVALUATE, AND REPORT ON LBE PROGRAM PERFORMANCE

The ability to track LBE programs allows state leaders to determine whether or not the program is achieving expected energy savings and meeting state and federal policy goals. For CPP compliance this essential component will inform states about progress toward meeting EPA-designated emissions targets in 2030.

Establish a Baseline

In order to measure LBE program progress, participating agencies must understand energy consumption prior to implementation. By identifying current energy consumption state

[5] DEEP's website offers a closer look at resources provided through Connecticut's Energy Savings Performance Contracting Program: www.ct.gov/deep/cwp/view.asp?a=4405&Q=513642.

agencies can more reliably track progress toward meeting energy or emissions targets. Energy savings from performance contracting are generally calculated on a project-by-project basis every year through the end of a contractual savings agreement (SEE Action 2016). To use emission reductions from measures installed as part of LBE programs for CPP compliance, each state should consider several factors unique to its chosen compliance strategy. In a rate-based compliance scenario, energy efficiency measures installed on or after January 1, 2013 that are still achieving savings in 2022 are eligible for Emission Rate Credits (ERCs). While performance contractors may set baselines for their savings calculations based on the needs of customers (public entities), EPA suggests that states interested in reporting these savings to EPA must calculate project savings using common practice baselines (CPB). Existing equipment is often the baseline used to calculate savings for such contracts (EPA 2015b).[6] Under a mass-based approach any reductions in electric-sector emissions during the compliance period will help the state meet its goal, so calculating a baseline is not necessary.

Require Benchmarking

Benchmarking is the process of collecting building energy data so that building owners may understand their energy use compared with similar buildings and identify energy efficiency opportunities. Requiring agencies to benchmark energy usage will allow for frequent measurement of progress. Agencies can submit their energy usage data to the state energy office on a regular basis, and states may also publicly disclose results. Several states require building energy audits either at the beginning of program implementation, at regular intervals throughout implementation (e.g., every five years), or as needed in buildings that exceed average energy consumption. Many states already track data using EPA's ENERGY STAR Portfolio Manager®, but others use other data collection platforms or have created their own, some of which integrate with ENERGY STAR.[7] Through these platforms states can compile data and compare building types and agencies' portfolios. States can use automated benchmarking web services to directly share energy data with their benchmarking platforms, thereby reducing the workload of the designated energy manager.[8]

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[6] EPA makes this suggestion through its draft guidance on Evaluation, Measurement, and Verification (EM&V) for demand-side energy efficiency. EPA defines the common practice baseline as the default technology or condition that would have been in place at the time of project implementation absent energy efficiency installation (EPA 2015b).

[7] Georgia, Maryland, Montana, Oregon, and South Dakota use the EnergyCAP database, which compiles energy data from state buildings and allows for comparison of buildings within and across agencies. Other commercially available systems include B3 and FacilityDude.

[8] For a list of service providers that exchange data directly with ENERGY STAR Portfolio Manager via web services, visit: www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/save-energy/expert-help/find-energy-star-service-a-0.

Spotlight on Tennessee

In 2014 Governor Bill Haslam launched EmPower TN, an initiative to reduce state spending on utility bills by 28% by 2023. The General Assembly approved funding in the FY2015–2016 budget for EmPower activities. Recipients of this funding must submit quarterly reports to the program's executive director on the status of construction and achievement of milestones. Recipients must also provide monthly utility data through the Tennessee Utility Data and Energy Management System once it is launched. In addition, following the state fiscal year recipients must also submit an annual report of energy conservation for the project, covering energy consumption and cost for the five years after project implementation. The initiative focuses on state-owned and -managed buildings, but the state government hopes it will become a model for energy efficiency in the local-government and private sectors.

Define Goals and Metrics for Progress

In partnership with NGOs and government agencies, the ESCO industry has established and extensively documented common measurement and verification (M&V) approaches. While ESCOs or their third-party evaluators do conduct M&V to ensure their clients' savings, they often use project-based M&V (PB-MV), or measure-based deemed or stipulated savings values. Under this approach ESCOs quantify savings for each project, instead of quantifying savings for just a sample of projects and then estimating program-wide savings (EPA 2015b).

For CPP purposes EPA requires EM&V in a rate-based context and provides guidance on this process (80 FR 64908).[9] EPA recommends that ESCOs use PB-MV or a deemed savings approach; however these are often used in conjunction with one another. To account for independent factors (e.g., variability in weather or building occupancy), ESCOs should base energy savings on actual conditions with PB-MV methods, or use normalized or typical conditions with deemed savings methods. To ensure the accuracy and reliability of reported savings values, evaluators should describe in their M&V reports the certainty of reported savings values, quality control measures used, sources of deemed savings values, details of data metering practices, and baseline used (if different from the CPB). In order to avoid double counting, EPA advises ESPC evaluators to use consumer-level data across projects, then identify and correct for duplicate energy efficiency activity. To determine the persistence of energy savings, EPA suggests that evaluators use deemed effective useful life (EUL) values or annually verify the operation of a subset of projects. States may track additional metrics in order to measure progress that positions them to achieve other state policy goals, like improved public health or reduced energy burden (EPA 2015b).[10]

In a mass-based compliance context, the state is not required to conduct EM&V except for set-asides to address leakage or for participation in EPA's Clean Energy Incentive Program

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[9] Joint comments on EM&V, filed by ACEEE and other joint energy efficiency stakeholders, further discuss these issues: www.mwalliance.org/sites/default/files/uploads/Joint EE Stakeholder Comments on CPP Fed Plan and MTR re EMV 1-21-16 Final.pdf.

[10] Lawrence Berkeley National Laboratory developed eProject Builder (ePB) as a free tool for ESCOs and their customers to upload and track project data, generate project reports, and benchmark projects against historic project data. Originally developed for federal agencies, ePB is being modified for use by state and local agencies. This tool standardizes the data collection process and could help states include energy and emission savings from ESPC projects in CPP compliance plans. Pilots are under way in Georgia, Kentucky, and Virginia.

(CEIP).[11] However there are many good reasons to adopt a transparent and robust approach to EM&V. For example, participation in state, regional, or national emissions trading markets would likely require documentation and verification of energy savings.

DETERMINE OWNERSHIP OF EMISSION REDUCTIONS

The agency tasked with CPP compliance should ensure that ESCOs understand if and how they may receive allowances or ERCs for energy savings achieved through the LBE program. In a rate-based compliance scenario, state air offices will need to decide whether ESCOs will receive ERCs from energy efficiency projects or if the client state agency will receive them. In a mass-based approach state air offices will decide how to allocate emission allowances, including whether to auction, sell, or set aside allowances for electric generating units (EGUs) or energy efficiency providers. In either case language can be included in ESPCs to assign ownership rights to the emissions reductions achieved through installation of LBE measures.

Conclusion

Beyond the energy and emission savings achieved through energy efficiency measures in public facilities, LBE programs communicate to the public that state agencies are committed to protecting taxpayer dollars and investing in public facilities. LBE programs can also have ripple effects in other sectors and in state CPP planning processes by showing the feasibility of achieving long-term energy savings goals. LBE lessons learned can be applied to the broader utility sector, for example, in setting statewide energy savings targets or establishing sustainable building requirements. ESPCs between state and local agencies and energy service providers—one of the best examples of LBE programs—show the potential for public–private partnerships and prove that little to no up-front capital is necessary to improve building quality. By developing robust energy efficiency programs and reliably tracking program performance, state and local governments lead the way to using energy efficiency in any CPP compliance scenario.

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[11] EPA provides a fact sheet, list of next steps, and other CEIP-related resources here: www.epa.gov/cleanpowerplan/clean-energy-incentive-program.

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