This short presentation is intended to give states and their stakeholders a vision for what it would look like to include energy savings performance contracting in their energy plans.
Energy Savings Performance Contracting as an Emissions Reduction Approach

**Activities**

**Energy Savings Approaches**
- State energy or general services office, building owners, energy service companies (ESCOs), utilities generate energy savings from:
  - Direct energy management
  - Capital improvements
  - Technical assistance
  - Training
  - Metering
  - Utility incentives

**EM&V**
- Recent resources provide guidance, including:
  - [Federal Energy Management Program M&V Guidelines Version 4.0](#)

**Possible Leads**
- State Energy Office
- State/Local General Services
- Local Sustainability Office
- Commercial building owner
- ESCO

**E-Savings**
- Annual kWh and BTUs reduced since project installation date

**Potential Program Components**
- Green Bank or other internal state/city funding
- Utility
- State ESPC Support Program

**State Policy Options**
- Could include:
  - Energy efficiency resource standard (EERS)
  - Executive order or legislation to create ESPC program w/target savings or investments
  - State financing for ESPC projects
  - State administrative rules to support ESPCs
Why Energy Savings Performance Contracting?

How Energy Savings Performance Contracting (ESPC) Works
• ESPC is a mechanism that provides upfront capital for energy efficiency projects that is repaid by the energy savings generated by the project.
• ESPC mobilizes energy efficiency projects that might not otherwise move forward in the face of limited budgets for upfront project costs.
• ESPC enables more comprehensive retrofits that can include major energy-consuming equipment upgrades as well as water conservation and infrastructure improvement.

Benefits of ESPC
• Guaranteed project performance: The contracted energy services company (ESCO) is responsible for any shortfall in guaranteed project savings.
• A typical ESPC project in the municipal/university/schools/hospitals (MUSH) market saves approximately 13-31% annually, compared to baseline consumption (LBNL).
• ESPCs active in 2012 saved 34 million TWh and 224 million MMBtu or approximately 1% of total US commercial building energy consumption (LBNL).
Current Status of ESPC

• Nearly all states have ESPC-enabling legislation.
  • More ESPC activity occurs in states with energy savings goals.

• The MUSH (municipalities, universities, schools, hospitals) market represents more than 70% of ESPC industry investment (LBNL, 2016)
  • MUSH market project sizes have ranged from <$50,000 to almost $40 million.
  • In 2016, the largest single-state ESPC project in the U.S. to date totaled $245M.

• ESPC investments are growing.
  • From January 2013 to December 2016, 25 state and local partners in DOE’s ESPC Accelerator developed public-sector energy efficiency retrofit projects resulting in more than $2 billion invested.
  • As of 2017, at least two states have exceeded $500 million in total ESPC project investments.
  • Anticipated 2017 revenues in the ESPC market of $7.6 billion represent an annual growth of 13% over the period 2015-2017 (LBNL, 2016).
Additional Opportunity: Large Potential Savings Across U.S.

- Growth in ESPC still leaves large amounts of floor area untouched (LBNL, 2015):
  - More than 3/4 of state and local building floor area has yet to be addressed by ESPC
  - More than 2/3 of floor area in MUSH markets generally has yet to be addressed by ESPC
- Significant investment potential remains (LBNL, 2017):
  - Approximately $66 to $208 billion available for ESPC project investments in the MUSH market
- Large potential savings are available across the U.S. (LBNL, 2013):
  - 200 to 262 trillion Btu in energy savings potential if these ESPC investments were made

More details available:

State and Local Role in ESPC

ESPC pathway requires state and local action

- Legislation enabling ESPC is adopted at the state level; almost all states have legislation allowing ESPC.
- Decision or approval to use ESPC is made at the individual state or local agency, department, council, or facility level.
- State and local debt and financing policy impacts ESPC project structures

Policy Actions

- The most effective ESPC state policy includes establishing a state-level program to provide technical assistance to entities pursuing ESPC projects.
- A state legislature, governor, administrative agency, or local government can support ESPC by:
  - Establishing or leveraging a statewide savings goal
  - Establishing or leveraging an energy savings goal or EE standard specific to state or local building stock (often set by the governor or local elected official)
  - Establishing training or certification programs/requirements for building operators
  - Establishing or accessing an internal financing mechanism that can provide a regular, low-cost funding stream for ESPC projects
  - Establishing a state chapter of the Energy Services Coalition; chapter meetings bring together public and private ESPC stakeholders.
Best Practices in ESPC Implementation

Implementation Actions

• Sound project development and implementation are critical to realizing actual energy savings from ESPC projects.

• Some states use in-house expertise to develop ESPC contracts; others look to external owner's agents for such support.

• Best practices in project implementation include:
  o Engage an owner’s agent to oversee project development and management
  o Partner with Energy Services Companies (ESCOs) pre-qualified to perform the project
  o Use standardized contracts and documents to streamline the project development process and cut transaction costs
  o Plan and apply formal measurement & verification (M&V) to ensure project is yielding the expected savings and include third-party verification
  o Benchmark, track, and report project data to effectively gauge project results
ESPC Savings Examples from Select States

- From the late 1980s through 2013, Washington’s Dept. of Commerce contracted with ESCOs to complete energy-savings investments in more than 400 public facilities, with average annual savings of over $30 million. The program has saved an average of 1 trillion BTUs and 58.8 tons of CO2 per year. (WSDES)

- From the mid-1990s through June 2016, Colorado’s ESPC portfolio included >190 active and completed construction projects, which will result in $32.1 million in annual utility cost savings. (ACEEE)

- Between 2005 and 2015, Illinois’ Department of Commerce and Economic Opportunity helped arrange ESPCs for local governments and other public facilities. The program, which built on a pilot, has achieved utility savings of over $17.2 million per year. (IDCEO)

- Between 2012 and 2016, Massachusetts invested $470 million in energy projects across 58 million square feet of state buildings, resulting in a 25% energy reduction and a decrease in greenhouse gas emissions of 135,000 metric tons. (ACEEE)

- Between 2009 and 2016, New Jersey arranged 65 ESPC projects for $300 million in contracts, resulting in $40 million in annual savings. (ACEEE)
ESPC Is Cost-Effective

- ESCOs provide an energy savings guarantee for the project. With a properly set-up project and contract, the ESCO bears the costs of covering a shortfall if the project savings do not materialize.

- ESPC projects register 15-31% energy savings per project (LBNL).

- The median ESPC project in the state and local market pays back its investment in approximately 8-10 years (LBNL).
EM&V Methods for ESPC

• ESPC projects quantify energy savings on a project-by-project basis (M&V).

• ESCOs use standardized M&V approaches, primarily the **International Performance Measurement and Verification Protocol (IPMVP)**.
  o IPMVP provides four M&V options and addresses issues related to the use of M&V in third-party-financed and utility projects. Best practice is to add third-party verification to ESCO measurement.

• Other options include:
  • **FEMP (Federal Energy Management Program) M&V Guidelines** – Many state & local governments use these Guidelines, which contain specific procedures for applying concepts originating in the IPMVP.
  • **ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Guideline 14 – Measurement of Energy and Demand Savings** – The ASHRAE guideline specifies three engineering approaches similar to the options provided in IPMVP.
  • **Uniform Methods Project** – The measure protocols are based on a particular IPMVP option and provide a more detailed approach to implementation.
DOE Support for ESPC

**ESPC Toolkit** – collection of dozens of resources, best practices, and innovative approaches that states, cities, and K-12 schools have used to successfully establish and implement performance contracting.

Highlights include:

- **Considering ESPC?** – [ESPC or Design-Bid-Build for Your Retrofit?](#)
- **Implementing ESPC Projects** – [Financing Decision Tree](#)
- **Establishing an ESPC Program** – [Guidelines for Establishing ESPC Support Program](#)
- **Expanding ESPC to New Markets** – [ESPC Guide Series for Underserved Markets](#) (K-12 schools, fleets and fueling infrastructure, water resource recovery facilities)
- **Evaluating ESPC Results** – [Overview of Economic Impact Analysis Tools](#)

*Note: Resources are grouped so that users can easily find the information they need at each stage of their ESPC decision-making process.*
Additional Resources for State & Local Governments

• Individual states support ESPC programs. Start with the State Energy Office.

• Additional educational and informational resources are available through the Energy Services Coalition, a public-private partnership promoting the benefits of, providing education on, and serving as an advocate for the widespread use of energy performance contracting in public and private facilities.
  – ESC State Chapters
  – ESC Project Case Studies

• Additional Key Documents
  – NAESCO, ESPC Project Case Studies
Get More Information on This Pathway and Others

Visit: energy.gov/eere/slsc/EEopportunities

How Energy Efficiency Programs Can Support State Energy Planning

Overview and individual presentations on features and benefits associated with including energy efficiency in state energy plans, covering:

• National and state-level energy savings potential estimates for 2030
• Current activity at the national and state levels, best practices, energy savings examples, cost-effectiveness, measurement approaches, and DOE support for:
  – Building energy codes
  – City-led efficiency efforts
  – Combined heat and power
  – Energy savings performance contracting
  – Industrial efficiency, including superior energy performance
  – Ratepayer-funded programs
  – Residential energy efficiency
  – Low income energy efficiency
• Technical assistance available


State and Local Energy Efficiency Action Network (SEE Action) resource presents pathways thru:

• Case studies of successful regional, state, and local approaches
• Resources to understand the range of expected savings from energy efficiency
• Common protocols for documenting savings
• Sources for more information