Tennessee Department of Environment and Conservation – Office of Energy Programs

Tennessee Energy Education Initiative & Energy Performance Contracting

Luke Gebhard, Senior Program Manager
TDEC - Office of Energy Programs
Office of Energy Programs

- Designated Department of Energy’s (DOE) Energy Office for the State of Tennessee.

- Organizes and oversees programs as part of DOE’s State Energy Program (SEP), including the Tennessee Energy Education Network (TEEN) and the Tennessee Energy Education Initiative (TEEI).

TEEI

• OEP launched TEEI in the Spring of 2013 with funding from the American Recovery and Reinvestment Act.

• TEEI’s mission is to provide in-depth training and educational tools to support the implementation of energy efficiency, renewable energy, and energy management projects in all sectors.

• TEEI has leveraged relationships with State Agencies, Local Governments, TVA, Oak Ridge National Lab, and non-profit organizations.
TEEI – 2013 Highlights

• 48 events and activities, including:

  4 QECB Workshops (60)
  4 Business / Industry Lunch & Learn Sessions (168)
  6 Energy Efficiency in Water & Wastewater Systems Workshops (229)
  3 Summits (Memphis, Nashville, Knoxville) (572)
  2 Webinars (198)

  2,837 total participants

• Creation of Initiative Website and Online Resource Center www.tnenergy.org
State Energy Program 2013 Competitive Award

• In December 2013, the U.S. Department of Energy selected OEP’s application for a State Energy Program 2013 Competitive Award: “Stimulating Energy Investments in Hard-to-Reach Sectors: Small Towns and Public Housing Authorities.”

• Tennessee was just 1 of 6 states to receive funding in the FOA’s Area of Interest 3 – Retrofitting Public Buildings.
Project Overview and Objectives

- Provide education, outreach, and technical assistance to — and serve as technical assistance providers for — local governments and public housing authorities (PHAs) to drive demand for energy efficiency investments in the State of Tennessee.

- Conduct outreach to a minimum of 50 local jurisdictions and 35 PHAs.

- Secure commitments from at least 10 local jurisdictions and 8 PHAs.
Project Overview and Objectives

• Project will explore four primary financing options: (1) energy performance contracting; (2) utility incentives; (3) utility bill repayments; and (4) commercial PACE.

• Other financing options may be identified during the grant period.
Project Team and Partners

OEP project team consists of:
• Expert energy efficiency consultancy group Clean Energy Solutions, Inc. (CESI), which is also working with Virginia and Maryland on similar grants.
• BLT Sustainable Energy
• Regional and local energy efficiency experts.

Umbrella stakeholder partners include:
• Tennessee Association of Housing and Redevelopment Authorities.
• Tennessee Housing and Development Agency.
• Tennessee Valley Authority.
• Tennessee Municipal League.
Phase I: Planning and Organization (M1-6)

• Align and organize stakeholders.

• Create outreach plan.

• Draft outreach collateral / materials.

• Establish data management protocols.

• Establish partnerships with energy service companies and participating agencies.

• Identify and track financing mechanisms.

• Investigate feasibility of commercial PACE.
Phase II: Initial Outreach (M6-12)

• Hold meetings with local governments and PHAs.
• Finalize and distribute outreach collateral.
• Milestone: secure commitments from at least 5 local governments and 4 PHAs.
• Collect utility data from participating agencies.
• Issue Request for Qualifications for participating contractors.
• Release report on feasibility of commercial PACE as a potential energy efficiency financing option in Tennessee.
Phase III: Technical Assistance (M12-21)
Phase IV: Final Reporting (M22-24)

- Hold meetings with local governments, PHAs, and stakeholders to discuss next steps.
- Completion of data analysis for participating governments and agencies.
- Submit final report.
- Submit implementation model to promote similar program outcomes in other states and regions.
Clean Energy Solutions (CESI): founded by two Energy Performance Contracting CEOs

- Performing same tasks in Virginia, Maryland
- Completed aggregation of small municipalities in Ohio
What is an Energy Performance Contract?

- A capital improvement strategy that utilizes utility savings to pay for energy efficiency measures

- Energy-related improvements such as HVAC replacement, controls, refrigerators, lighting, etc.

- Lower cost, quicker payback measures like lighting enable investments in more expensive, longer payback measures like HVAC & window replacements

- Loan debt service payments retired over up to 15 years from savings

- ESCO guarantees savings are sufficient to repay debt

- Requires a third party to guarantee savings, oversee installation of measures, provide annual services
Customer Value Proposition

**IMMEDIATE CASH SAVINGS**
- Immediate cash flow
- Additional cash savings
- Cost reductions in maintenance & replacement
- Control over price volatility

**RELIABILITY**
- Security
- Power quality
- Deferred maintenance

**FACILITY IMPROVEMENTS**
- Capital appreciation
- Comfort, lights, etc.
- Productivity
- Safety, health (IAQ)

**ENVIRONMENTAL IMPROVEMENT**
- Clean air
- Pr, Marketing value
- Meeting goals; participation
- Reduced insurance costs

**BEFORE**
- Private Investment Captures Value of Waste

**AFTER**
- To Bank Trustee

$1,000 to Electricity & Fuel Suppliers

$60

$140

$800

CLEAN ENERGY SOLUTIONS, Inc.
What Does an ESCO Do?

ESCO

Energy Engineering & Analysis

Design, Bid & Specifications

Licensing, Insurance & Bonding

Prequalification & Contracting With Subcontractors

Construction Management

Secure third-party financing

Maintenance Training

M & V

HUD Waivers & Approvals

Financial Bid Solicitation With Review

Commissioning

Budgets Open Book Pricing Predetermined Margins

Performance Guarantee

Utility Baselines

Clean Energy Solutions, Inc.
Where does Energy Performance Contracting Fit?

- A supplement to grant programs
- To pay for capital improvements where grant funds insufficient
- Strong leveraging instrument
- Requires sophistication, time to manage
- Appropriate for municipal buildings, large Nonprofits, such as hospitals, universities
Benefits of Performance Contracting

- Replace aging equipment with new equipment
- Access to third party financing for needed capital energy improvements
- Improved facility energy efficiency and reduced energy costs
- Reliable and persistent long-term energy saving project performance
• Enhanced local economies through the ESCOs use of local subcontractors
• Decreased equipment repairs and lower maintenance costs
• Freed-up budget dollars to fund other activities
Benefits of Performance Contracting (Continued)

- Increased productivity from improved indoor air quality (IAQ) and building comfort conditions
- Optimized equipment performance through project commissioning
- Better overall management and control of facility
- Leverage available utility incentives
Risk Reduction Benefits

- Contractually guaranteed measured savings reduces the risk of savings erosion over time
- Integrated project analysis, design, and construction reduces the risk of lost savings opportunities and schedule delays
- Utility savings and performance monitoring reduces the risk of under-funding key maintenance requirements
Risk Reduction Benefits (Continued)

- Up-to-date training and knowledge for facility operating personnel reduces the risk of project non-performance

- Ability to select services and materials based upon quality and value, rather than on lowest first cost, reduces the risk of inadequate maintenance
## Conventional Bid and Spec vs EPC Negotiated Procurement

<table>
<thead>
<tr>
<th>Conventional</th>
<th>Performance Contracts</th>
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<tbody>
<tr>
<td>• May take several years to secure sufficient funds to implement comprehensive</td>
<td>• All funds needed for a comprehensive energy project are</td>
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<tr>
<td>energy projects</td>
<td>readily available</td>
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<td>• High staff costs due to a piecemeal approach to bidding and managing each</td>
<td>• Lower staff cost and quicker completion of a comprehensive project</td>
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<td>separate project</td>
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**CLEAN ENERGY SOLUTIONS, Inc.**
Conventional Bid and Spec EPC Negotiated Procurement

**Conventional**

- Multiple contracts with multiple vendors can result in conflicting project requirements
- Energy savings are not guaranteed

**Performance Contracts**

- One contract with single point accountability for project performance
- Long-term energy savings are guaranteed by the ESCO
Conventional Bid and Spec EPC Negotiated Procurement

**Conventional**

- Guarantees of comfort and operating standards are not usually offered by equipment vendors
- Incremental project implementation misses savings design opportunities

**Performance Contracts**

- Performance contracts typically contain explicit comfort and operating standards
- Comprehensive project implementation maximizes savings design opportunities
Conventional Bid and Spec EPC
Negotiated Procurement

Conventional

- Energy projects must compete for limited budget resources with other improvement projects
- No direct incentive for building staff to reduce energy costs

Performance Contracts

- Energy projects are funded with utility bill savings
- ESCO compensation is tied to providing energy savings over the term of the contract
Conventional Bid and Spec EPC Negotiated Procurement

**Conventional**

- Limited staff or lack of expertise may put project performance at risk
- Operations and maintenance budgets are usually under-funded, resulting in wasted energy

**Performance Contracts**

- ESCO provides ongoing technical expertise to insure project performance
- Utility bill savings finance operations and maintenance required to maintain project performance
Limitations of EPC

- Requires Facility Minimum of $500k generally to attract ESCO attention
- Not cost-effective for addressing single measure unless financing unavailable otherwise
- Requires some sophistication in Project Management, Oversight
  - Guarantees
  - Fees
  - M&V Issues
Managing an EPC

Oversight requires one day per week during construction

- Some towns may desire consultant to review engineering, costs
- Anticipate “Soft Costs” of 35-45% of project total
What will project do to Help?

- Advisement on singular or joint Requests for Qualification (RFQ) from participating energy services companies.
- Prequalification of eligible facilities and energy audits.
- Collection of utility data for benchmarking.
- Assembly of capital needs and priorities.
- RFPs and negotiation of contracts.
- Monitoring, verification and commissioning.
Next Steps for Communities

• Collect and analyze monthly utility data for past two years
• Provide inventory of no. of buildings and square footage
• Prioritize utility-related capital needs
• Talk to Town Manager, CFO, Facilities Manager about Interest in EPC
Questions & Next Steps

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