Energy Efficiency Case Studies in Connecticut: Performance Contracting and C-PACE

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May 2014
What is ESPC?

- Implementation of energy saving measures, paid for by guaranteed savings from future operating budget
- Approach is over 30 years old, approx. $4.1 billion market in U.S. in 2013\(^1\)
  - “SMUSH” Sector > 50% of ESPC Market

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ESPC Concept

Before ESPC

During ESPC

After ESPC

Utility Costs

Savings

Finance Payments

Utility Costs

Utility Costs

Savings
Aggregating Measures Balances Payback

1-5yr Payback
- High Efficiency Lighting
- Optimized energy management systems
- Low flow fixtures

10-20+yr Payback
- Advanced HVAC Systems
- Windows and building weatherization
- Renewable energy systems

Aggregate Payback <15 years
Who Benefits from ESPC?

- **Taxpayers**
  - Fewer capital demands, more longevity of municipal infrastructure

- **Municipal leaders**
  - Can finance projects outside of capital budgets

- **Facility managers**
  - Improved efficiency, fewer complaints, fewer emergencies

- **Building occupants**
  - Healthier working/learning environments, increased comfort
How does the CT ESPC program work?

- Pre-approved, standardized documents and process
  - Required for use by state agencies. Optional for municipalities.

- Pre-qualified vendors (QESPs = “ESCOs”)

- Support Services
CT approved documents and process

- Started with templates developed out of years of experience in other states nationwide

- US Department of Energy provided technical assistance on best practices, processes
  - CT active in DOE ESPC Accelerator Project

- CT program docs developed by an Interagency Workgroup
  - DEEP, Administrative Services, Construction Services, Policy and Management, Attorney General, Treasurer
Pre-Qualified Vendors

- 13 Qualified Energy Services Providers (QESPs) are pre-qualified and on State contract
Support Services “Translate” ESPC Lingo

DEEP
CEFIA
TSP
Utilities

energy
new
development
oil
renewable
vehicles
investments
President
America
Energy

energize
CONNECTICUT
Support Services – Energy Engineering

- Program Manager at DEEP with energy efficiency expertise
- Utilities – Incentives through CT Energy Efficiency Fund
- 3rd party Technical Support Providers (TSP = “Owner’s Rep”)
Support Services - Financing

- CEFIA staff can provide advice and support on financing options, introductions to capital providers and financial institutions
- Tax-exempt municipal lease/loan guidance documents
First Projects under CT ESPC Program

Connecticut Valley Hospital – Started IGEA

Dept of Corrections – Started IGEA

Dept of Motor Vehicles - Started IGEA

City of Bristol – Selecting QESP

Regional School Dist 17 – Issued Feasibility Study RFP
Lead By Example Bond Funded Program

- 57 Projects Approved (list is on the DEEP website)
- 35 Projects completed
- $14.6 Million Committed
- Estimated annual cost savings = $2.2 million
- Simple Payback = 6.6 years
- Utility incentives received = $130,000 (more on the way)
- Annual energy usage reduced by almost 50%
Property Assessed Clean Energy

- An innovative financing structure that enables commercial, industrial, and multi-family property owners to access financing for qualified energy upgrades and repay through a benefit assessment on their property tax.

Private capital provides 100% upfront, low-cost, long-term funding

Repayment through property taxes

A senior PACE lien is put on the property and stays regardless of ownership
# The C-PACE Advantage for Owners

<table>
<thead>
<tr>
<th>Near term plan to sell?</th>
<th>Tax obligation fixed to property</th>
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<tbody>
<tr>
<td>Lack of funding?</td>
<td>100% upfront, 20 year financing</td>
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<tr>
<td>Insufficient payback/ROI?</td>
<td>Positive cash flow in year 1</td>
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<tr>
<td>Split incentives?</td>
<td>Assessment/savings pass to tenants</td>
</tr>
<tr>
<td>Lack of Credit (LLC)?</td>
<td>Underwriting on property</td>
</tr>
<tr>
<td>Uncertain savings/technical expertise?</td>
<td><strong>C-PACE Technical underwriting / SIR&gt;1</strong></td>
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# C-PACE Advantage to other stakeholders

<table>
<thead>
<tr>
<th>Capital Providers</th>
<th>Mortgage Lenders</th>
<th>Municipalities</th>
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</table>
| • Low risk investment opportunity  
  • Senior lien  
  • Secure repayment mechanism (taxes)  
  • Legal and technical structure administered by CEFIA | • Improves Building Financials/Risk  
  • Lowers OPEX  
  • **SIR>1**  
  • No acceleration | • Creates economic development & jobs  
  • Reduces energy costs for businesses  
  • Reduces pollution |
|                  | • Creates a more attractive building for occupants and owners  
  • Finances deferred maintenance needs |                |

**energize CONNECTICUT**
Program Snapshot: First 16 Months

- 80 towns on board – 83% of the CT market eligible
- 250+ contractors trained
- 17 qualified capital providers
- 500+ applications
- 20 mortgage lenders have provided consent
- $16M in closed transactions
- $28M in approved transactions
- $40M internal warehouse CEFIA capital
- Selling down initial $20M+ portfolio through bid process
80 Municipalities Opted into C-PACE

> 80% C&I Market
Case Study: Comprehensive Energy Efficiency

Location: 855 Main Street, Bridgeport, CT
Building Type: Large Office (>50,000 SF)
Building Size: 112,000 Square Feet
Total Project Cost: $2,462,000
Utility Incentives: $469,317
C-PACE Financing: $1,992,683
Term: 20 Years
Annual Interest Rate: 5.5%
Annual C-PACE Assessment: $166,563
Annual Energy Cost Savings: $241,900
Lifetime Energy Cost Savings: $6,047,504
Annual Energy Savings: 6,650,053 kBTU
Case Study: Solar Project in Hartford

Location: 41 Walnut Street, Hartford, CT
Building Type: Manufacturing
Building Size: 34,500 Square Feet
Total Project Cost: $170,000
Utility Incentives: $10,660/year ZREC
C-PACE Financing: $145,000
Term: 20 years
Annual Interest Rate: 5.5%
Annual C-PACE Assessment: $12,044
Annual Energy Cost Savings: $20,934
Lifetime Energy Cost Savings: $418,690
Annual Energy Savings: 65,000 kWh
## CT Green Bank’s Role in C-PACE

| **Design Program** | • Design guidelines, bring on technical team  
|                   | • Onboard municipalities  
|                   | • Market the program  

| **Determine Project & Building Eligibility** | • SIR>1  
|                                            | • Financial due diligence  
|                                            | • Secure lender consent  

| **Attract Private Capital** | • Qualify Capital Providers  
|                            | • Provide capital (as needed)  
|                            | • Sell-down portfolio  

Thanks for listening!

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May 2014