Financing Energy Performance Upgrades: Challenges and Opportunities

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Public Law 93-383, Sect. 809

Congress directed the Institute to “exercise its functions and responsibilities in four general areas..........

▪ Develop and maintain performance criteria for maintenance of life, safety, health, and public welfare for the built environment
▪ Evaluate and prequalify building technology and products
▪ Conduct related and needed investigations
▪ Assemble, store, and disseminate technical data and related information
Mission

“. . . to serve the nation and the public interest by supporting advances in building sciences and technology to improve the built environment.”
The Council on Finance, Insurance and Real Estate

- Examines the intersection of finance, insurance, investment and design, construction and ownership to encourage the development and assist in the affordability of high-performance buildings.
- Provides an objective source for information and identification of valid performance methodologies and provides a forum for the AEC and finance and insurance industries to come together to understand each other's perspectives/concerns and engage in problem solving.
Barriers to Pursuing Energy Efficiency

- **Lack of funding to pay for improvements**: 32%, 31%, 24%
- **Insufficient payback/ROI**: 20%, 21%, 14%
- **Uncertainty regarding savings/performance**: 17%, 12%, 14%
- **Lack of technical expertise to evaluate or execute**: 10%, 7%, 6%
- **Lack of awareness about opportunities**: 14%, 7%, 7%
- **Lack of organizational ownership/dedicated attention**: 10%, 9%, 9%
- **Landlord/tenant split incentives**: 3%, 5%, 4%

Institute for Building Efficiency | www.InstituteBE.com
Small Building Domination

≤ 50k sq.ft.
Structures 93.9%
Square Footage 49.5%

## Summary of Energy Efficiency Impact by Market Size, Climate and Employment Categories

<table>
<thead>
<tr>
<th>Economic/Financial Impact</th>
<th>Residential</th>
<th>Commercial</th>
<th>Institutional</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Savings (Trillion Btu)</td>
<td>1,892</td>
<td>848</td>
<td>293</td>
<td>3,033</td>
</tr>
<tr>
<td>Total Investment ($ Bn)</td>
<td>182</td>
<td>72</td>
<td>25</td>
<td>279</td>
</tr>
</tbody>
</table>

| Social Impact                          |             |            |               |       |
| Cumulative Job Years Created (# FTEs over course of investment program, '000s) | 2,152       | 857        | 296           | 3,305 |

| Environmental Impact                   |             |            |               |       |
| Greenhouse Gas Emission Reduction      |             |            |               |       |
| (million metric tons of CO₂ mitigated per year) | 382         | 175        | 59            | 616   |

# Estimated Energy Retrofit Market Opportunity

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Commercial Buildings</th>
<th>Small Commercial Buildings¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment ($billion)</td>
<td>$279</td>
<td>$72</td>
<td>$35.64</td>
</tr>
<tr>
<td>Energy Savings (trillion BTUs)</td>
<td>3033</td>
<td>848</td>
<td>419.76</td>
</tr>
<tr>
<td>Energy Savings (10 years, $ billion)²</td>
<td>1000</td>
<td>$279.6</td>
<td>$138.4</td>
</tr>
<tr>
<td>Cumulative Job Years (thousand FTEs)</td>
<td>3305</td>
<td>857</td>
<td>424.2</td>
</tr>
<tr>
<td>GHG Reductions (million metric tons CO₂/year)</td>
<td>616</td>
<td>175</td>
<td>86.6</td>
</tr>
</tbody>
</table>

Sources:

Notes:
1. Small commercial building share estimated at 49.5% of commercial building share, per 2012 CBECs preliminary results.
2. Commercial energy savings in dollars derived from the ratio of commercial Btu savings to total BTU savings.
Challenges to Investment

Demand decisions — owners, managers, tenants

1. Skeptical savings will materialize
2. Do not understand analysis & technology
3. Lack expertise to manage upgraded tech
4. Weak financials: weak credit access, limited cash
Challenges to Investment

Supply, capital sources: banks, lenders, CapEx, new financing (PACE, etc.)

1. Complex underwriting due to atypical configurations, mixed uses
2. Hybrid loan product: construction + perm
3. Transaction fees a high % of loan amount
# Property Configurations and Risk Profiles

<table>
<thead>
<tr>
<th>Lowest-Risk Property Configuration</th>
<th>Highest-Risk Property Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A single building of conforming/typical design and size</td>
<td>• Configured for multiple occupants/tenants</td>
</tr>
<tr>
<td>• Improvements in average or better condition</td>
<td>• Occupied by tenants of mixed or low credit quality</td>
</tr>
<tr>
<td>• On a single, fully useable land tax parcel</td>
<td>• Improved for multiple uses (retail + apartment + warehouse)</td>
</tr>
<tr>
<td>• Occupied by a credit-worthy single user (owner or tenant)</td>
<td>• Atypical size, access, building configuration</td>
</tr>
<tr>
<td>• Located in a market with good sale velocity (for that kind of building).</td>
<td>• Improvements with deferred maintenance, sub-average condition</td>
</tr>
<tr>
<td></td>
<td>• Located on multiple land tax parcels (with perhaps extra land)</td>
</tr>
<tr>
<td></td>
<td>• Located in a rural, thinly traded unstable market</td>
</tr>
</tbody>
</table>
Some Bright Spots to Build Upon

• PACE, utility on-bill financing
  – Collection procedures, standardization, vetted contractors

• Government & utility related financing
  – Loan loss reserves, loan guarantees, and interest-rate buy downs, and direct lending using revolving loan funds

• Small Business Administration’s 504/CDC credit enhancement program

• Federal tax incentives
  – Need consistency to build market/capacity
1. Support & expand existing key programs
   • ENERGY STAR & CBECs
   • National Labs research: M&V, equipment, software
   • SBA: expand, add programs for bldg performance, leverage DOE expertise
   • Tax incentives (remove disincentives)
   • Integrate programs and base on actual performance

2. Local, city, county programs to prove concepts
   • Lower risk, easier to modify than national programs
3. Federal level public-private retrofit programs
   • Credit enhancement
   • National standards: data, process, documents, aggregation
   • Coordinated approach, bundling programs
   • Turnkey energy conservation measures

4. Recognize local & property level variations
   • Building size, age and use
   • Construction type
   • Climates
Policy Recommendations

5. Leverage CBECs database with new data sources
   • Mandatory energy use disclosure laws
   • Voluntary reporting, interface with utilities
   • Improved benchmarking data

6. Utilities should play key role
   • Provide building owners with actionable data
   • Education and outreach to customers
Policy Recommendations

7. Anticipate loan aggregation into bonds
   - Engage secondary market: rating agencies, banks
   - “Green Bond” bandwagon
   - Bonds are cheapest source of capital, good P3 history
Additional Thoughts

• Focus on Actual, Measured Performance
  – GSA Federal Center South, Seattle
  – DBOM/P3
  – Leverage benchmark data

http://wbdg.org/resources/outcomebasedpathways.php
Outcome-Focused Goals

Policies
- Benchmarking and Reporting
- Target Setting
- Compliance

Incentives
- Utility
- Tax
- Permitting

Regulation
- Taxes
- Audit and Retrofit

Codes
- Metering
- Reducing Uncovered Loads

Building Industry
- Contracting
- Operations and Maintenance Training
- Licensure/Professional Ethics

Greenhouse Gas Emission Reductions
Zero Energy Buildings
Energy Use Reductions
111(d) Plans
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