Barriers and Solutions for Achieving Deep Energy Retrofits in Government Buildings

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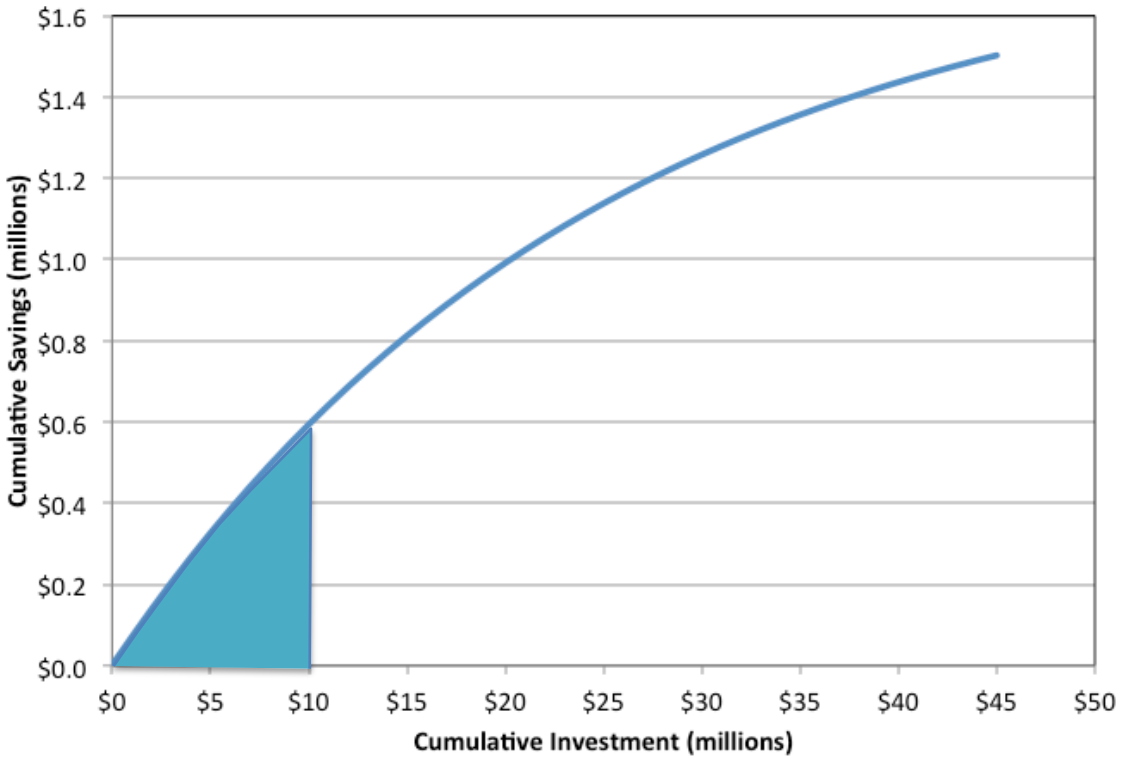
Cost and risk are the two main barriers to deep energy retrofits



- Given interest rate and required services, project must have SPB < 15
- Only $600k of potential $1.5 million in savings can be achieved
- Cost is $10 million
- Another $35 million required to achieve all potential savings

Four main types of risk to investors

- Technology
- Construction
- Measurement and verification
- Financial

Technology Risk

- Deep retrofit projects may involve new and/or underutilized technologies
- May also require improved construction techniques (to eliminate thermal bridges, for example)
- Equipment failures -- or envelope-related issues such as leaks, condensation, mold growth – could result in savings shortfalls

Construction Risk

- In the US, combining building renovation with energy retrofit requires two contractors and two contracts
- ESCO receives about 94% of required funding from appropriated funding, but this is paid only at project acceptance
- ESCO must carry a loan for 100% of the project cost during the construction period
- Any delay in the construction process – due to actions of the renovation contractor, for example – increases interest costs

Measurement and Verification Risk

- ESPC projects require measurement and verification (M&V) of savings
- Given the interactive effects of the many conservation measures used in deep retrofit projects, IPMVP Option C (utility bill analysis) is often the most logical choice for M&V
- Financiers perceive more risk in IPMVP Option C Measurement and Verification
- ESCO can reduce this risk by guaranteeing a smaller fraction of the predicted energy savings, but this increases interest costs

Financial risk

- Terms of financing (interest rate changes, currency fluctuations etc.)
- Functionality created change in projected revenue stream (altered use of the building, abandoned or demolished during the contract period)
- Social risk (of changing demographics, less demand for (particular) type of government building in the area (non-movable assets)
- Can different models be introduced to manage the financial flows? Premium, price guarantees, purchase of contract by third party etc.)

Thoughts on the market structure?

- Is the business model already seasoned and established? U.S. ESCO model very solid and carved in legislation, other countries with different working assumptions
- Is the fixed market mechanism a driver or hinder of development for the market?
- What is the actual market size? Potential with existing backlog of renovations vs the current realised volume of project?

Solutions to identified risks

- Better investment planning
- More stringent contract management (including sub-contracting)
- Use and monitoring of targeted energy saving levels in setting the energy saving targets
- Speeding up financing by PPP's and other methods
- Spatial planning of public building utilisation to reduce changes in revenue streams