

ENERGY PERFORMANCE CONTRACTS

Taking the Risks Out of Energy Efficiency Retrofits in Buildings

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ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

TOPICS TO BE COVERED

- Thoughts on Selling Energy Efficiency
- Background on ESA Canada
- Energy Performance Contracting and Role of ESCOs
- Sample of Private Projects
- Discussion

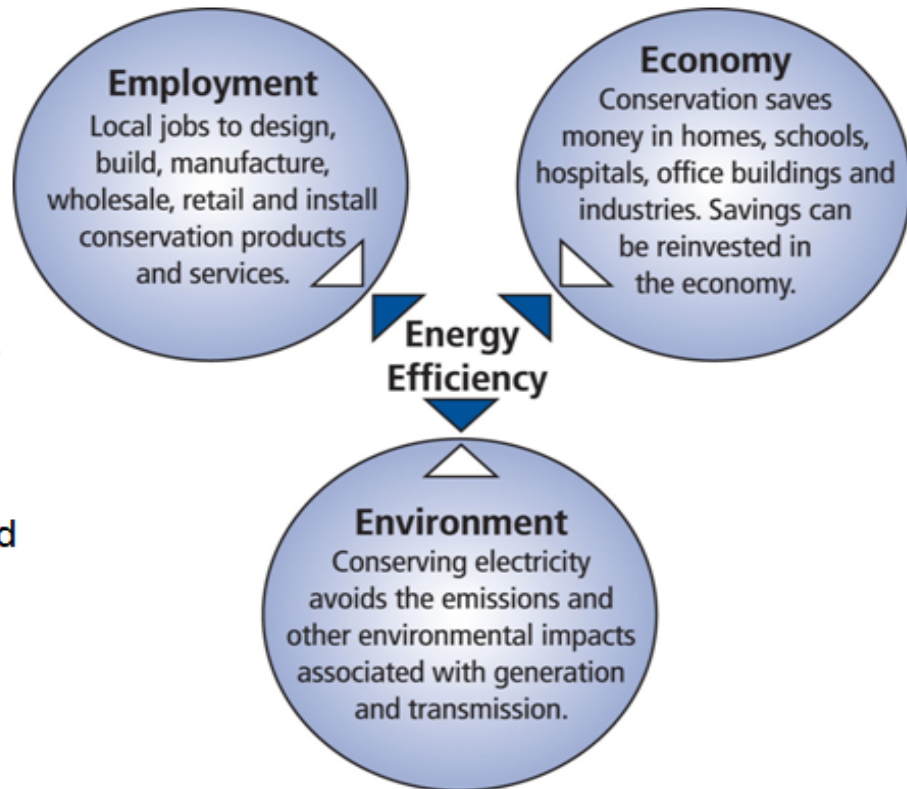


BENEFITS OF ENERGY CONSERVATION

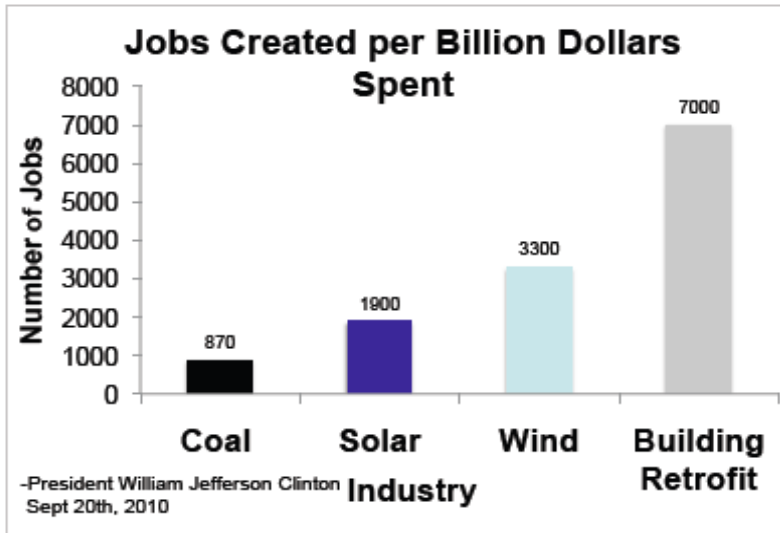
Benefits of Conservation

The Three “Es”:

- **Employment** benefits: labour-intensive, local jobs
- **Economic** benefits: cost-effective for households and makes private sector more competitive
- **Environmental/health** benefits: reduced GHGs, acid rain, smog



EMPLOYMENT BENEFITS



Empire State Building Retrofit:

- 8 month design phase, 60 ideas considered, 8 projects (financial and environmental ROI).
- 3.1 year payback
- Initial \$20 million, 38% energy reduction, \$4.4 million savings annually.
- Creation of hundreds of jobs

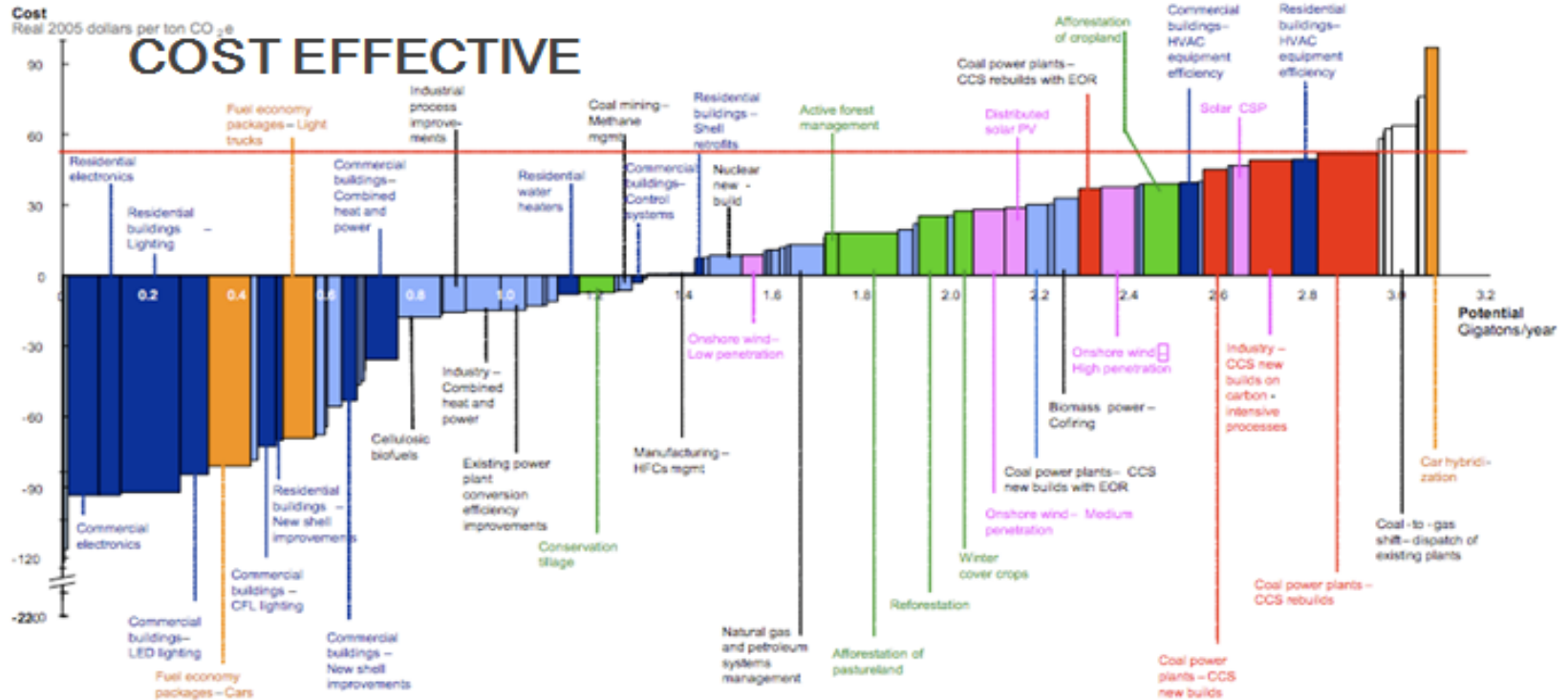
- www.esbnyc.com

ECONOMIC BENEFITS

Example of GHG Abatement Cost Curve



U.S. curve indicates opportunity set in the U.S. is widely distributed (U.S. mid-range abatement curve – 2030)



SOURCE: McKinsey & Co. analysis

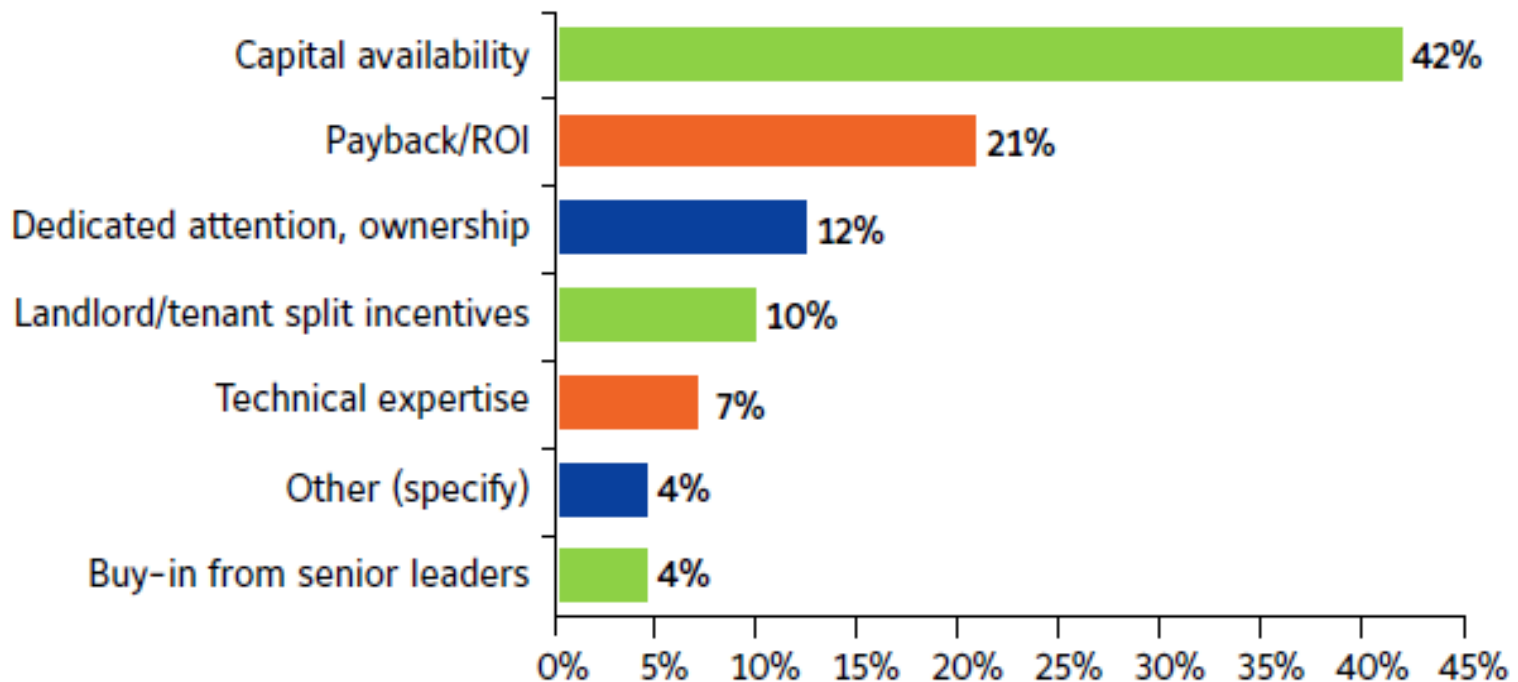
ENVIRONMENTAL BENEFITS

- IPCC – Most of the observed increase in the globally-average temperature since the mid 20th Century is *very likely* (i.e. > 90% likelihood) due to the observed increase in anthropogenic (i.e. man made) GHG concentrations
- IEA -rising fossil-fuel energy use will lead to irreversible and potentially catastrophic climate change
- Ban Ki-moon - slowing or even reversing the existing trends of global warming is the defining challenge of our ages.
- World Economic Forum's - climate change has the highest combined perceived impact and likelihood
- **82% of Canada's man-made green house gas emissions come from the production and use of energy**

SIGNIFICANCE OF BARRIERS

Figure 1. Barriers to Energy Efficiency Retrofits

What is the top barrier to capturing potential energy savings for your organization?



Source: Johnson Controls and IFMA (2009) "Energy Efficiency Indicator" survey results.

ENERGY SERVICES ASSOCIATION OF CANADA

- Incorporated August 2010
- 8 founding independent energy service companies
 - Ainsworth - Johnson Controls
 - Ameresco - MCW Custom Energy Solutions
 - Direct Energy - Siemens
 - Honeywell - Trane
- Represent >90% \$450 million/year market for guaranteed Energy Performance Contracts (EPC)



WHAT IS AN ENERGY PERFORMANCE CONTRACT

- Involves: a building owner and energy service company (ESCO)
- Savings financing: comprehensive measures with guarantees that the energy savings will be sufficient to finance the cost of the project
- Performance guarantee: Transfers technical and financial risk to ESCO



BENEFITS OF ENERGY PERFORMANCE CONTRACTS

- Turnkey – one contract managing many activities
- Releases pressure on capital funding allocations
- Tried and true approach – used by organizations across Canada since 1993
- **Less expensive than alternatives when all staff/management costs included**

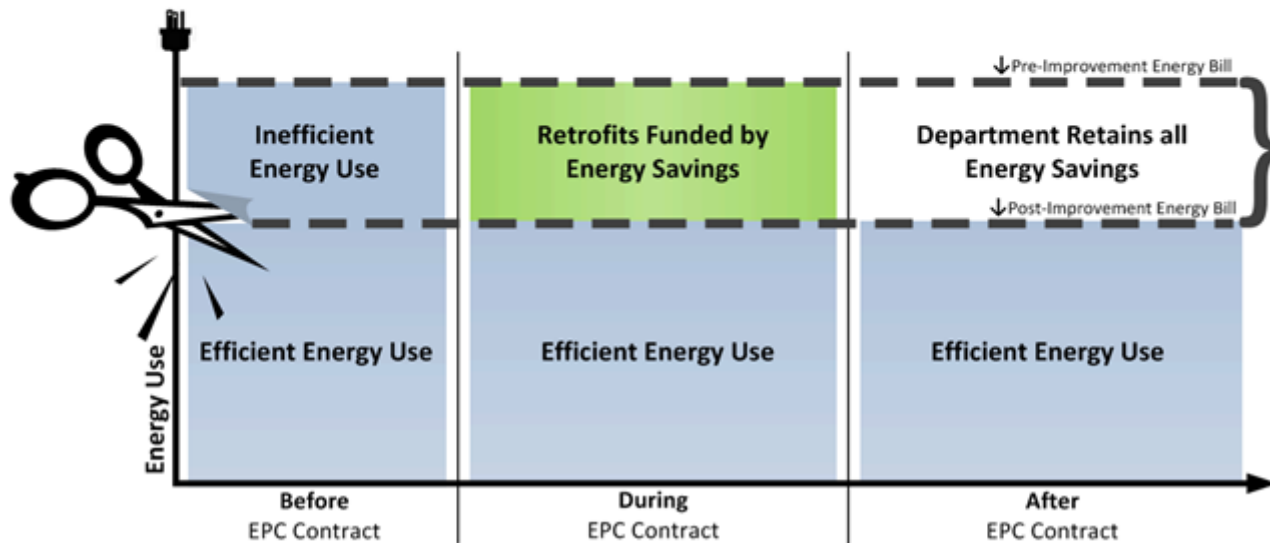


ILLUSTRATION OF HOW EPCs WORK

EPC Funding Model



- Budget-Neutral approach to funding Energy Efficiency improvements



ROLE OF ESCOs

- Think of an ESCO as an extension of building owners/operators resources
 - Carries out feasibility studies / energy audits
 - Puts together a plan of action –, design, implementation plan, purchase, installation, commissioning and measurement/verification of savings. Let's not forget training and awareness.
 - Arranges for financing
 - Reports to facility manager on an on-going basis



ADDRESSING DEFERRED MAINTENANCE

- Projects or facilities can be bundled to increase scope and energy savings
- Guaranteed energy savings from EPC can also be used to fund non-energy deferred maintenance priorities
- Typically achieved by extending the term of the EPC contract



CANADIAN CASE STUDIES

- 37 Case Studies of successful projects on ESAC's web site
 - 2 federal buildings
 - 4 DND bases
 - 6 provincial/municipal buildings
 - 14 universities/colleges/school boards
 - 7 hospitals
 - 4 commercial/industrial



EMPIRE STATE BUILDING



- Part of \$500 million building retrofit
- 38% energy reduction (3.1 year payback) on initial \$20 million project
- Creation of hundreds of jobs
- Clinton Climate Initiative involved
- Success confirmed as 1st year savings exceeded guarantees

TD CENTRE



Photo credit: Simon Pulsifer

- \$30 million retrofit undertaken in 1999
- Undertaken without disturbing 20,000 tenants
- Focus on creating comfortable, healthy and productive environment while also saving money
- Toronto's Better Building Partnership part of public-private collaboration

DORCHESTER SQUARE



- Update to 30 year old building in downtown Calgary
- Automated building system, variable speed technologies, HVAC upgrade
- Final savings over \$90,000/year, \$20,000 more than predicted

LEAGUE ASSET CORPORATION



- \$2 million project resulted in savings \$245,000/yr or about 40% of base
- Life safety, accessibility and elevators also brought up to current code
- Increased asset value from \$15 to \$22 million

VISTA CARGO TERMINALS



- Mile long building with 12 bay doors and offices on 2nd floor
- \$1.3 million project completed in July 2009
- Lighting and HVAC upgrades
- 17% energy savings
- Performing above the guaranteed level

DISCUSSION

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