

ENERGY PERFORMANCE CONTRACTS

Transferring the Risks of Energy Efficiency Building Retrofits

Peter Love

Energy Services Association of Canada
RPIC Real Property National Workshop
Ottawa November 7, 2013



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

TOPICS TO BE COVERED

- Importance of Energy Efficiency
- Energy Performance Contracts
- Role of Energy Service Companies
- Case Studies
 - Place du Portage
- Discussion

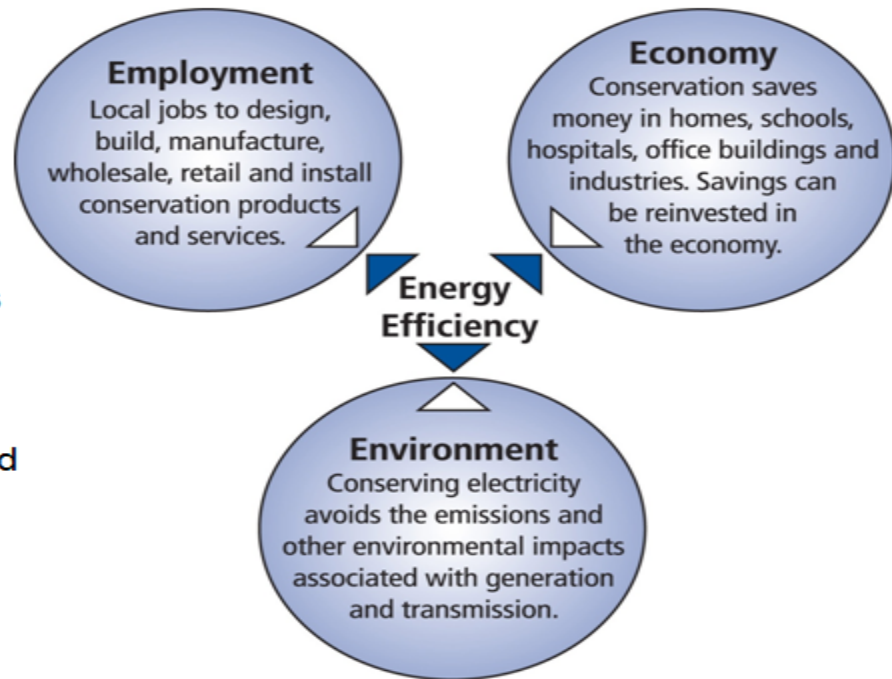


BENEFITS OF ENERGY CONSERVATION

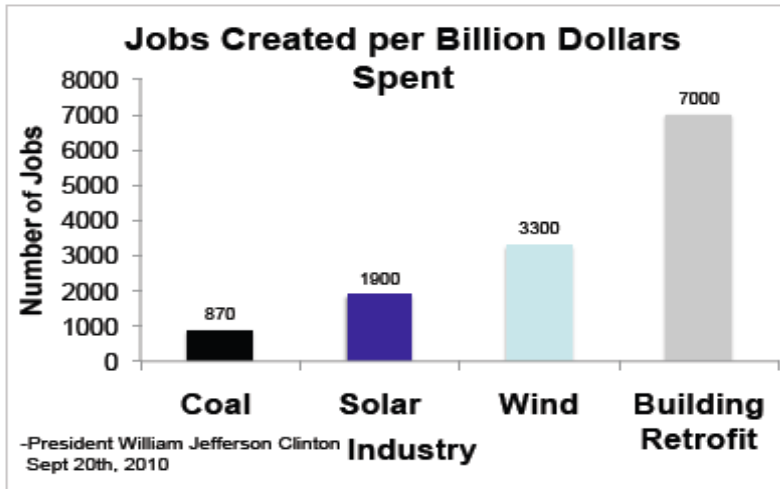
Benefits of Conservation

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

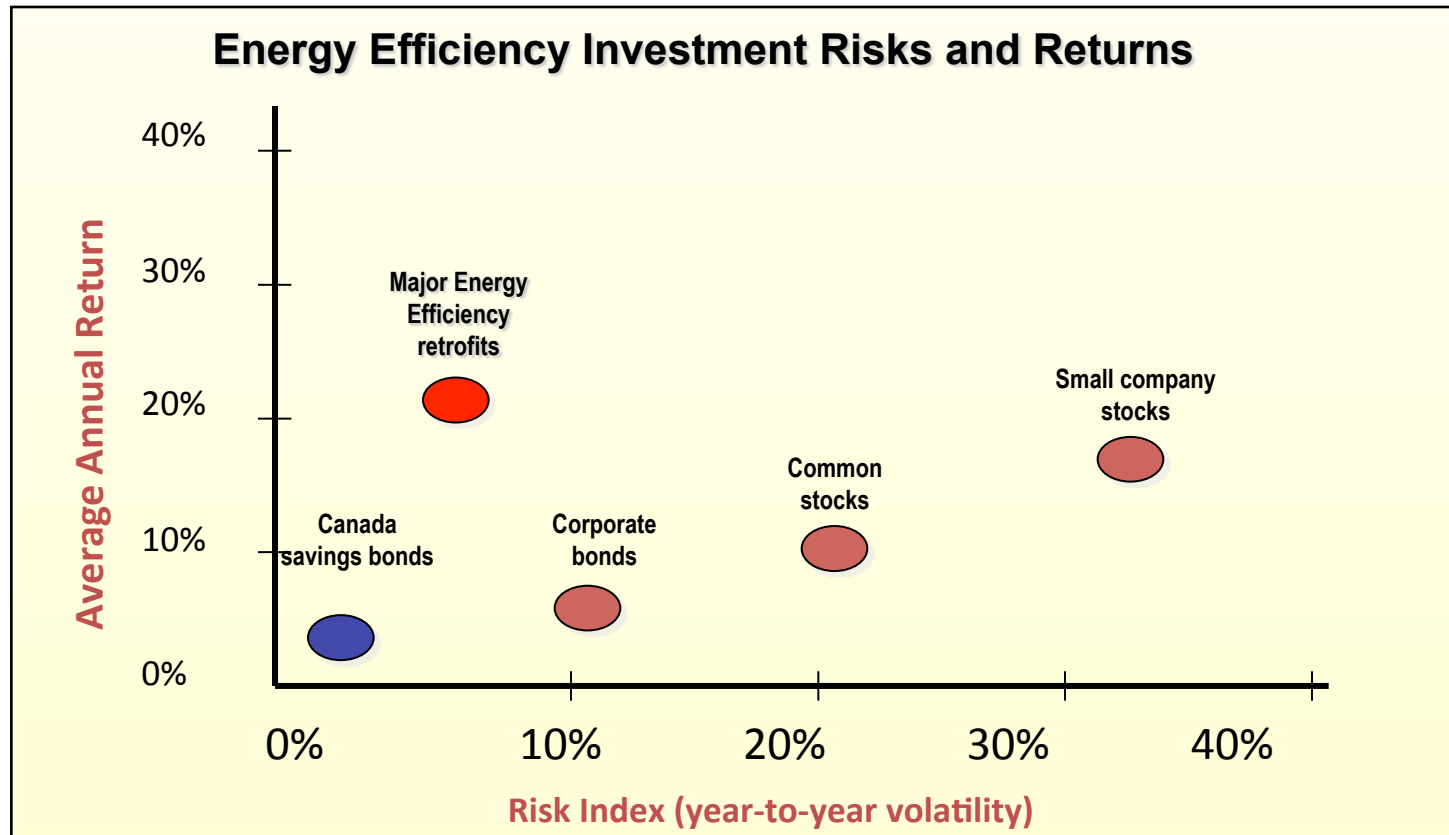
- www.esbnyc.com



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

ENERGY EFFICIENCY RETROFITS ARE GOOD INVESTMENTS



Source: adapted from Ehrardt-Martinez, Karen and John 'Skip' Laitner: « The Size of the U.S. Energy Efficiency Market: Generating a More Complete Picture ». Washington, D.C., American Council for an Energy Efficient Economy, May 2008, page 29.



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

ENVIRONMENTAL BENEFITS

- IPCC – It is extremely likely (>95%) that human influence has been the dominant cause of the observed warming since the mid 20th century
- 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**



OTHER BENEFITS OF GOING GREEN

- 93% reported greater ability to attract talent
- 81% saw greater employee retention
- 87% experienced improved workforce productivity
- 75% reported improvement in employee health
- 100% experienced increase in goodwill/brand equity

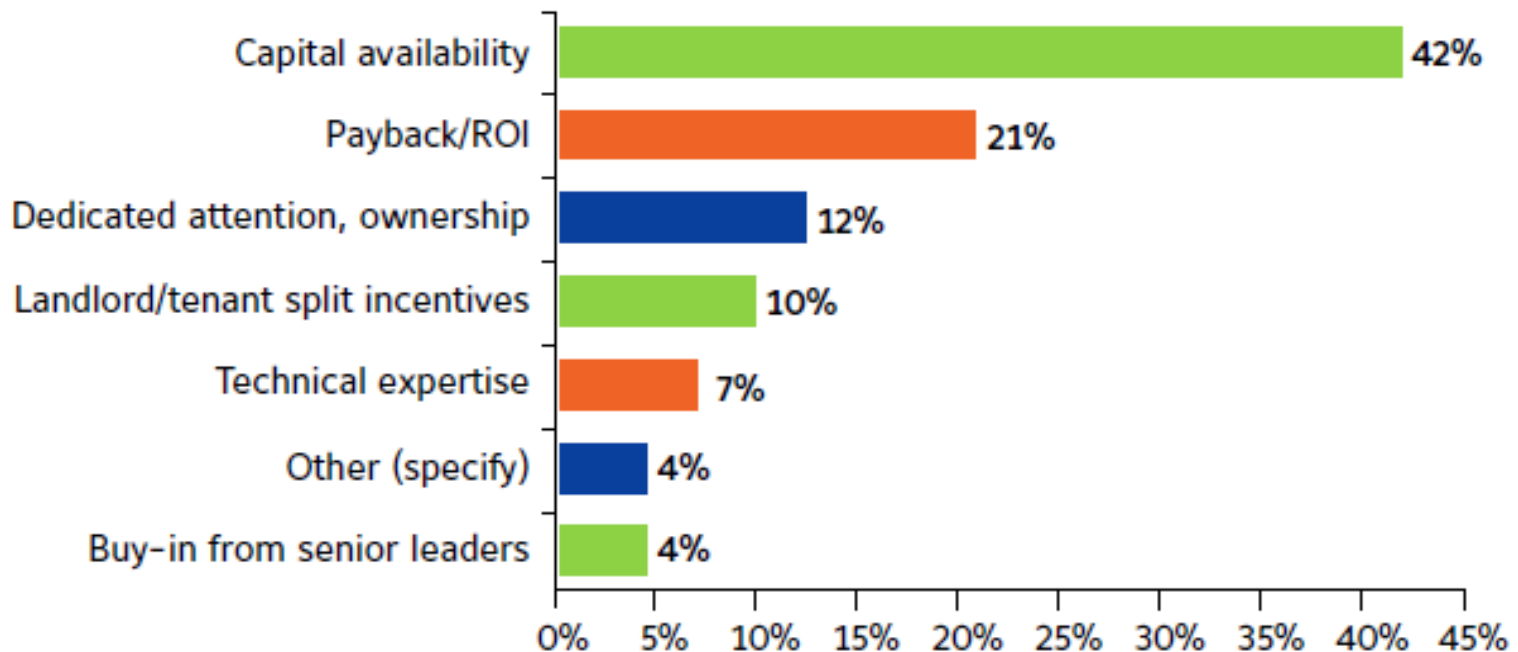
Source: McGraw Hill “Business Benefits of Green Buildings”.



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



- 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
- Used since mid 80's; Canadian government created Federal Building Initiative in 1992









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
- **Not more expensive than alternatives when all staff/management costs included**



EPC NOT MORE EXPENSIVE THAN TRADITIONAL PROCESS

EPC Procurement	Traditional "Piecemeal" Procurement
<p> Performance Guarantee Fee</p> <p> Financing Charges</p>	<p> Additional Procurement Processes</p> <p> Additional Human Resources</p> <p> Opportunity costs for differed projects</p> <p> Less Energy Savings resulting from:</p> <ul style="list-style-type: none">• Lost time• Fragmented Approach• No Monitoring and Verification• No Savings Guarantee



Natural Resources
Canada

Ressources naturelles
Canada

Canada



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

ROLE OF ESCOs

- Think of an ESCO as an extension of building owners/operators resources
 - Carries out feasibility studies / energy audits
 - Develops a plan of action including:
 - ✓ Design
 - ✓ Implementation plan
 - ✓ Purchase
 - ✓ Installation
 - ✓ Commissioning
 - ✓ Measurement/verification
 - ✓ 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



CASE STUDIES

- 25 on ESAC web site:
 - 7 government buildings (3 DND bases)
 - 6 hospitals
 - 5 office buildings
 - 3 universities
 - 2 school boards
 - 2 social housing buildings



COMMUNICATIONS RESEARCH CENTRE CANADA



- Project included retrofits to 35 buildings in Shirley Bay campus
- Reduced energy costs by 41% and water costs by 59%
- Guaranteed savings of \$530,000/year



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

CFB PETAWAWA



- Guaranteed savings of \$1.45 million/yr for 10 years
- Cogeneration results in 60% less purchased power
- Able to operate independently in the event of a power interruption



PLACE DU PORTAGE PLACE



- \$1.62 million performance contract
- Annual guaranteed savings of over \$450,000
- Part of Federal Building Initiative program



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

PUBLIC SERVICE ALLIANCE OF CANADA



- \$1.2 million performance contract
- Annual guaranteed savings of over \$150,000
- 7 year contract



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

ROYAL CANADIAN MINT



- Multi-use building consisting of offices, lab, a refinery & production areas
- \$8 million project
- \$1 million energy savings achieved/year



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS

DISCUSSION

Peter Love

President

Energy Services Association of Canada

416-644-1788

peter@energyservicesassociation.ca

www.energyservicesassociation.ca



ENERGY SERVICES
ASSOCIATION
OF CANADA

PROMOTING
PERFORMANCE
BASED SOLUTIONS