



# Energy Performance Contracting The Canadian Experience

## Federal Buildings Initiative (FBI)

Presentation to the International Energy Agency, Montreal, QC

March 5, 2007

[www.nrcan.gc.ca](http://www.nrcan.gc.ca)



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada

# Federal Buildings Initiative and Energy Performance Contracting (EPC)



- Canada's Treasury Board Secretariat's contracting policy (Appendix 'O') authorizes federal departments to use private sector funding to finance energy improvements in their facilities
- Departments may enter into an energy performance contract (EPC) with an energy service company (ESCO)
- ESCO borrows money from private sector to finance energy improvements and repays it from accrued energy savings
- Once the EPC is paid, Departments retain energy efficiency investments and all future energy savings

# Benefits of EPC through Federal Buildings Initiative



- Guaranteed energy savings : often more than 20 percent
- Low risk : only pre-qualified contractors allowed to bid
- Departments retain energy savings after project completion
- Private sector financing frees up limited capital for other priorities
- Turnkey implementation, ongoing monitoring and verification of savings
- Healthier, more comfortable and productive working environment
- Demonstrable contribution to sustainable development

# Benefits of EPC through Federal Buildings Initiative



- Access to technical expertise including energy audits, design, procurement, construction and monitoring of energy efficiency improvements
- Upgrades to building systems and equipment
- Source of training to direct and motivate building staff on achieving maintained results beyond project scope
- Increased building occupant interest in energy efficiency through employee awareness program
- Increased flexibility to respond to budget cuts and freezes

# Typical Energy Conservation Measures in an EPC



- Lighting Systems
- HVAC Systems
- Building Envelope
- CH/CP Measures
- Renewable Energy Technologies
- Variable Speed Drives
- Fuel Conversions
- Water Efficiency
- Energy Management Control Systems
- Cogeneration
- Integrated Systems
- Employee Awareness Programs
- Recommissioning
- Comprehensive Operator Training

# FBI Policy Framework



- On November 7, 1991, Treasury Board authorized federal departments to enter into EPCs
- Costs of energy-saving improvements financed through lower energy bills, rather than departmental operating budgets
- Approval modified on April 6, 1995

# FBI Policy Framework

## Treasury Board Contracting Policy

### Appendix O, Section 2.1



- Treasury Board authorized any contracting authority to enter into and amend service contract to acquire the following services:
  - energy supply
  - energy efficiency improvements
  - management services
  - energy management monitoring and training
  
- Departments entering into their first FBI project over \$1 million (and all projects over \$25 million) require Treasury Board approval

# FBI Policy Framework

## Treasury Board Contracting Policy

### Appendix O, Section 2.2



- Supply of energy as well as management and efficiency improvements are obtained through EPC:
  - ESCO acquires initial capital
  - ESCO makes building improvements and invoices department
  - ESCO recovers its costs and profit from energy management service fee equal to energy savings
  - Department pays energy bill, adjusted for rate increases and supplemental fluctuation in energy demand, such as major changes in building use
  - At end of contract, department owns improvements and resumes its regular relationship with utility company

# FBI Policy Framework

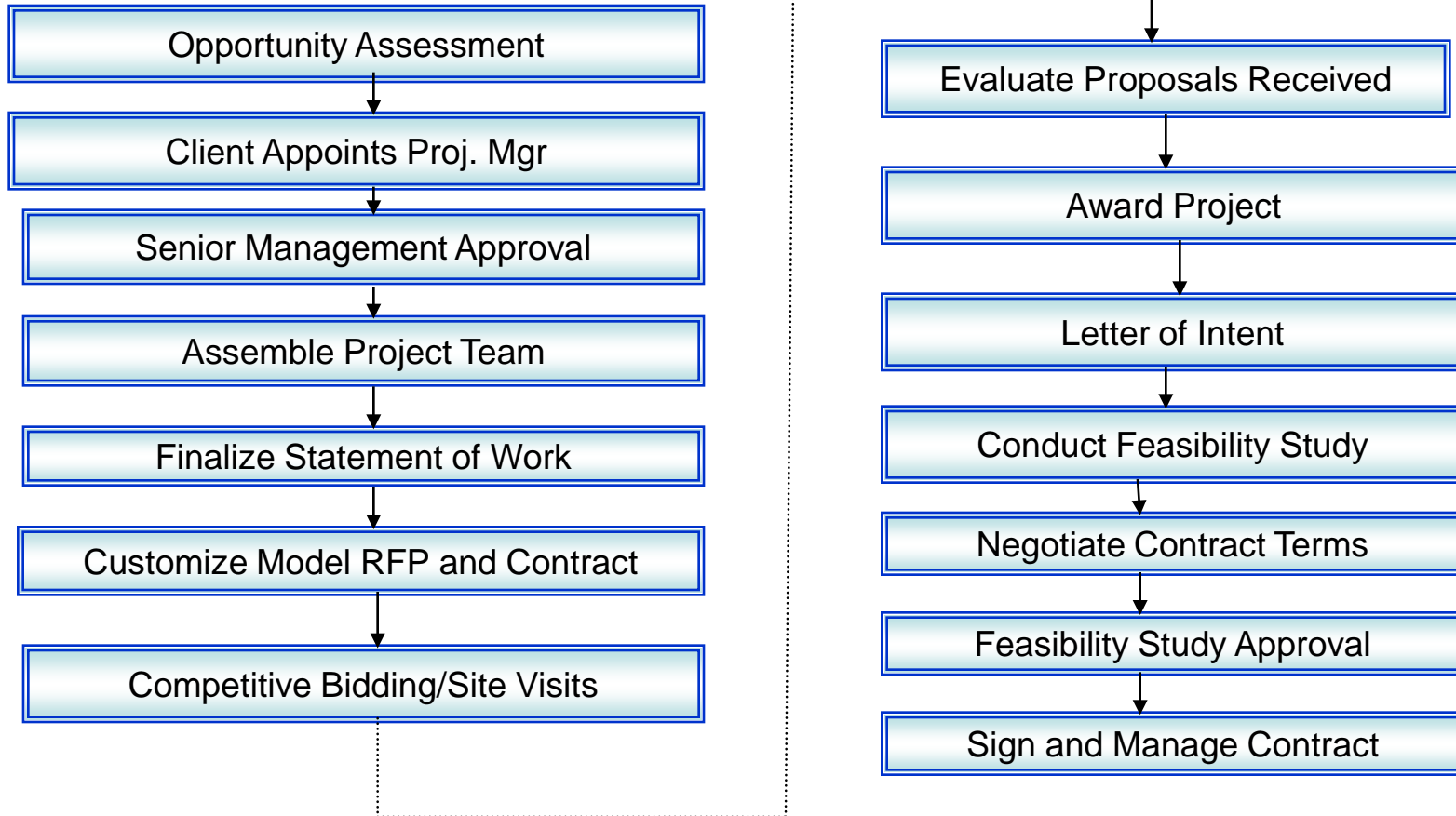
## Treasury Board Contracting Policy

### Appendix O, Sections 2.3 & 2.4



- Each EPC presents specific situation that must be evaluated on its own merits
- Where economically feasible, EPC may be structured for partial sharing of savings over prolonged payback period (shared savings performance contract)
- Cost/benefit analysis should be carried out to determine most appropriate payback period
- EPC includes goods procurement related to energy services and meets requirements of North American Free Trade Agreement (NAFTA), World Trade Organization Agreement on Government Procurement and Agreement on Internal Trade (AIT)

# FBI's Implementation Process for an EPC



# FBI Services and Products

## Project Consultation and Advice



- Meet senior management to help secure buy-in /commitment
- Conduct Opportunity Assessment to determine potential for EPC
- Help evaluate proposals for contractor (ESCO) selection
- Conduct training needs analysis for building operators/managers
- Help define and negotiate terms for project monitoring and verification (M&V) of EPC to ensure guaranteed savings are delivered

# FBI Services and Products

## Awareness and Training



- Access to Dollars to \$ense workshops
- Seneca College's Building Environmental Systems program
- Employee/tenant awareness program
- Specialized equipment training by ESCO

# FBI Services and Products

## Documents and Publications



- Model contracting documents:
  - Request for proposal
  - Energy performance contract (EPC)
  - Proposal evaluation grids
  - MERX notice
- Past project case studies and fact sheets
- Guidelines: Manager's Training and Awareness Guide, Policy Context and Executive Overview, Audit Standards Guidelines
- Quarterly "FBI Update" newsletter

# FBI Services and Products

## Qualified Bidders List



- ESCO pre-qualified to bid on request for proposal
- ESCO pre-qualification criteria:
  - Past project experience
  - Engineering experience
  - Approach to project management
  - Risk management
  - Financial capability
  - Human resources: qualifications/experience

# FBI Services and Products

## Qualified Bidders List



### 11 Companies pre-qualified as of March 2007

- Ameresco Canada Inc.
- Dessau-Soprin Inc.
- Direct Energy Business Services
- Ecosystem
- Honeywell Limited
- Johnson Controls L.P.
- MCW Custom Energy Solutions, Ltd.
- Siemens Building Technologies, Ltd.
- Teknika - HBA
- Toronto Hydro Energy Services
- Wabco Standard Trane Co.

# EPC Structure

## Financing



- Savings-financing mechanism requires little or no capital from department
- Third-party financing acquired by ESCO
- ESCO pays capital costs of a project
- Client department pays estimated energy savings to ESCO and reduced energy costs to utilities
- ESCO responsible for any savings shortfall

# EPC Structure

## Performance Guarantees



- ESCO assumes all technical performance risks since payment is based on savings generated by improvements
- ESCO guarantees specified level of annual cost savings that will pay for work implemented over term of contract
- ESCO will have no claim beyond savings no matter how well project performs
- ESCO responsible for regular M&V to ensure guaranteed savings are actually being delivered

# EPC Structure

## Performance-Period Activities



- Departments begin payment of savings following commencement date, near end of construction
- Annual reviews of energy and cost savings are conducted and changes to energy baseline, if required, are resolved
- Monitoring reports include:
  - List of measures and their expected due date for completion
  - Changes to ESCO project team leaders
  - Adjustments to energy baseline
  - Cost breakdown of project
  - Annual savings
  - Anticipated date of debt retirement
- Frequency of monitoring reports depends on stage of project

# FBI Achievements



- Since 1991, 88 projects implemented:
  - Public Works and Government Services Canada – 37 projects; total value : 45.6 million
  - Department of National Defence – 19 projects; total value: 148.1 million
  - National Research Council Canada – 7 projects; total value : 19.9 million
- Total investment of \$266 million
- Cumulative annual energy savings of \$38 million