

ENABLING POLICY FOR ENERGY PERFORMANCE CONTRACTING



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JOHNSON CONTROLS



130,000 Employees

Multi-industry

Founded 1885



Building Efficiency

Creating quality indoor environments that are comfortable, safe, energy efficient, and sustainable



Power Solutions

Providing the highest quality, lowest cost automotive batteries to power vehicles of today and tomorrow



Automotive Experience

Delivering world-class technologies that differentiate vehicle interiors and increase consumer demand

- *>200 million vehicles*
- *1/3 of world's automotive batteries*
- *1 million building efficiency customers*

THE INSTITUTE FOR BUILDING EFFICIENCY



The **Institute for Building Efficiency** is an initiative of Johnson Controls to provide information and analysis of

Technologies

Policies

Practices

for efficient, high performing buildings and smart energy systems around the world

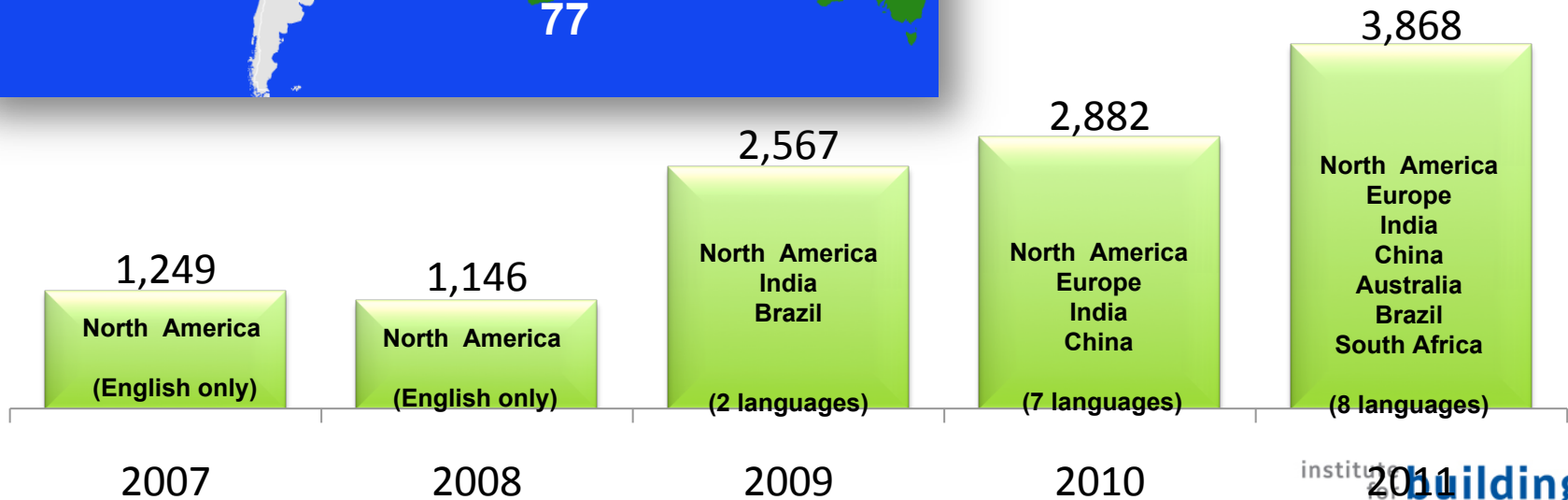
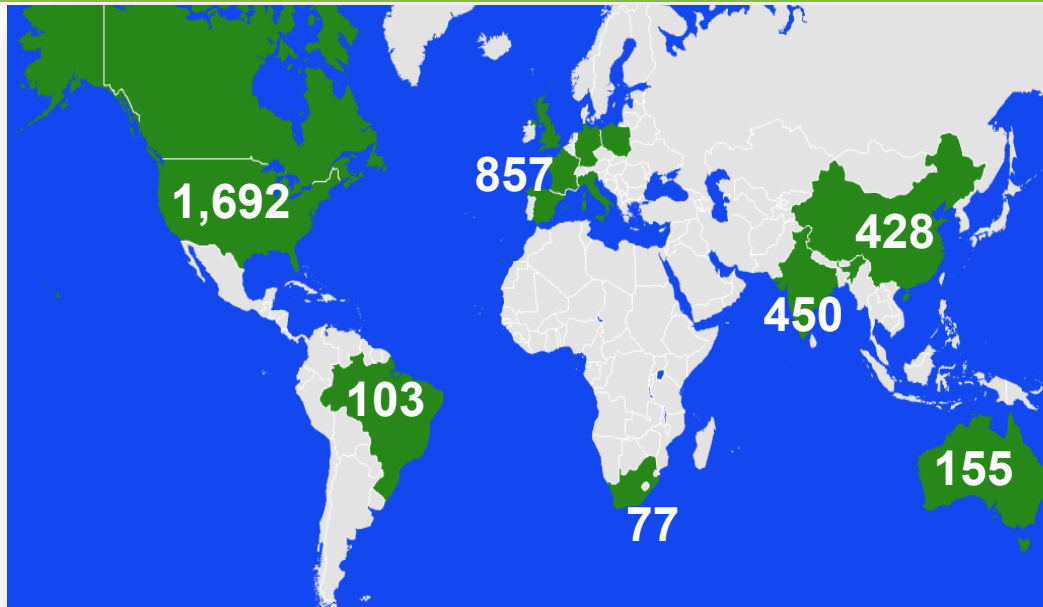
www.InstituteBE.com

Institute for Building Efficiency | www.InstituteBE.com

The screenshot shows the website's header with the logo 'institute for building efficiency' and 'an initiative of Johnson Controls'. A navigation menu includes categories like 'Existing Building Retrofits', 'Green Buildings', 'Smart Grids & Smart Buildings', 'Renewable & Distributed Energy', 'Financing Clean Energy', 'Carbon Management', 'Energy & Climate Policy', and 'What's New'. The main content area features a large banner for 'JOHNSON CONTROLS LAUNCHES INSTITUTE FOR BUILDING EFFICIENCY' with a photo of three people. Below the banner are three news items: 'Johnson Controls Launches Institute for Building Efficiency', 'Energy Efficiency Indicator Goes Global in 2010', and 'Energy Efficiency Indicator Results for North America'. A sidebar on the right contains sections for 'About the Institute for Building Efficiency', 'Meet our Network of Experts' (with a grid of expert photos), and 'Resources & Tools'. A footer at the bottom of the page includes an RSS feed subscription link.

ENERGY EFFICIENCY INDICATOR SURVEY

Global survey of energy management decision makers







DRIVERS FOR ENERGY EFFICIENCY INVESTMENTS

Government Incentives Rise in Importance



How significant are the following in your organization's energy efficiency decisions?

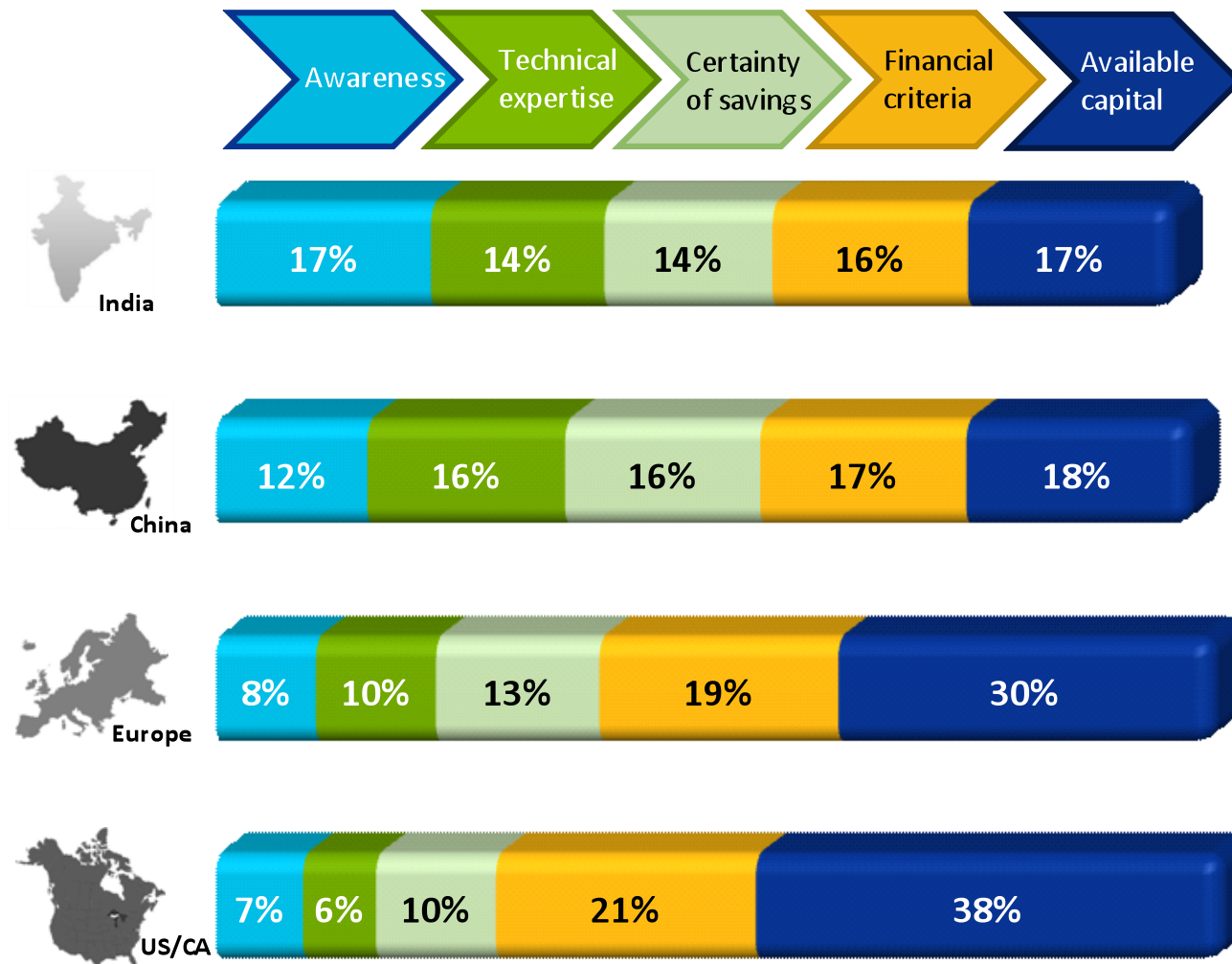
2010 Global	2011 Global	Drivers of efficiency	Europe 	India 	China 	US/CA 
1	1	Energy cost savings	1	1	1	1
4	2	Gov't/utility incentives/rebates	2	3		2
3	3	Enhanced brand or public image				3
N/A	4	Increasing energy security	3	2	2	
2	4	Greenhouse gas reduction				
6	6	Existing policy			3	

BARRIERS VARY BY REGION

Awareness & expertise more critical in India, China



What is the top barrier to pursuing energy efficiency at your company/organization?





1 – ENERGY PERFORMANCE CONTRACTING

2 – MARYLAND CASE AND ENABLING POLICY

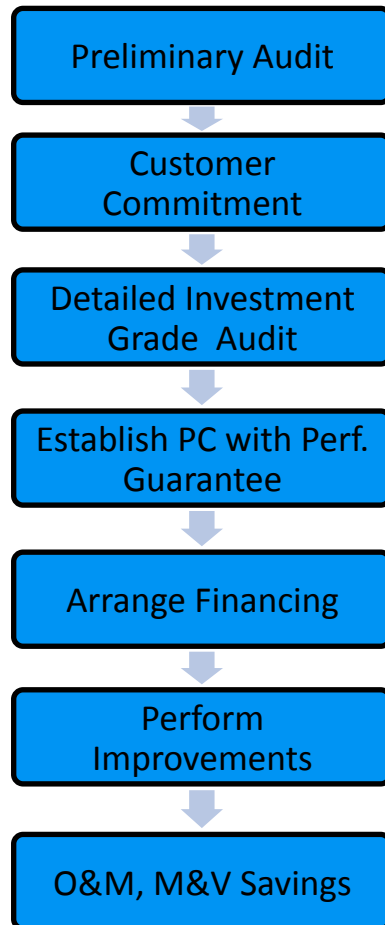
3 – THAILAND CASE AND ENABLING POLICY

ENERGY PERFORMANCE CONTRACTING

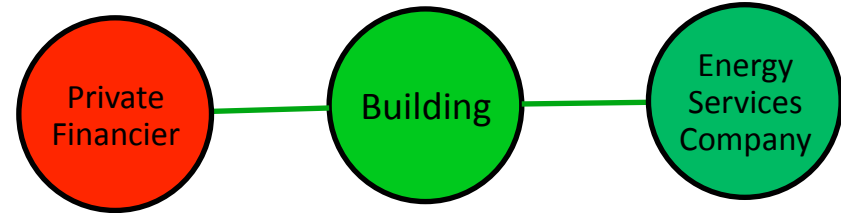
A Proven Procurement Model for Building Retrofits



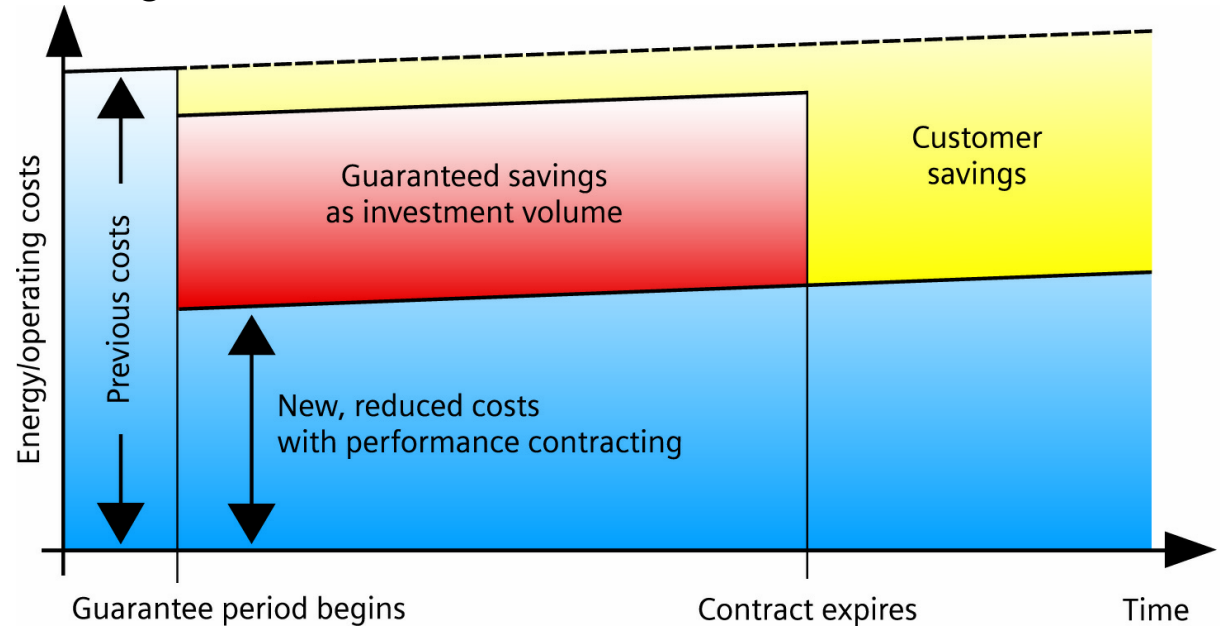
Process:



Participants:



Savings:





- 1 – ENERGY PERFORMANCE CONTRACTING
- 2 – MARYLAND CASE AND ENABLING POLICY
- 3 – THAILAND CASE AND ENABLING POLICY

MARYLAND STATE GOVERNMENT



Property Details

- Location: Maryland, USA
- Building type: State government buildings
- Size: 38 buildings

Energy and Sustainability Solutions

- **Cooling system upgrades and modernization.**
- **Heating system upgrades and modernization.**
- **Upgrade air handling and air distribution systems** – also air and water balancing, insulation improvements and replacement of failing steam traps.
- **Lighting system upgrades.**
- **Automated energy management control systems.**
- **Building envelope infiltration reduction and window replacements.**
- **Performance Guarantee** – guaranteed outcome for the project's performance through an annual measurement and verification program

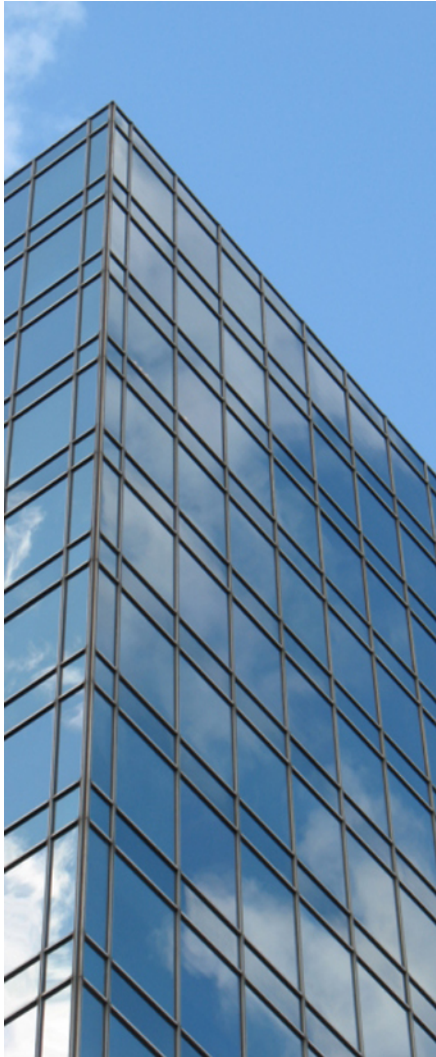
Expected Results

- US\$1,948,736 guaranteed savings per year
- 7,721 tons of CO2 savings per year
- Project in progress
- 13.5 years financial payback

ENABLING POLICIES: MARYLAND



- Goals:
 - Reduce both per capita energy consumption and per capita peak demand by 15 percent by the end of 2015.
 - All state agencies shall reduce their energy consumption by 5% by 2009 and 10% by 2010.
- Master lease program finances energy efficiency improvements using the dollars saved from future utility bills.
- Supportive policies:
 - Rebate program from utilities
 - Benchmarking available from EnergyStar



- 1 – ENERGY PERFORMANCE CONTRACTING
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INTERNATIONAL SCHOOL OF BANGKOK



Property Details

- Location: Bangkok, Thailand
- Building type: School
- Size: 14 hectares

Energy and Sustainability Solutions

- **Air-Conditioning Upgrade** – removal of existing units and installation of new energy efficient air conditioning units (split and packaged) for the entire campus
- **Lighting Retrofits** – installation of lighting retrofits in the library. Retrofits include replacing existing metal halide fixtures with new T5 fluorescent fixtures.
- **Performance Guarantee** – guaranteed outcome for the project's performance through an annual measurement and verification program
- **LEED Consulting** – conducted a Gap Analysis assessment of the current building's profile to identify the necessary steps needed to meet the LEED certification requirements. Developed a roadmap to help the school achieve this goal through future phases of work.

INTERNATIONAL SCHOOL BANGKOK
THAILAND'S PREMIER INTERNATIONAL SCHOOL



Results

- US\$122,111 savings per year
- 700 tons of CO2 savings
- Completed July 2009
- 8.5 years financial payback

ENABLING POLICIES: THAILAND



■ ENCON Fund

- Energy Conservation Promotion Fund (ENCON Fund) was financed by a levy of US\$0.001/litre on petroleum products.
- Supports all EE/RE promotion activities – R&D, subsidies, soft loans, awareness campaign, capacity building, and the following programs:

■ Energy Efficiency Revolving Fund

- Provides capital at no cost to Thai banks, which then provide low interest loans to energy efficiency projects

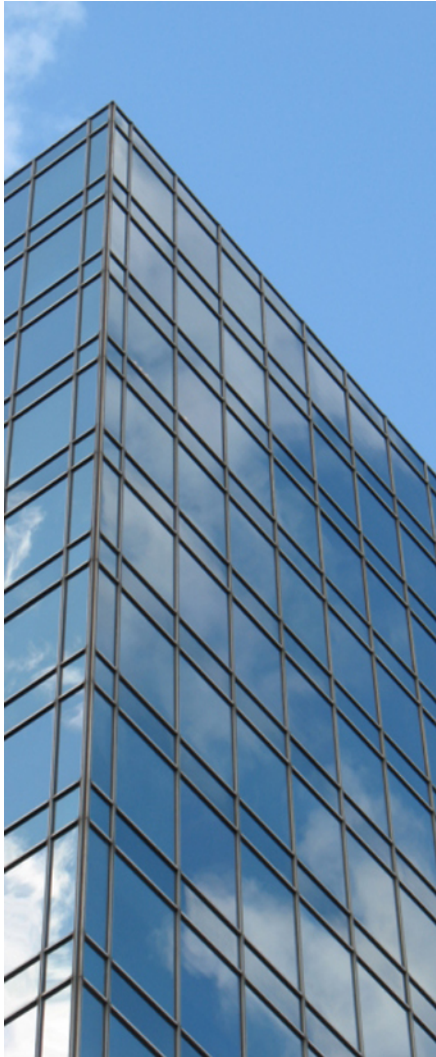
■ Tax Incentives

- Exemption of import duties – for equipment related to RE/EE
- Exemption of corporate income tax for 8 years for EE/RE manufacturers or businesses
- Reduction of corporate income tax for business that improve their EE or utilize RE up to 70% of investment costs.

CONCLUSIONS



- Energy Performance Contracting is a proven procurement model for building retrofits.
 - No up front cost for customer.
 - Project loan repaid from the guaranteed energy savings
- Government can help support the financing of projects for both public and private buildings to undertake energy efficiency retrofits.
- Other policies that set energy efficiency targets, support awareness, build technical expertise and provide subsidies or tax incentives are also important.
- The Institute for Building Efficiency is writing a Toolkit for policy makers from emerging economies on how to develop a policy road map for energy efficient buildings.
 - We'd like your input!



QUESTIONS??

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