



DIRECTIONS IN DEVELOPMENT
Energy and Mining

Public Procurement of Energy Efficiency Services

Lessons from International Experiences

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ESMAP Book Launch
January 21, 2010

Why the public sector?

- Public sector energy use ~2-5% of total energy use in many countries (higher with district heating)
- Represents a large, homogenous, common-owner market
- Can “lead by example” and influence markets
 - Public sector typically represents 10-20% of GDP
 - Public procurement alone in EU is €200B or 3% of GDP
 - U.S. federal sales (2-3%) helped achieve high penetration rates for ENERGY STAR equipment (many at 90% or more)
- Reducing energy costs creates fiscal space for socioeconomic investments
- Suitable target for fiscal stimulus and “greening” infrastructure efforts

Why have results been so low?

Policy / Regulatory

- Low energy pricing and collections
- Rigid procurement and budgeting policies
- Limitations on public financing
- Ad hoc planning
- Limited and poor data

Public End Users

- Limited incentives to save energy/try new approaches
- No discretionary budgets for special projects/upgrades
- Unclear ownership of cost/energy savings
- Limited availability of financing
- Lack of awareness and technical expertise
- Behavioral biases

Equipment/ Service Providers

- Higher transaction costs for public sector projects
- Perceived risk of late/non-payment of public sector
- High project development costs
- Limited technical, business and risk management skills
- Limited access to equity and financing

Financiers

- High perceived public credit risks
- New technologies and contractual mechanisms
- Small sizes/high transaction costs
- Behavioral biases

What have other countries done?

- Policy measures
 - Energy pricing (time-of-use/feed-in tariffs, demand charges)
 - EE product procurement (public sector MEPS/labeling, life-cycle costing, bulk purchase)
 - Setting and monitoring of EE targets in public facilities
 - Allowance for use of energy savings performance contracts (ESPCs)
 - Building codes and certification
- Procedural changes
 - Changes in budgeting to allow retention of energy savings
 - Designation of energy managers, periodic energy audits to identify EE measures
 - O&M changes, such as automatic shut-off during evening/weekend hours
- Informational programs
 - Standard bidding documents and templates, analytical tools
 - Establishment of benchmarks, guidelines and good practices for buildings/systems
 - Public sector EE case studies and newsletters
 - Training of public sector staff, facility managers, procurement officers
- Incentive mechanisms
 - Funding for energy audits
 - Public financing for EE retrofits/upgrades
 - Awards for high performing public facility managers, agencies, cities
 - Publishing agency performance, ranking and rating of agencies

How ESPCs Can Help

Public Sector Barriers	ESPCs Can...
Lack of commercial incentives to reduce operating costs	Not deal with incentives, but can help reduce transaction costs/risks, by offering package of services & project performance risk.
No incentive to save energy (no retention of savings)	Not address the principal-agent issue, but better define the benefits/costs upfront, so agencies can negotiate and apportion them.
High perceived risks from new technologies and mechanisms	Involve performance guarantees to assign many project risks away from the public agency and financier.
Inflexible procurement procedures	Allow for high IRR projects to be done by evaluating the best value to the agency, bypassing procurement for each measure, equipment or service.
Constrained annual budgets for capital upgrades	Often facilitate project financing, with repayments derived from project savings.
Small projects with high project development/transaction costs	Allow smaller projects to be bundled, often with notional audit/baseline information, thus helping to address development/transaction costs.
Inadequate information and technical know-how	Invite technically competent private sector firms to compete based on their qualifications, experience and best project ideas.

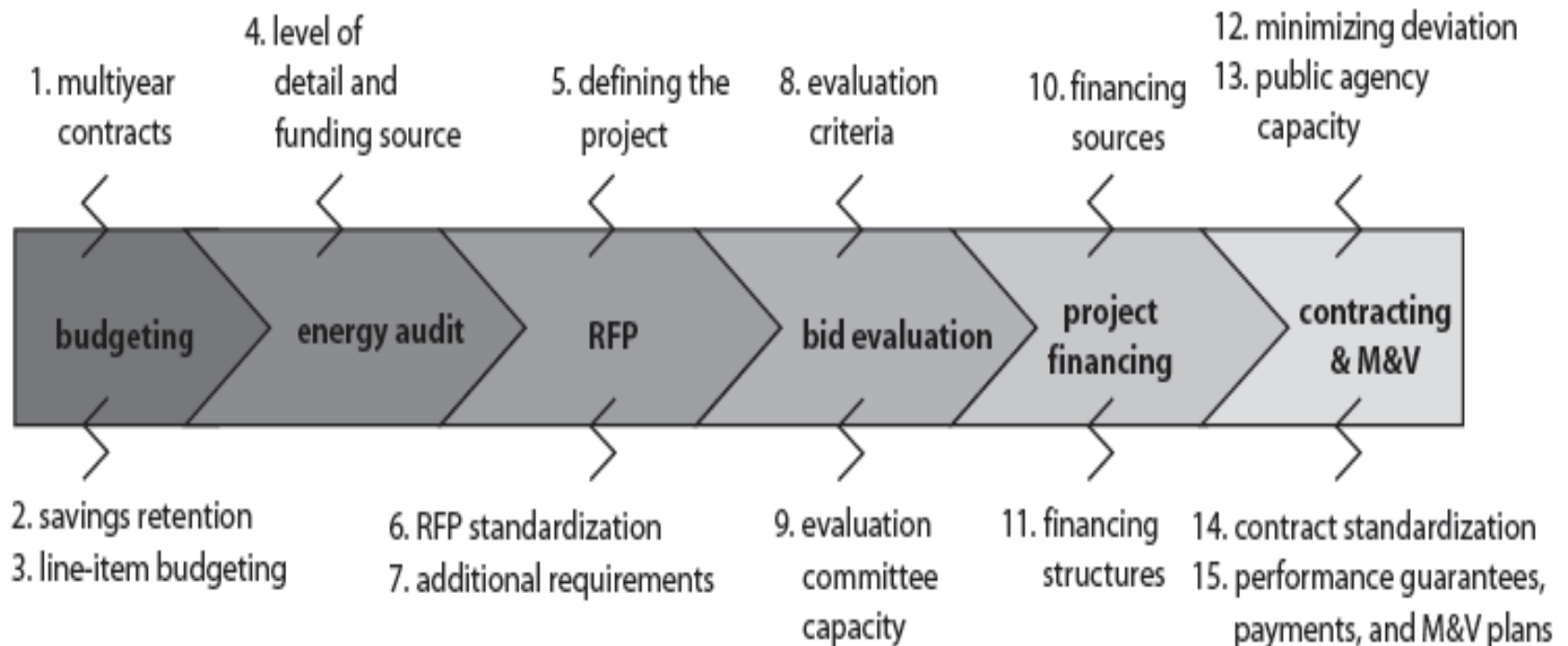
Results from select countries

Country	National Law?	Market Size	Results	Projects
United States (FEMP)	x	US\$2.3 billion	- 18 trillion BTU/yr - US\$7.1 billion in energy cost savings	460 ESPC projects
Canada (FBI)		Can\$320 million	- 20% reduction in energy intensity - Can\$40 million in energy cost savings - 285 kt of CO ₂ reduction	85 EPC projects (7,500+ buildings)
Germany		~€200 million	- 20-30% reduction in energy costs - €30-45 million in energy cost savings/yr	2,000 properties
Japan		~10 billion yen	- 12% reduction in energy intensity - 265kt of CO ₂ reduction	50 ESPC projects in FY06

Emerging Public ESPC Models

Model	Examples
Indefinite Quantity Contract (IQC)	U.S. (FEMP), Hungary (MOE)
Public ESP	Ukraine (Rivne City)
Super ESP	U.S. (NYPA), Belgium (Fedesco), Philippines (EC ²)
Utility ESP	U.S. (FEMP – UESC), Croatia (HEP ESCO)
Utility DSM ESP	Brazil
Internal ESP (PICO)	Germany (Stuttgart)
Energy Supply Contracting	Germany, Austria, France
Procurement Agent	Germany (BEA, DENA), Austria, U.S., Czech Republic, Slovakia
Project Bundling	Austria, Germany, India, S. Africa, U.S.
Nodal Agencies	U.S. (USDOE), S. Korea (KEMCO), India (BEE), Japan (ECCJ)
Ad Hoc	Brazil, China, Egypt, Mexico, Poland, S. Africa

Steps and Issues



Designing the Right Process

Budget	Audit	Financing	Model	Contract
<p>Progressive</p> <ul style="list-style-type: none"> agency's full retention of EE benefits after reform certain autonomy or fixed budget provisions of agency noncash refund to agency from ESPs with retention of EE benefits partial EE benefits assigned to agency by Ministry of Finance (MOF) no agency retention, MOF upfront subsidy/grant/special financing no retention but other incentives (e.g., awards, competitions) no retention; MOF mandate on agency EE implementation no retention; ESP procurement by MOF/parent agency <p>Restrictive</p>	<p>Prescriptive</p> <ul style="list-style-type: none"> detailed energy audit and resulting predefined project mandate audit detailed audit from similar, representative facility walk-through audits/evaluation institution-led low- or no-cost audit completed audit template equipment inventory/bill summary audit by preselected ESPs under Indefinite quantity contract (IQC) approach no upfront audit; detailed audit by bidders prior to bid submission <p>Flexible</p>	<p>Commercial</p> <ul style="list-style-type: none"> bank lending and project financing to ESPCs vendor financing or leasing credit or risk guarantee carbon financing to boost IRR or extend ESPC duration financing and packaging by Public-private partnership (PPPs) financing and packaging by public entities (e.g., super-ESPs) public revolving fund public financing through public bonds, etc. government budget for EE projects <p>Public</p>	<p>High ESP risk</p> <ul style="list-style-type: none"> full service—shared savings energy supply contracting—chauffage, outsourcing, contract energy management ESPs with third-party financing—guaranteed savings ESPs with variable-term contract—first out contract supplier credit equipment leasing consultant with performance-based payments consultant with fixed payments <p>Low ESP risk</p>	<p>Performance based</p> <ul style="list-style-type: none"> multiyear contract and periodic payments based on M&V assessment multiyear, flexible term contract until ESP's agreed return met partial payment upon commissioning and balance paid 3–6 months multiyear contract and fixed payments with periodic M&V, equipment warranty, and bonus provisions full payment upon commissioning with some recourse for outer years full payment upon commissioning <p>Traditional</p>

Conclusions and Recommendations

For countries interested in developing a process:

- Conduct an upfront market survey of potential ESPs
- Hold stakeholder consultations to analyze barriers and identify potential solutions
- Define multiple solutions for each barrier and options for each issue
- Develop and test small procurements
- Expand and replicate
- Institutionalize systems

Thank you!