Public Procurement of Energy Efficiency Services
Lessons from International Experiences

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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
- Natural comparative advantage for WB – we can guide procurement process, bundle and finance
- Suitable target for fiscal stimulus and “greening” infrastructure efforts
Why have results been so low?

<table>
<thead>
<tr>
<th>Policy / Regulatory</th>
<th>Public End Users</th>
<th>Equipment/Service Providers</th>
<th>Financiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low energy pricing and collections</td>
<td>Limited incentives to save energy/try new approaches</td>
<td>Higher transaction costs for public sector projects</td>
<td>High perceived public credit risks</td>
</tr>
<tr>
<td>Rigid procurement and budgeting policies</td>
<td>No discretionary budgets for special projects/upgrades</td>
<td>Perceived risk of late/non-payment of public sector</td>
<td>New technologies and contractual mechanisms</td>
</tr>
<tr>
<td>Limitations on public financing</td>
<td>Unclear ownership of cost/energy savings</td>
<td>High project development costs</td>
<td>Small sizes/high transaction costs</td>
</tr>
<tr>
<td>Ad hoc planning</td>
<td>Limited availability of financing</td>
<td>Limited technical, business and risk management skills</td>
<td>Behavioral biases</td>
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<td>Limited and poor data</td>
<td>Lack of awareness and technical expertise</td>
<td>Limited access to equity and financing</td>
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<td></td>
<td>Behavioral biases</td>
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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

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

<table>
<thead>
<tr>
<th>Country</th>
<th>National Law?</th>
<th>Market Size</th>
<th>Results</th>
<th>Projects</th>
</tr>
</thead>
</table>
| 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 CO₂ 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  
- 265 kt of CO₂ reduction | 50 ESPC projects in FY06            |
World Bank Public EE Portfolio

- From FY00-FY09, the WB has supported 22 projects with explicit public EE components, excluding supply-side (power, DH) investments
- 17 of these (77%) have been in the ECA Region
- 8 included focus on public (office) buildings, 5 on municipal water supply, 7 on schools/hospitals, 3 on housing and 2 on street lighting
- Only 2 projects had ESCOs mentioned as an instrument for project identification, packing and implementation
- 3 CF projects under advanced preparation (all in India, 2 municipal water supply, 1 street lighting)
Non-WB Public EE Portfolio

- Over same period, 27 other donor projects and programs identified involving public EE (including IFC)
- 18 of these (67%) have been in the ECA Region
- 10 of them (37%) involved the creation of a fund or financing facility
- EBRD, USAID and UNDP have been more active than others in this area, although GTZ, REEEP and Clinton Foundation have entered the sector
- 14 included focus on general public facilities, 7 on *public (office) buildings*, 4 on *municipal water supply*, 6 on *schools/hospitals*, 4 on *housing* and 5 on *street lighting*
- 15 of them (56%) had ESCOs mentioned as an instrument for project identification, packing and implementation
The Report

- **Objective.** Summarize international experiences in using EE performance contracting in the public sector

- **Approach:**
  - Commissioned case studies from 5 developed countries – Canada, France, Germany, Japan, U.S. and 2 states (New York, Quebec)
  - Commissioned 5 country case studies from developing countries – Brazil, China, the Czech Republic, India, Poland
  - Collected several other developing country project examples from Bulgaria, the Philippines, Egypt, Hungary, South Africa
  - Review of international literature, collected and reviewed 10-15 RFPs, interviewed about 60 experts/practitioners
Definitions

- **Public Sector** refers to publicly-owned institutions subject to public procurement rules and regulations, including federal/municipal buildings, universities/schools, hospitals/clinics, public lighting, water utilities, public transportation stations, community centers, fire stations, libraries, orphanages, etc.

- **ESP** refers to an Energy Service Provider (broader than typical ESCO definition)

- **ESPC** refers to Energy Saving Performance Contracts – for the report, an ESPC must:
  - tie at least part of ESP payment to project performance
  - must be involved in project implementation (not just audit, equipment sale or O&M)
What is an ESPC?

- A contracting mechanism for implementing EE projects on a *turn-key basis* – i.e., design, equipment procurement, installation, and savings verification.
- Optional services include financing, operations and maintenance (O&M), training, etc.
- Compensation is generally based on actual demonstrated energy cost savings from the client or ‘host facility’.
- Allows host facilities with limited capital to *pay for EE upgrades from future energy savings*, while mobilizing private capital and sharing of project performance risks.
- ESPCs are generally carried out by energy service companies, or ESCOs.
ESCO Models

High service/risk

- **Full service ESCOs** designs, implements, verifies and gets paid from actual energy saved (aka “Shared Savings”)
- **Energy supply contracting**, takes over equipment O&M and sells output at fixed unit price (aka “Chauffage”, “Outsourcing”, “Contract Energy Management”)
- **ESCOs w/ third party financing**, designs/implements project, and guarantees minimum level of savings (aka “Guaranteed Savings”)
- **ESCO w/variable term contract**, act as full service ESCO, but contract term varies based on actual savings (aka “First Out Contract”)
- **Supplier credit**, equipment vendor designs, implements and commissions project and is paid lump-sum or over time based on estimated savings
- **Equipment leasing**, similar to supplier credit except payments are generally fixed (based on est. energy savings)
- **Consultant w/ performance-based payments**, agent assists client to design/implement project and receives payments based on project performance (fixed payment w/ penalties or bonuses)

Low service/risk

- **Consultant w/ fixed payments**, where consultant helps the client design and implement the project, offers advice and receives a fixed lump-sum fee

**Source:** World Bank 2005
Steps and Issues

1. Multiyear contracts
2. Savings retention
3. Line-item budgeting
4. Level of detail and funding source
5. Defining the project
6. RFP standardization
7. Additional requirements
8. Evaluation criteria
9. Evaluation committee capacity
10. Financing sources
11. Financing structures
12. Minimizing deviation
13. Public agency capacity
14. Contract standardization
15. Performance guarantees, payments, and M&V plans
# Emerging Public ESPC Models

<table>
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<tr>
<th>Model</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Indefinite Quantity Contract (IQC)</td>
<td>U.S. (FEMP), Hungary (MOE)</td>
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<tr>
<td>Public ESP</td>
<td>Ukraine (Rivne City)</td>
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<tr>
<td>Super ESP</td>
<td>U.S. (NYPA), Belgium (Fedesco), Philippines (EC²)</td>
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<tr>
<td>Utility ESP</td>
<td>U.S. (FEMP – UESC), Croatia (HEP ESCO)</td>
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<tr>
<td>Utility DSM ESP</td>
<td>Brazil</td>
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<tr>
<td>Internal ESP (PICO)</td>
<td>Germany (Stuttgart)</td>
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<tr>
<td>Energy Supply Contracting</td>
<td>Germany, Austria, France</td>
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<tr>
<td>Procurement Agent</td>
<td>Germany (BEA, DENA), Austria, U.S., Czech Republic, Slovakia</td>
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<tr>
<td>Project Bundling</td>
<td>Austria, Germany, India, S. Africa, U.S.</td>
</tr>
<tr>
<td>Nodal Agencies</td>
<td>U.S. (USDOE), S. Korea (KEMCO), India (BEE), Japan (ECCJ)</td>
</tr>
<tr>
<td>Ad Hoc</td>
<td>Brazil, China, Egypt, Mexico, Poland, S. Africa</td>
</tr>
</tbody>
</table>
Public ESPC Procurement Issues

- Budget provisions for ESPCs
  1. Multi-year contracts
  2. Retention of energy savings
  3. Line item budgeting

- Initial energy audits
  4. Level of detail and source of funds for initial audit

- Development of the RFP
  5. Defining the project
  6. Standardization of the RFP
  7. Additional steps in the bidding process

- Evaluation of bids
  8. Evaluation criteria for multiple technical and financial parameters
  9. Technical capacity of agency evaluating committees

- Financing
  10. Sources of financing
  11. Financing structuring

- Contracting and M&V
  12. Minimizing deviation from the proposal
  13. Capacity enhancement of public agencies
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Budget: Issue 1 (Multi-Year Contracts)

- **Medium Term Expenditure Framework (MTEF)** is an approach promoted by WB to help reconcile multi-year obligations with annual budget envelopes.
- MTEF helps ensure that public commitments are consistent with its medium-term fiscal outlook.
- Many WB clients have adopted MTEF, so do not face this issue.
- Many other countries have precedents for multi-year contracting, which should be explored.
- But, if this is a key issue, consider **one-year ESPCs** (e.g., Mexico).
Budget: Issue 2 (Retention of Savings)

**Full ownership of savings**
- MOF/parent agency assigns full project benefits to agency for discretionary spending – may require regulatory changes
- Focus on autonomous agencies or ones with fixed budget provisions
- ESP retains all energy savings but then provides a non-cash refund to the agency at the end of the project period
- MOF assigns partial project benefits (e.g., duration of ESPC) to agency to allow ESP payments to be made
- MOF provides upfront subsidy/grant for investment or special financing but retains benefits
- Gov’t does not allow energy savings but offers institutional awards, interagency competitions, employee recognition for proactive energy efficiency measures
- MOF issues mandate to implement cost-effective EE measures

**No ownership of savings**
- MOF/parent agency procures ESP directly for public facility retrofits and retains all energy savings
Budget: Issue 3 (Line Item Budgeting)

- With separation of capital & operating budgets, many public agencies have difficulties using savings from one category to pay for another – spirit of ESPCs
- The **U.S.** (24 years) and **Germany** (17 years) have addressed ESPC budgeting issues through series of legislative and regulatory amendments, yet both still face substantial state differences and recurring reviews
- **India** has dealt with it on a project-by-project basis with the issuance of Government Orders, until sufficient experience has been gained
Public ESPC Procurement Issues

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Audit: Issue 4 (Level of Detail/Cost)

**Prescriptive**
- Detailed energy audit resulting in predefined project/evaluate based on lowest cost for services/equipment
- Gov’t mandates energy audits for public facilities
- Detailed energy audit from similar, representative facility
- Walk-through audit/evaluation based on representative project with allowance for bidders to suggest project enhancements
- Institution-led low-/no- cost audits (e.g., gov’t agency, utility, university)
- Host facility completes audit template
- Host facility provides equipment inventory/bill summary
- Use of IQC approach, where ESPs are competitively preselected and then undertake audits and contracts directly with public agencies

**Flexible**
- No upfront audit; RFP requires bidders to perform detailed audit during bid phase, possible remuneration for unsuccessful bidders
Audit: Issue 4 (Level of Detail/Cost)

Minimum information (buildings) required:
- Age of building
- Inventory of equipment
- Square footage by function (e.g., office space, cafeteria, training centers, etc.)
- Operating conditions (operating times, functions)
- 1+ year of energy billing data, including tariff information
- Past EE measures implemented to date
- If bundle of projects, only need data on representative sample

Conclusion: Technical information can be prepared at a very low cost!
Public ESPC Procurement Issues

- **Budget provisions for ESPCs**
  1. Multi-year contracts
  2. Retention of energy savings
  3. Line item budgeting
- **Initial energy audits**
  4. Level of detail and source of funds for initial audit

**Development of the RFP**

5. Defining the project
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RFP: Issue 5 (Project Definition)

- 3 aspects to consider:
  - Type of procurement
  - Project parameters
  - Services to be provided

<table>
<thead>
<tr>
<th>Country/Institution</th>
<th>Type of Procurement</th>
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<tbody>
<tr>
<td>India (Tamil Nadu)</td>
<td>Goods and Services</td>
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<tr>
<td>India (Gujarat)</td>
<td>Works and Services</td>
</tr>
<tr>
<td>Germany</td>
<td>Works or Services</td>
</tr>
<tr>
<td>USA (NYPAA)</td>
<td>Services</td>
</tr>
<tr>
<td>USA (FEMP)</td>
<td>New Law/Procedures</td>
</tr>
<tr>
<td>France</td>
<td>New PPP Law/Procedures</td>
</tr>
<tr>
<td>World Bank</td>
<td>Management Contract (Goods &amp; Services)</td>
</tr>
</tbody>
</table>
RFP: Issue 5 (Project Definition)

- Project parameters can include: pre-specified type and quantity of equipment to be replaced (Egypt), target end-uses or systems (e.g., lighting, HVAC), required & optional target systems (Germany), minimum level of energy savings (India), minimum share of energy savings

- Package of services can include detailed energy audit, engineering & project design, equipment procurement, financing, installation & construction, commissioning, performance guarantee, M&V, O&M
There are substantial differences in standard RFPs for ESPCs among those available and reviewed

Developed markets have many (federal, state, association, program)

Need to consider opportunities for early innovation and testing of different approaches, customization for specific agency needs, high typical procurement transaction costs, avoid “reinventing the wheel”
RFP: Issue 7 (Additional Steps)

- Various countries have added additional steps to the typical bidding process including:
  - Pre-qualification or short-listing of ESPCs
  - Conducting of an investment grade audit (IGA) (*France*)
  - Draft RFP and pre-bidding meetings
  - Site visits
  - Oral presentations (*Japan*)

- Additional steps should be driven by client needs, level of project complexity, need for consultations, experience of bidders and agencies, etc.
Public ESPC Procurement Issues

- **Budget provisions for ESPCs**
  1. Multi-year contracts
  2. Retention of energy savings
  3. Line item budgeting
- **Initial energy audits**
  4. Level of detail and source of funds for initial audit
- **Development of the RFP**
  5. Defining the project
  6. Standardization of the RFP
  7. Additional steps in the bidding process

**Evaluation of bids**

8. Evaluation criteria for multiple technical and financial parameters

9. Technical capacity of agency evaluating committees

- **Financing**
  10. Sources of financing
  11. Financing structuring
- **Contracting and M&V**
  12. Minimizing deviation from the proposal
  13. Capacity enhancement of public agencies
  14. Standardization of contracting documents
  15. Performance guarantees, payments and M&V plans
Most countries use two-stage evaluation process (technical and financial)

Technical evaluation similar to typical services: firm experience, technical approach, personnel, etc.

Financial evaluation more complex due to multiple cost-related parameters (e.g., energy savings, IRR, total project cost)
- Some countries use weighted average of financial criteria (Japan, Czech Republic, Canada, U.S. – NYSERDA, India)
- Others use single calculation or value to determine best value (i.e., NPV) (Austria, Germany)
- Still others rely on direct negotiations (U.S. – FEMP/NYPA, France)

Evaluation procedures must fit local regulations and agency needs, yet also be clear, transparent and simple
Evaluation: Issue 9 (Agency Capacity)

- Many country programs have some public agency or commercial agents that can assist in procurement, including evaluation of proposals.
- Umbrella IQCs, pre-qualification of ESP bidders, standardized RFPs, pre-bidding conferences, training of ESPs and agency staff, etc. all can help.
Public ESPC Procurement Issues

- Budget provisions for ESPCs
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Financing: Issues 10 (Sources)

- Full commercial financing
  - Large-scale, mainstreamed bank lending and project financing for ESPCs
  - Development of specialized banking instruments, such as factoring or trust accounts, to help promote ESPCs
  - Vendor financing or leasing
  - Credit or risk guarantee instruments to help reduce high perceived risks from commercial financiers
  - Mobilizing carbon financing to help boost rates of return or extend ESPC durations
  - Promoting PPPs, including project agents, to help package and finance ESPC projects
  - Specialized public entities (e.g., super ESPs) to help package and finance ESPCs, sometimes blending public and commercial financing

- Public financing
  - Public revolving fund for financing of ESPC projects
  - Public financing for project, through bonds or other mechanism
  - Provision of government budget for energy savings project
Financing: Issue 11 (Structures)

**Shared Savings Model**

- **Financial institution**
  - Loan
  - Repayment from portion of savings share
- **ESP**
  - Project development, financing, and implementation
- **End user**
  - Payment based on savings share

**Guaranteed Savings Model**

- **Financial institution**
  - Loan
  - Repayment with funds according to ESPC
  - Arrange financing
- **End user**
  - Project development and implementation
  - Payment for services according to ESPC
  - Savings guarantee
- **ESP**
  - Payment based on savings share

*Source: Taylor et al., 2008*
Public ESPC Procurement Issues

- **Budget provisions for ESPCs**
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Contract: Issue 12 (Deviation)

- Direct contracting, requiring detailed energy audits or pre-specifying the project do not face this issue.
- For the rest, need measures to ensure IGA project does not vary significantly from ESP proposal.
- Options include:
  - Some contracts allow small (<20%) deviation of IGA from proposal or IGA is not reimbursed and contract is cancelled (U.S., Brazil).
  - Others use “open book” model, where ESP gets fixed service fees and agreed mark-up for equipment (Canada, Croatia).
  - Others agree on fixed unit price for various measures (Hungary).
Many countries have some public agency or commercial agents to assist in procurement, including contract negotiations and supervision.

IQC master contracts, public/super ESPs, procurement agents, standardized ESPCs, training of ESPs and agency staff, bundling of public projects, etc. all can help.
- Need for standardized ESPCs is more important than RFPs
- Need to consider alternate provisions, customization for specific agency needs, high typical contracting transaction costs, creating legal precedents, avoid “reinventing the wheel”

<table>
<thead>
<tr>
<th>Countries</th>
<th>Approach</th>
<th>Status</th>
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<tbody>
<tr>
<td>U.S., Japan, India, Canada - FBI</td>
<td>Nodal agencies developed standard contracts for use by government agencies</td>
<td>Standard contracts available and have been used in many cases</td>
</tr>
<tr>
<td>Australia</td>
<td>Standard contract developed by ESP Association</td>
<td>Standard contract available and being use</td>
</tr>
<tr>
<td>Czech Republic, Canada-Quebec, Germany</td>
<td>Assistance and guidance from NGOs/associations/agents in contracting process</td>
<td>Standardization likely to occur with additional experience</td>
</tr>
<tr>
<td>S. Africa, China, Mexico, Egypt</td>
<td>Little or no effort devoted to standard contracts</td>
<td>No standard contracts currently available</td>
</tr>
<tr>
<td>France</td>
<td>Unique contracting process (PPP) - individually negotiated</td>
<td>No standard contracts currently available</td>
</tr>
</tbody>
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- Fully Performance-based
  - Multi-year contract with payments fully based on periodic M&V assessments
  - Multi-year, flexible term contract with 100% of verified savings retained by ESP until ESP receives agreed return on investment
  - Partial payment upon successful commissioning and balance of payment within 3-6 months based on performance
  - Full payment upon successful project commissioning with some recourse if project performance waivers in outer years (e.g., performance bond, equipment warranties)
  - Full payment upon successful project commissioning

- Partially Performance-based
  - Multi-year contract (e.g., lease) with fixed payments, based on engineering estimates, with periodic M&V, strong equipment warrantee and small bonus provisions for exceeding targets
## Designing the Right Process

<table>
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<th>Audit</th>
<th>Financing</th>
<th>Model</th>
<th>Contract</th>
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<tbody>
<tr>
<td>Progressive</td>
<td>Prescriptive</td>
<td>Commercial</td>
<td>High ESP risk</td>
<td>Performance based</td>
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<tr>
<td>agency’s full retention of EE benefits after reform</td>
<td>detailed energy audit and resulting predefined project</td>
<td>bank lending and project financing to ESPOs</td>
<td>full service—shared savings</td>
<td>multiyear contract and periodic payments based on M&amp;V assessment</td>
</tr>
<tr>
<td>certain autonomy or fixed budget provisions of agency</td>
<td>mandate audit</td>
<td>vendor financing or leasing</td>
<td>energy supply contracting—chauffage, outsourcing, contract energy management</td>
<td>multiyear, flexible term contract until ESP’s agreed return met</td>
</tr>
<tr>
<td>noncash refund to agency from ESPs with retention of EE benefits</td>
<td>detailed audit from similar, representative facility</td>
<td>credit or risk guarantee</td>
<td>ESPs with third-party financing—guaranteed savings</td>
<td>partial payment upon commissioning and balance paid 3–6 months</td>
</tr>
<tr>
<td>partial EE benefits assigned to agency by Ministry of Finance (MOF)</td>
<td>walk-through audits/evaluation</td>
<td>carbon financing to boost IRR or extend ESCP duration</td>
<td>ESPs with variable-term contract—first out contract</td>
<td>multiyear contract and fixed payments with periodic M&amp;V, equipment warranty, and bonus provisions</td>
</tr>
<tr>
<td>no agency retention, MOF upfront subsidy/grant/special financing</td>
<td>institution-led low- or no-cost audit</td>
<td>financing and packaging by Public-private partnership (PPPs)</td>
<td>supplier credit</td>
<td>full payment upon commissioning with some recourse for outer years</td>
</tr>
<tr>
<td>no retention but other incentives (e.g., awards, competitions)</td>
<td>completed audit template</td>
<td>financing and packaging by public entities (e.g., super-ESPOs)</td>
<td>equipment leasing</td>
<td>full payment upon commissioning</td>
</tr>
<tr>
<td>no retention; MOF mandate on agency EE implementation</td>
<td>equipment inventory/bill summary</td>
<td>public revolving fund</td>
<td>consultant with performance-based payments</td>
<td>Traditional</td>
</tr>
<tr>
<td>no retention; ESP procurement by MOF/parent agency</td>
<td>audit by preselected ESPs under Indefinite quantity contract (IQC) approach no upfront audit; detailed audit by bidders prior to bid submission</td>
<td>public financing through public bonds, etc.</td>
<td>consultant with fixed payments</td>
<td></td>
</tr>
<tr>
<td>Restrictive</td>
<td>Flexible</td>
<td>government budget for EE projects</td>
<td>Low ESP risk</td>
<td></td>
</tr>
</tbody>
</table>

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**ESMAP**

The Energy Sector Management Assistance Program
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
Project Examples

1. India Akola Street Lighting Replacement

- *State of Maharashtra plagued by power shortages, high electricity costs (~5% of Akola municipal budget)*
- *Akola issued tender for financing/replacement of 11.5k lamps using an ESPC*
- *AEL won tender in April 2007, invested ~$120k replacing all lamps with T-5 FTLs, and took 95% of verified energy savings (metering 10% of lamps), 6 year term w/ maintenance/replacement obligation*
- *Project savings were 2.13 million kWh ($133k cost savings, or 11 month payback)*
Project Examples

2. Water Pressure Management in South Africa

- Mesti-a-Lekoa utility (Emfuleni municipality near Jo’berg) experienced 80% water losses in 2004
- Issued tender for energy/water savings performance contract; firms could offer various approaches to reduce losses and finance the project
- Engineering consortia led by WRP Engineering Consulting won with proposal to finance/install pressure management system under BOOT scheme
- In 2005, WRP invested $800k and saved 14 million kWh, 8 million kl, and $3.8 million per year (3 month payback!)
- WRP gave Mesti-a-Lekoa 80% of savings for 5 years
Projects Can also be Bundled

- State of Tamil Nadu (India) urban development fund (PPP) to bundle SL and water pumping in 7 municipalities under single tender (30% energy savings requirement, ESPC signed in 2008)
- State of Gujarat (India) recently issued tender for up to 159 local urban bodies (2 phases)
- MOE in Hungary issued tender in 2006 for ESOC to renovate all schools in country; OTP Bank and local ESCO (Caminus) signed 20-yr agreement with $250m IFC guarantee; about $22m implemented as of Aug ‘08
- City of Johannesburg (South Africa) bundled 50 municipal buildings for retrofits in 2008
- Austria, Belgium, Czech Republic, Germany, South Korea, United States – all have successful bundling of EE projects using ESPCs
ESPCs in WB Procurement

- Innovative mechanisms exist to deal with many aspects of ESPCs (e.g., output-based, BOT, cost-plus, management services, two-stage bidding, etc.)

- Key challenges for WB procurement:
  - How should project be defined (if design has not taken place)?
  - How can bidders develop binding cost proposals?
  - How can different proposals be evaluated fairly?
  - On what basis should payments be made?

- Great interest by WB and ESMAP to test locally-appropriate procurements in order to scale-up EE in public clients’ facilities and save money
Thank you!

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