



Scaling up Impacts through Public Procurement of Energy Efficiency Services

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Why the public sector?

- Public sector energy use ~2-5% in many countries (higher in countries w/ district heating or low access)
- 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 (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 socio-economic investments
- Suitable target for fiscal stimulus and “greening” infrastructure efforts



Why have results been 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
- Risk averse
- Lack of discretionary budgets for upgrades
- Unclear ownership of energy savings
- Restricted financing
- Lack of awareness and technical expertise
- Behavioral biases

Equipment/ Service Providers

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

Financiers

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



What other countries do?

- Policy measures
 - Energy pricing
 - EE product procurement (public sector MEPS/labeling, LCC, bulk purchase)
 - Setting and monitoring of EE targets in public facilities
 - Allow and promote 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...
High perceived risks	better define the benefits/costs upfront, assign some project risks away from public agency and financier
Inflexible procurement procedures	allow high IRR projects by evaluating the best value to the agency, bypassing multiple procurements
Limited annual budgets for capital upgrades	facilitate project financing, usually with repayments derived from project savings
Small projects with high project development/transaction costs	allow smaller projects to be bundled, streamline audits/M&V for similar types of facilities, reduce hassle factor for public sector
Inadequate information and technical know-how	solicit technically competent private sector firms to compete based on their qualifications, experience and best project ideas



Results from select countries

Country	Market Size	Results	Projects
United States (FEMP)	US\$3.8 billion	- 18 trillion BTU/yr (2006) - US\$7.1 billion energy cost savings	460 ESPC projects
Canada (FBI)	Can\$320 million	- 20% energy intensity reduction - Can\$40 million energy cost savings - 285 kt CO ₂ reduction	85 EPC projects (7,500+ buildings)
Germany	~€200 million	- 20-30% energy cost reduction - €30-45 million energy cost savings/yr	2,000 properties
Japan	~10 billion yen	- 12% reduction energy intensity - 265kt of CO ₂ reduction	50 ESPC projects in FY06
South Korea	US\$185 million	n/a	~1,400 public ESCO projects

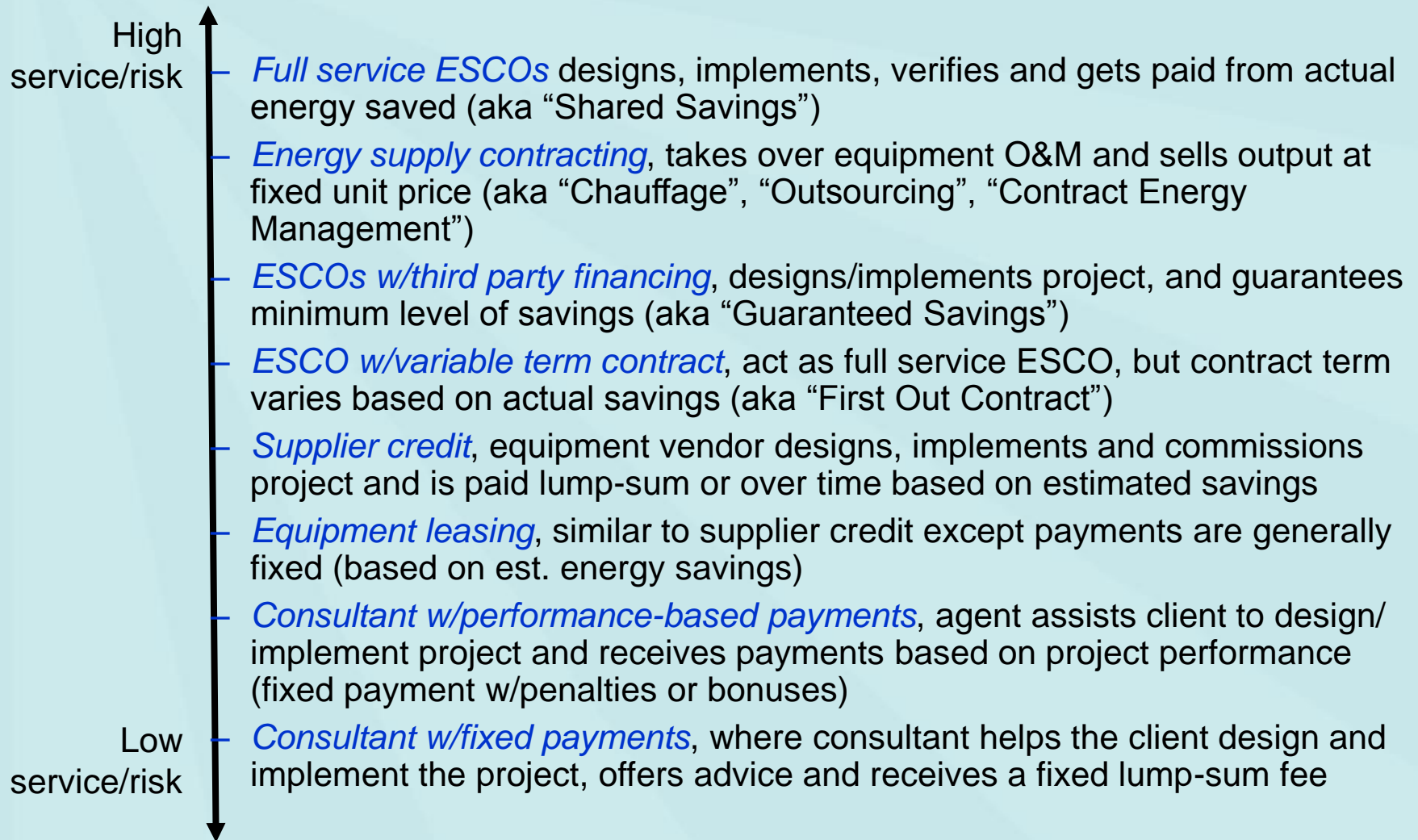


Projects can be bundled

- State of Tamil Nadu (**India**) bundled 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** signed 20-yr agreement with ESCO worth up to \$250m to renovate **all schools in country**
- City of Johannesburg (**South Africa**) bundled **50 municipal buildings** for retrofits in 2008
- **Austria, Belgium, Czech Republic, Germany, Israel, South Korea, United States** – all have successful bundling of EE projects using ESPCs



ESCO models



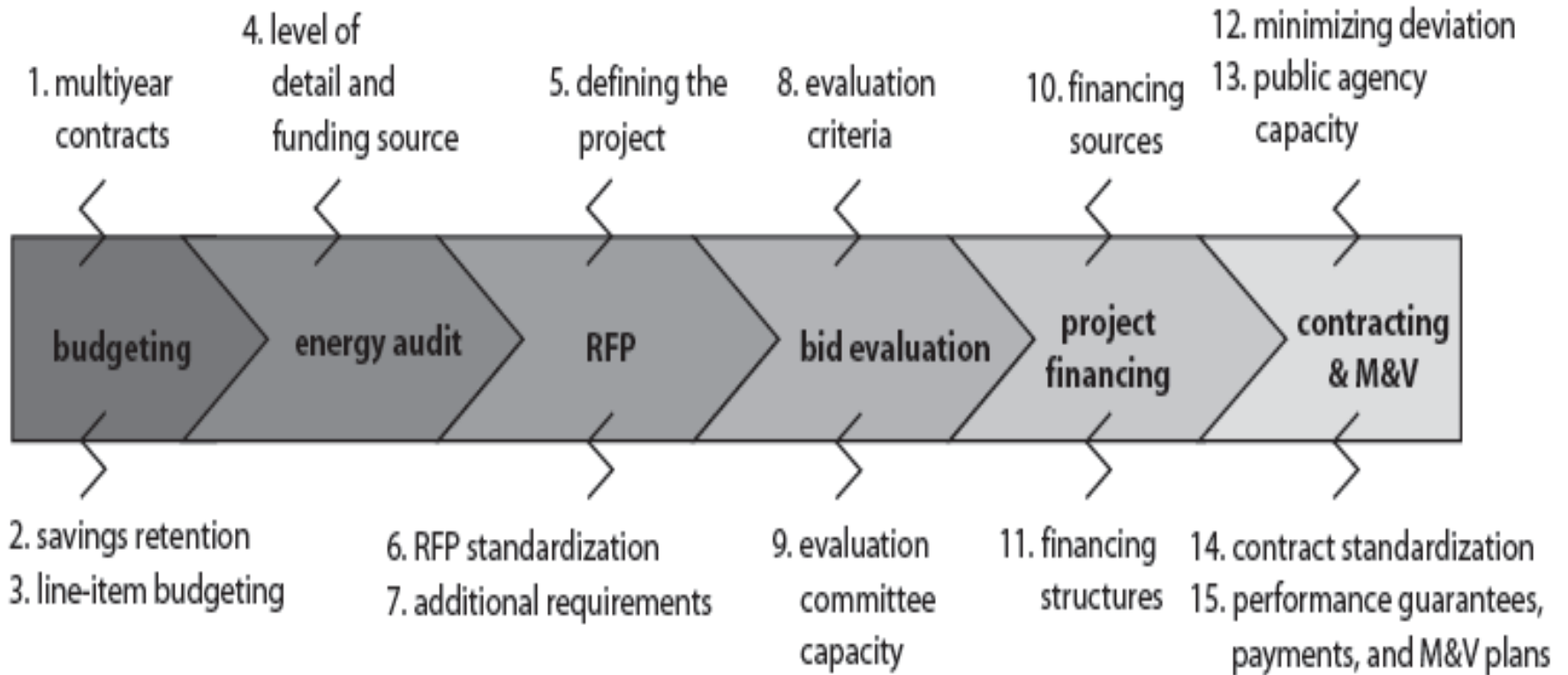


Emerging models

Model	Examples
Indef. Quant. Cont.	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), Uruguay (USCO-UTE)
Utility DSM ESP	Brazil
Internal ESP (PICO)	Germany (Stuttgart)
Energy Supply Cont.	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



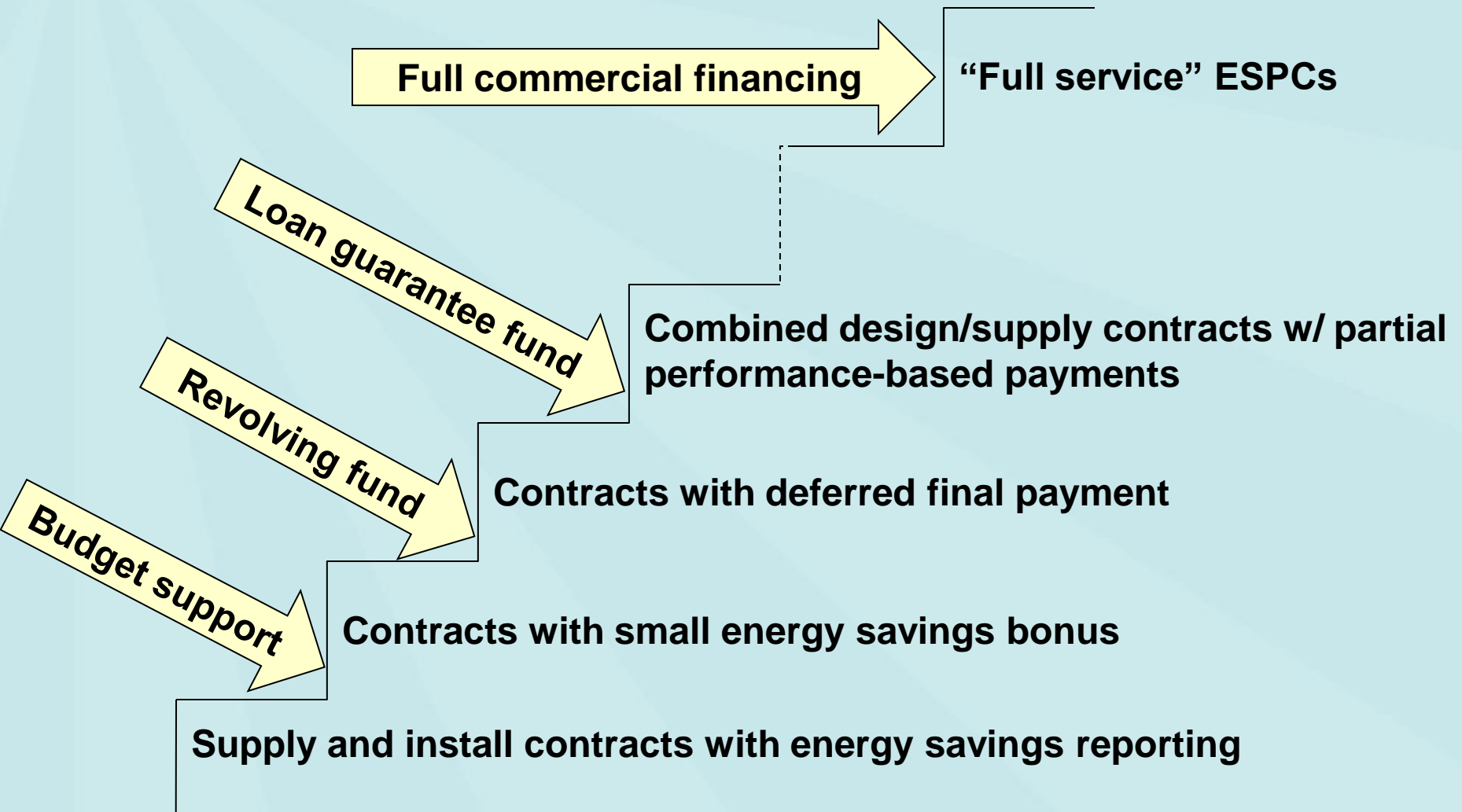


Designing the right process

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>



Building the market





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!

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