ESMAP
Energy Sector Management Assistance Program
Briefing Note 09/10

Public Procurement of Energy Efficiency Services

Getting Started

Jas Singh, Senior Energy Specialist, ESMAP

ENERGY EFFICIENT CITIES INITIATIVE

HELPING CITIES MEET THEIR ENERGY CHALLENGES OF THE NEW CENTURY

What is an ESPC?

- An energy savings performance contract (ESPC) is a contracting mechanism to implement EE projects on ***turn-key basis*** – i.e., design, equipment procurement, construction/installation, and savings verification
- Optional services include financing, operations and maintenance (O&M), training, etc.
- Usually, ***compensation is tied to actual energy 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 (ESCOs), or ***energy service providers*** (ESPs)

How ESPCs can help

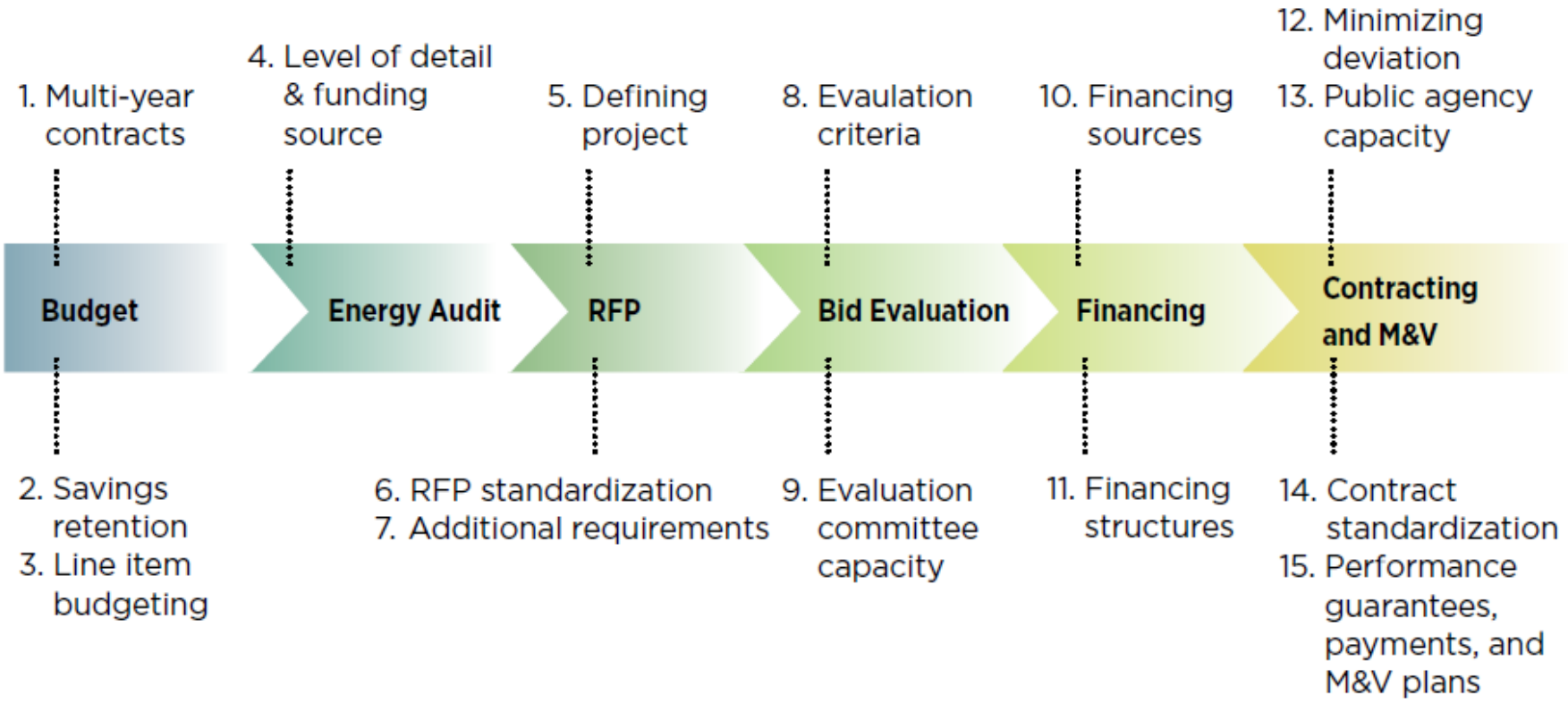
Public Sector Barriers	ESPCs Can…
High perceived risks	better define the benefits/costs upfront, assign some project risks away from the public agency and financier
Inflexible procurement procedures	allow high IRR projects by evaluating the best value to the agency, bypassing multiple procurements
Limited 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, reduces hassle factor for public agencies
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	~220 billion Won	n/a	~1,400 public ESCO projects

ESMAP
The Energy Sector Management Assistance Program

Steps and issues

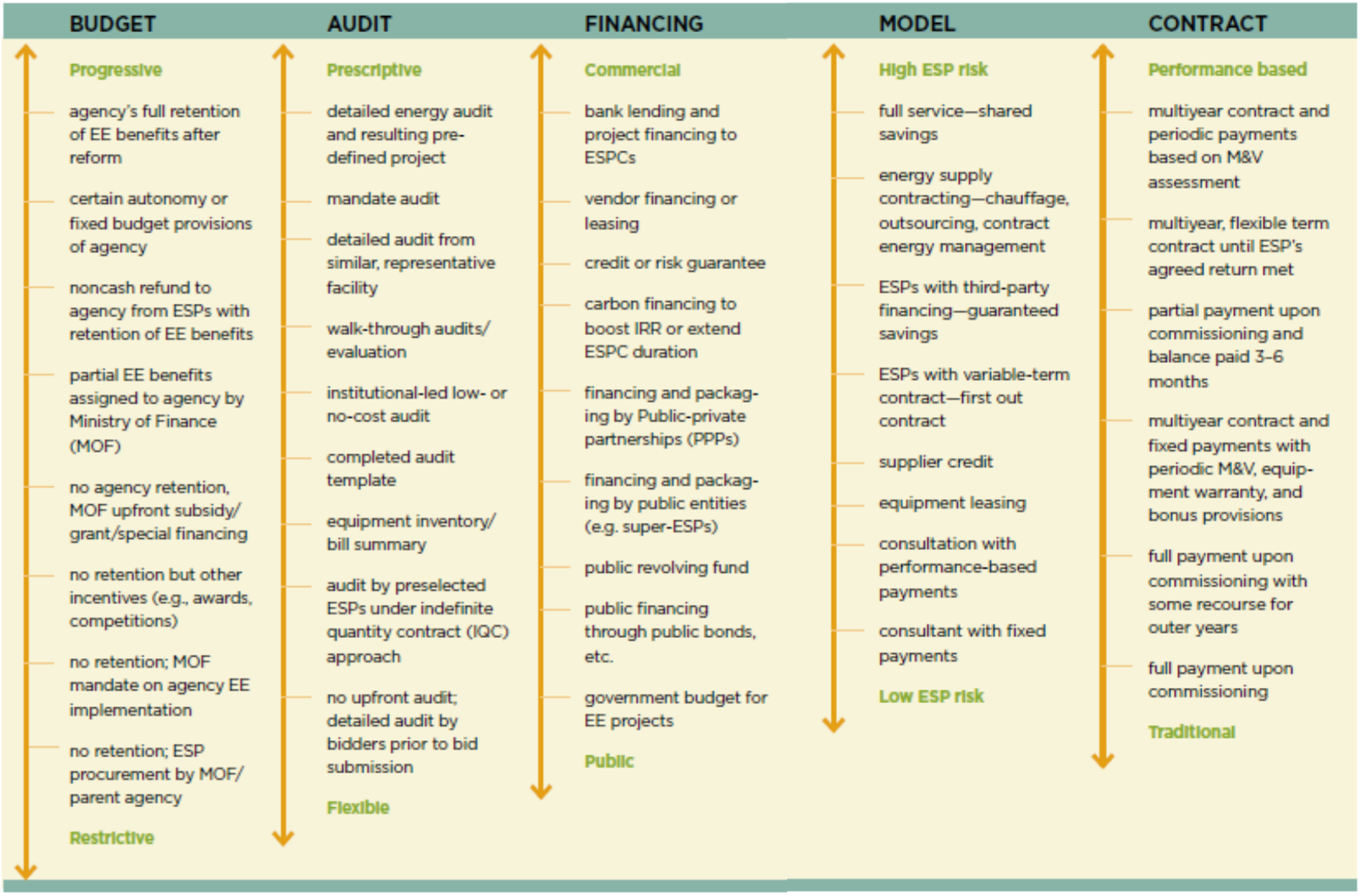


ESMAP
The Energy Sector Management Assistance Program

Emerging ESP contracting models

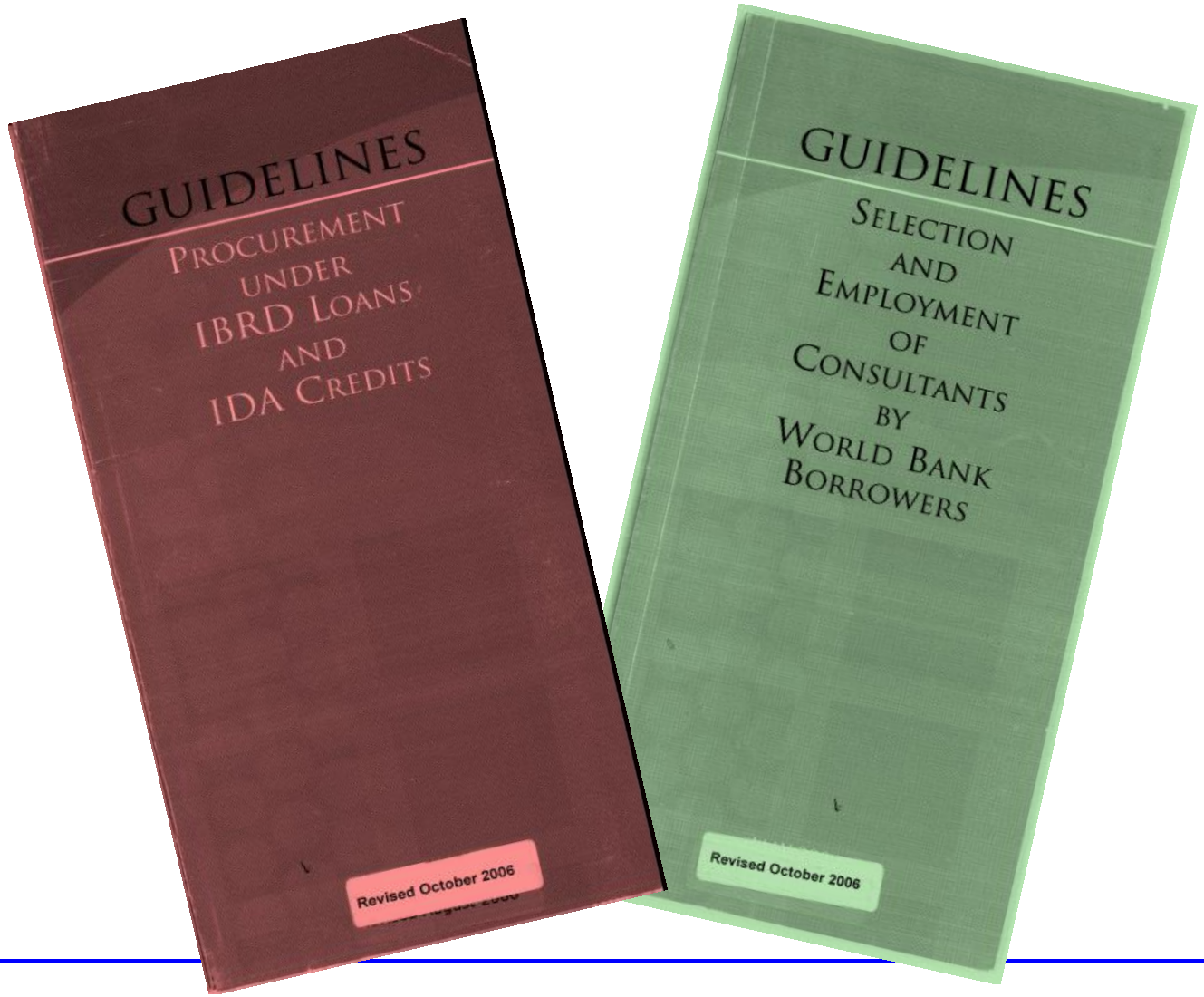
Model	Examples
Indefinite Quantity Contract (IQC)	U.S., Hungary
Public ESP	Ukraine (Rivne City)
Super ESP	U.S. (NYPA), Belgium (Fedesco), Philippines (EC^2), India (EESL)
Utility ESP	U.S. (UESC), Croatia (HEP ESCO), Uruguay (USCO-UTE)
Utility DSM ESP	Brazil
Internal ESP (PICO)	Germany (Stuttgart)
Energy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

Designing the Right Process



ESMAP
The Energy Sector Management Assistance Program

ESPCs and Bank procurement



ESMAP
The Energy Sector Management Assistance Program

Why is ESPC procurement different?

- ESPCs use ***output-based rather than input-based models***
- ESPCs involve a ***blend of goods, works, services, and financing***
- ***Payments are based on performance*** rather than time-based or delivery-based contracts
- ***Relatively small contract sizes*** for ESPCs make complex Bank procurement options cumbersome
- ESPCs require ***credible, upfront technical information***
- ESPCs are often ***finalized after contract signing***

Bank procurement precedents

- **Output-based or performance-based contracts** allow for payments to be based on measurable output indicators rather than inputs
- **Cost plus contracts** allow for procurement when the exact type and quantity of goods is not known
- **Two-stage bidding** allows for bidding when the technical approach is uncertain by requesting unpriced technical bids first to see what solutions bidders may propose
- **Management services contracts** allow for turn-key, performance-based, output-based contracts

Split design & construction contracts

Pros

- Conventional approach
- Relatively easy to do
- Low risk to complete

Cons

- No accountability for results
- Auditors/designers always lack “hands-on” experience
- Requires two procurements
- Discourages innovation
- Public agency assumes project performance risks

Split design & construction contracts

No.	Model	Description
1	Standard design & CW contract	- Hiring of consultant for energy audit & project design - Procurement of supply & install contract - Fixed payments based on inputs
2	Standard design w/output-based CW contract (fixed payments)	- Hiring of consultant for energy audit & project design - Procurement of supply & install contract based on energy savings - Evaluation based on lowest cost to achieve savings - Fixed payments based on inputs
3	Standard design w/output-based CW contract (performance-based payments)	- Hiring of consultant for energy audit & project design - Procurement of supply & install contract based on energy savings - Evaluation based on lowest cost to achieve savings - Partial payments based on energy savings

Comb. design & construction contracts

Pros

- Promotes innovation and accountability (less risk for agency)
- Single procurement

Cons

- More complex bidding and evaluation (higher bid preparation costs and more time for procurement)
- Greater opportunities for ‘gaming’ the system

Challenges

- Defining project parameters
- Bidders have to develop binding cost proposals
- Transparent evaluation of dissimilar bids
- Defining and measuring outputs

Comb. design & construction contracts

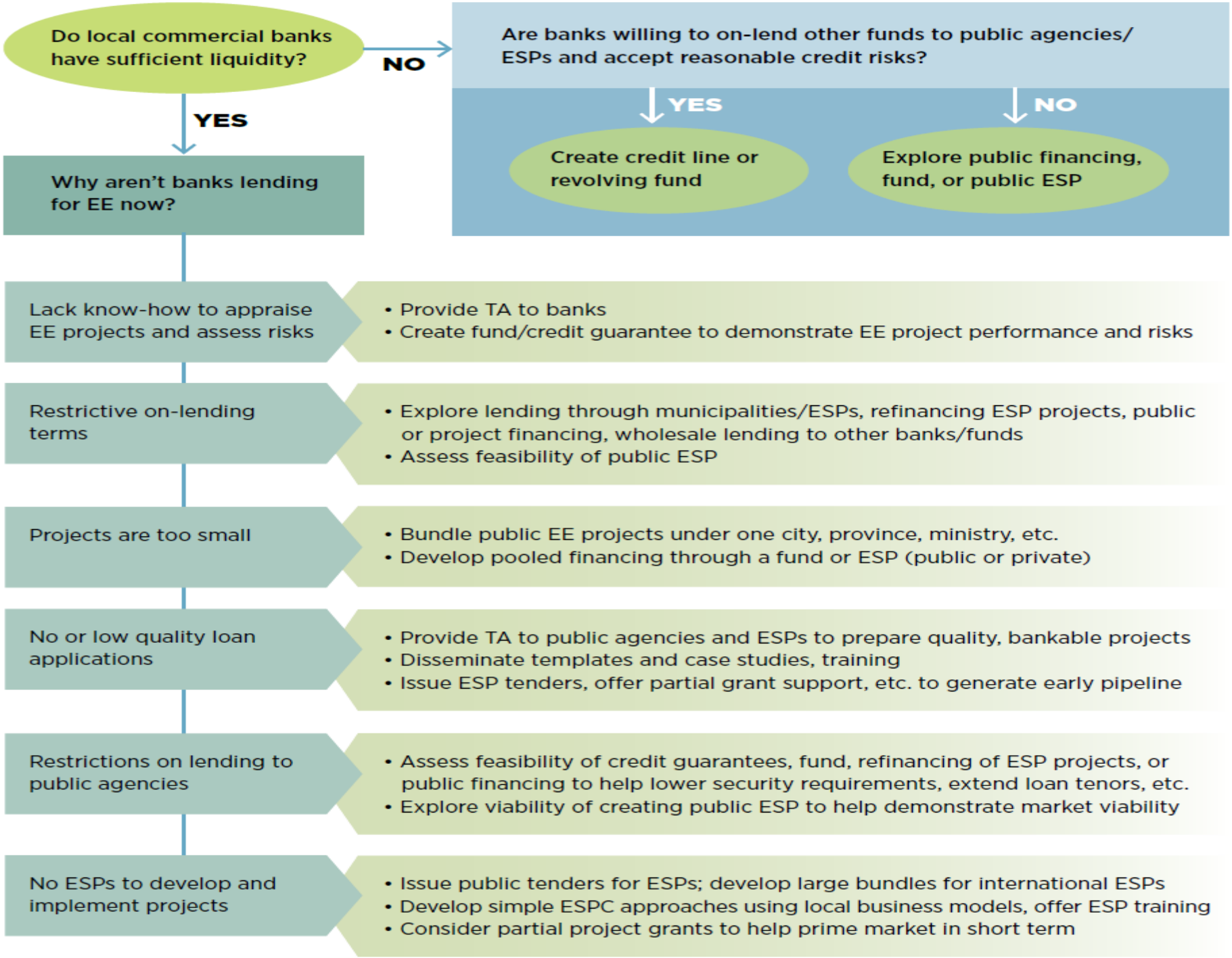
No.	Model	Description
4	Combined design & output-based CW contract (fixed payments)	- Bidding docs issued for design & build based on min. energy savings - Evaluation based on lowest cost to achieve min. energy savings - Fixed payments based on completion of project per design
5	Combined design & output-based CW contract (performance-based payments)	- Bidding docs issued for design & build based on min. energy savings - Evaluation is based on technical feasibility and highest NPV - Payments partially based on energy savings
6	Two-stage bidding w/output-based CW contract (performance-based payments)	- Bidding docs issued for design & build based on min. energy savings - Submission of unpriced technical proposals first - Bid docs can then be revised based on solutions proposed - Final evaluation based on technical feasibility, highest NPV - Payments based partially on energy savings

Comb. design & construction contracts

No.	Model	Description
7	Cost plus CW contract	- Bidding docs issued for design & build based on min. energy savings - Evaluation based on technical feasibility and lowest cost structure - Payments would be based on actual input costs w/mark-ups, with some bonus for meeting energy savings targets
8	Management services contract	- Bidding docs issued for design & build based on min. energy savings - Evaluation is based on technical feasibility, highest NPV - Payments based on energy savings

Financing models

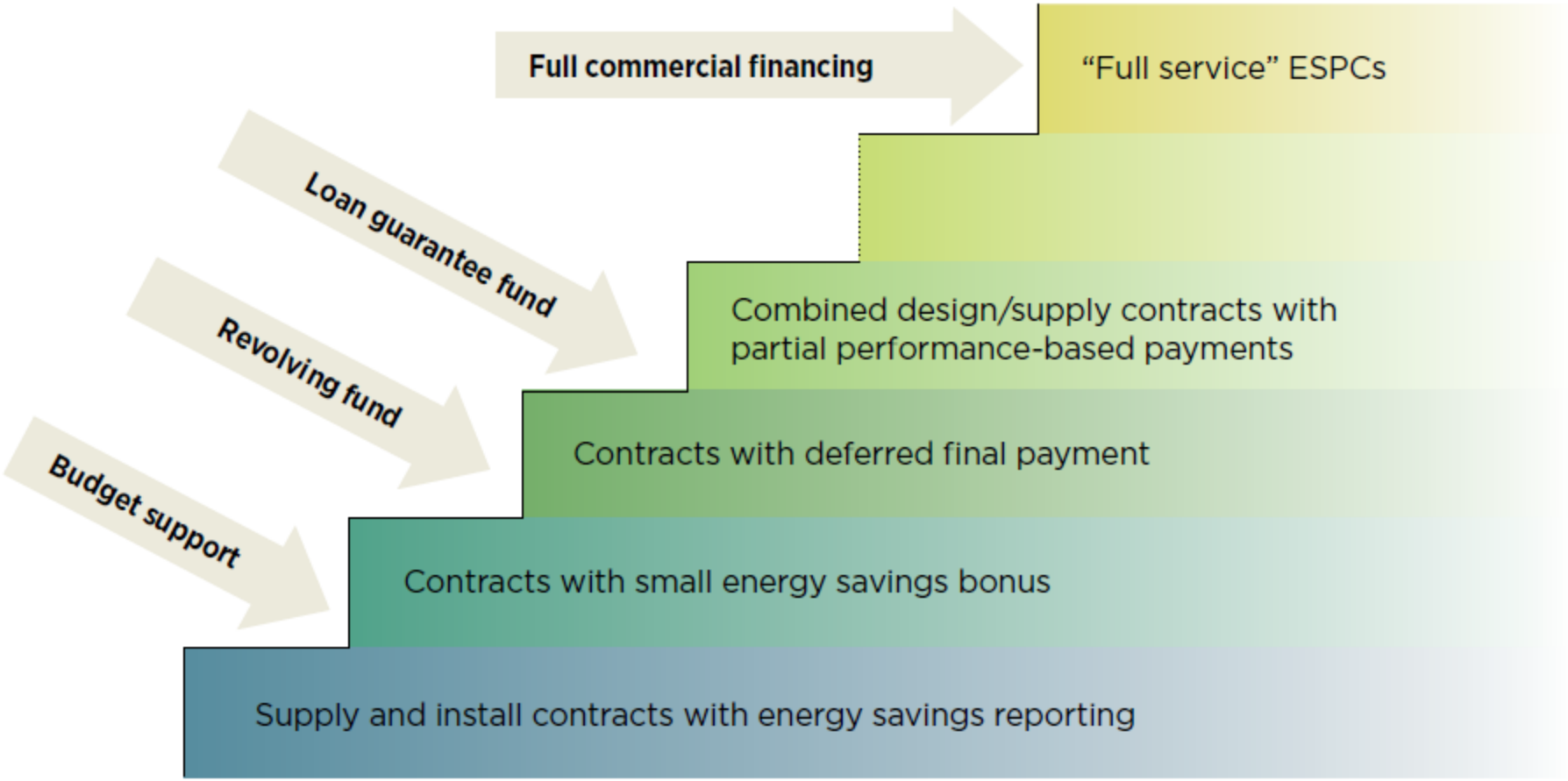
No.	Model	Examples
1	Credit lines	India RE II (1998) China EE Financing I & II (2006, 2010) Turkey Private Sector RE & EE (2009) Tunisia EE (2009)
2	Credit guarantees	China Energy Conservation II (2002) Philippines Electric Cooperative System Loss Reduction (2004) Tunisia EE Program/Industrial Sector (2004) HCEEF, CEEF, CHUEE (1997, 2002, 2006 - IFC)
3	Public ESPs	China Energy Conservation (1998) Croatia EE (2003) Poland EE (2004) China Shandong EE (2011) – proposed Ukraine ESCO Financing (1998 - EBRD) Philippines EE (2009 - ADB)
4	Funds	Bulgaria EE (2005) India Tamil Nadu Urban Development II (1999) Romania EE (2002) Uruguay EE (2004) Armenia Electricity Supply Reliability & EE (2011) – proposed
5	Public financing	Ukraine Kiev Public Buildings EE (1999)
6	Project financing	Hungary OTP Subsovereign Schools EE (2006 – IFC)


Do local commercial banks have sufficient liquidity?
NO
Are banks willing to on-lend other funds to public agencies/ ESPs and accept reasonable credit risks?
YES
NO
Create credit line or revolving fund
Explore public financing, fund, or public ESP
YES
Why aren't banks lending for EE now?
Lack know-how to appraise EE projects and assess risks
• Provide TA to banks
• Create fund/credit guarantee to demonstrate EE project performance and risks
Restrictive on-lending terms
• Explore lending through municipalities/ESPs, refinancing ESP projects, public or project financing, wholesale lending to other banks/funds
• Assess feasibility of public ESP
Projects are too small
• Bundle public EE projects under one city, province, ministry, etc.
• Develop pooled financing through a fund or ESP (public or private)
No or low quality loan applications
• Provide TA to public agencies and ESPs to prepare quality, bankable projects
• Disseminate templates and case studies, training
• Issue ESP tenders, offer partial grant support, etc. to generate early pipeline
Restrictions on lending to public agencies
• Assess feasibility of credit guarantees, fund, refinancing of ESP projects, or public financing to help lower security requirements, extend loan tenors, etc.
• Explore viability of creating public ESP to help demonstrate market viability
No ESPs to develop and implement projects
• Issue public tenders for ESPs; develop large bundles for international ESPs
• Develop simple ESPC approaches using local business models, offer ESP training
• Consider partial project grants to help prime market in short term

Getting started

- ✓ Conduct an upfront market survey
- ✓ Hold stakeholder consultations
- ✓ Define solutions to key barriers
- ✓ Develop and test small procurements
- ✓ Expand and replicate
- ✓ Institutionalize systems

Building the Market



ESMAP
The Energy Sector Management Assistance Program

Thank you!

For more information,

please visit: www.esmap.org

ESMAP
The Energy Sector Management Assistance Program