Financing Energy Efficiency in Public Buildings:
Update of World Bank Program in the Western Balkans

17th EE Coordination Group meeting

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Experiences with EE in Western Balkans

- Recently implemented and planned World Bank projects in W. Balkans total ~US$250 million for EE in public buildings
  - Energy savings typically 35-50% per building, payback ~6-8 years
  - Substantial co-benefits (improved comfort, urban renewal, public awareness, student education)
  - End user willingness to co-finance

- Lessons learned:
  - Limited replication of donor pilots, grants sustainable funding mechanisms
  - Government project management units orphaned after projects, loss of technical/ capacity
  - High energy cost savings means that projects can repay upfront investment along with audit/designs and program admin costs, but some underheating remains
  - Structural stability and seismic safety also need to be considered
  - Difficult to scale-up; 20-30 buildings/year average
  - **Need to develop sustainable financing and institutional mechanisms**

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World Bank EE Financing in the W. Balkans

Country	Project Name	Approval Date	Closing Date	Amount
Albania	TBD			
Kosovo	Energy Efficiency & Renewable Energy *Energy Efficiency & Renewable Energy (AF)*	June 12, '14 *Dec 18, '18*	*Aug 31, '20* *Aug 31, '22*	US$31m (IDA) *€10 m (EU-IPA)*
Macedonia	Sustainable Energy *Energy Efficiency Fund for Public Buildings*	Dec 19, '06 *Dec 13, '18*	March 30, '13 *March 31, '23*	US$5.5m (GEF) *US$20m (IBRD)*
Montenegro	Energy Efficiency Energy Efficiency (AF) *Second Energy Efficiency*	Dec 9, '08 Dec 23, '13 *June 4, '18*	Dec 20, '14 March 30, '18 *Dec 31, '23*	US$8.8m (IBRD) US$6.8m (IBRD) *US$7.4m (IBRD)*
Serbia	Energy Efficiency Energy Efficiency (AF) Enhancing Infrastructure Efficiency & Sustainability (P4R)	March 16, '04 June 20, '07 Nov 3, '17	Oct 31, '11 April 30, '13 *Dec 31, '21*	US$21m (IDA) US$27.3m (IDA, IBRD) US$48m (IBRD)
Bosnia & Herzegovina	Energy Efficiency *Energy Efficiency (AF)*	March 13, '14 *End August (tbc), '18*	Dec 31, '19 *March 30, '24*	US$32m (IDA) *US$32m (IBRD)*
Total				**US$252 million**

Notes: AF – additional financing; figures in italics are future dates or tentative figures.

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Barriers to EE in the Public Sector

Policy / Regulatory

- Energy pricing and collections
- Public procurement and budgeting policies
- Limitations on public financing, borrowing capacity
- Limited and poor data
- Import duties on EE equipment
- Unclear or under-developed EE institutional framework
- Lack of appliance standards and building EE codes, lack of testing, poor enforcement

Equipment/ Service Provider

- High project development costs
- Perceived risk of late/non-payment of public sector
- Limited demand for EE goods/services
- Diffuse/diverse markets
- Limited experience with new contract mechanisms (e.g., ESCOs)
- Limited technical, business, risk mgmt. skills
- Limited access to financing/equity

End User

- Lack of credible data
- Lack of awareness of EE opportunities
- High upfront and project development costs
- No discretionary budgets for special projects/ upgrades and limited ability to borrow
- Poor structural condition of public buildings/facilities
- Ability/willingness to pay
- Perceived risks of new technologies/ systems
- Mixed/lack of incentives
- Inability to collateralize public assets

Financiers

- New technologies and contractual mechanisms
- Small sizes/widely dispersed → high transaction costs
- High perceived risks, incl. public credit risks – not traditional asset-based financing
- Other higher return, lower risk projects
- Over-collateralization and restrictions on public assets as collaterals
- Behavioral biases

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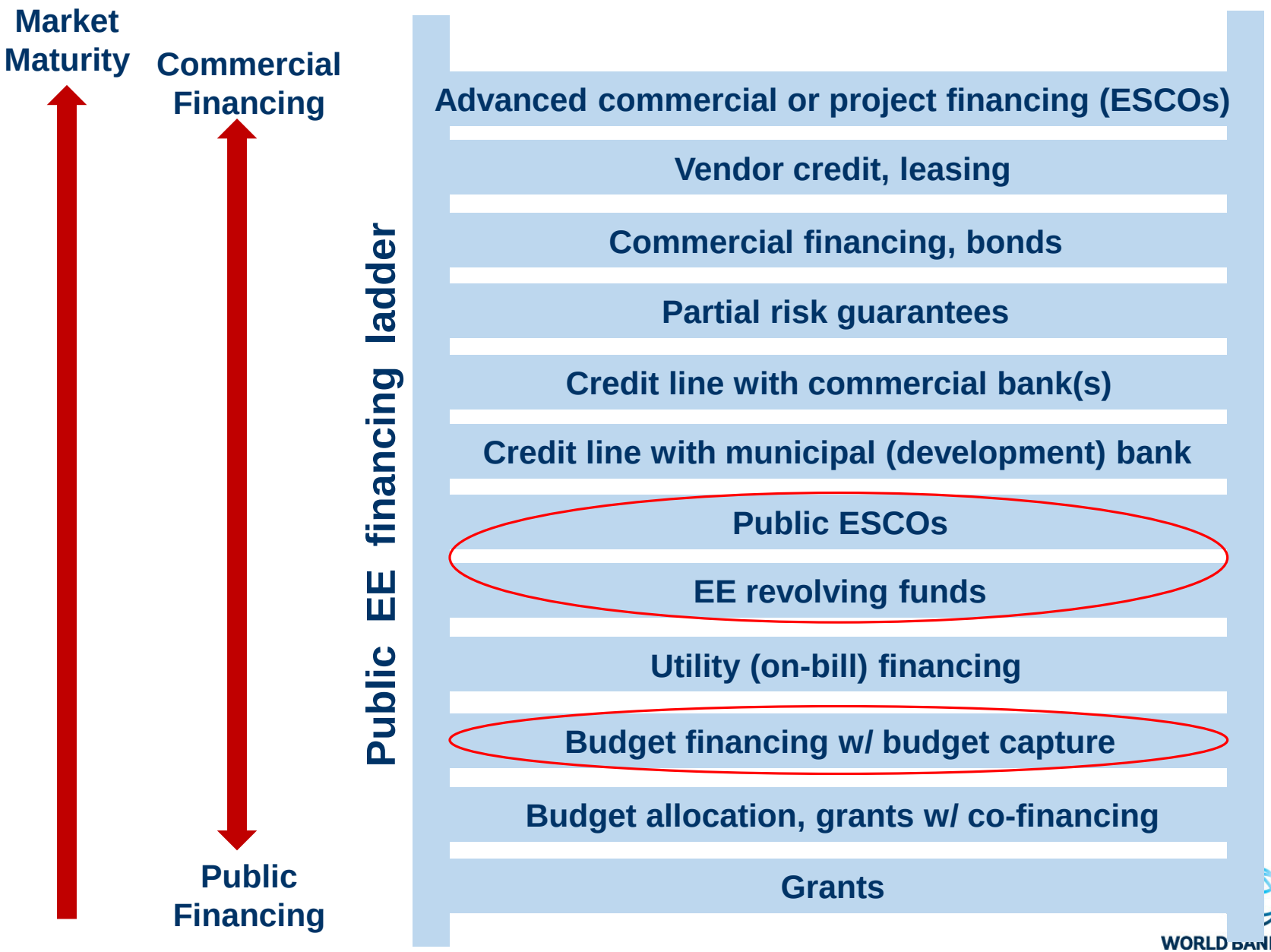
Public Sector EE Financing Ladder



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Budget Financing with Capital Recovery

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Budget Financing w/ Capital Recovery: Basics

- Funds provided by MOF to public agencies – may include on-lending of IFI/donor funds
- Project management by project implementation unit (PIU) located in MOF or other suitable government agency
- Products/Services:
  - Loans to creditworthy agencies (collateral, own contribution)
  - Budgetary provision to other agencies
  - Support for project preparation, implementation and monitoring could be provided by PIU
- “Repayment” from energy savings (through future budget reduction)

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Case Study: Macedonia MSIP

- Funding provided to MOF by World Bank in 2010
- On-lending by MOF to creditworthy municipalities and public sector entities for municipal services projects (including energy efficiency)
- Implemented by a PIU within MOF
- Eligible projects must be revenue-generating or cost-reducing
- Borrowers pay back the loans from the revenues or cost savings of the implemented EE projects
- Some municipalities lack capacity to do project design and procurement - PIU can provide some support with TA funds
- Repayments are secured through a “budget capture” scheme – if payments are not made in a timely manner, MOF has the option to reduce budgetary outlays in future years

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Energy Efficiency Revolving Fund

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EE Revolving Fund: Basics

- New or existing independent financial entity
- Management by Fund Manager (company or organization), overseen by Board of Directors made of public and private orgs
- Capitalized from IFI/donor/gov't funds initially
- Full service: Financing plus project preparation, implementation and monitoring services
- Two windows:
  - Loans to creditworthy public agencies able to borrow, collateral/own contribution required (Model 1)
  - Energy service agreements to other entities (non-creditworthy, without own budget, unable to borrow) (Model 2)
- Payback from energy savings
- Repayment risk with Fund Manager
- Revolving nature of Fund
- Pricing of services depends on funding sources, condition of client

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Case Study: Armenia R2E2 Fund

- Renewable Resources and Energy Efficiency (R2E2) Fund established in 2005, started revolving mechanism in 2012 for public EE projects using ESAs
- Fund set up as a publicly owned, independent, not-for-profit entity with a Board of government and non-government members
- To date, the R2E2 Fund has signed 73 ESAs totaling US$12 million
  - Average project size is about US$150,000 (one US$1.2 million project with a university)
  - All ESAs are being repaid on time (or early)
  - All projects are subcontracted to local construction firms under simplified performance contracts; to date, all have met or exceeded savings estimates
  - Many new technologies have been introduced, since procurement is based on highest NPV rather than lowest cost
- Some key lessons/remaining issues include:
  - High % of application rejection (55/307 applications accepted) creates higher admin costs than expected
  - Need to develop robust project pipeline to meet investment target
  - Increased bundling in procurement to lower transaction costs

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Super ESCO

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Super ESCO: Basics

- Independent government-owned corporation that has dual responsibilities:
  1. Implement projects in the public sector using ESPC approach
  2. Build the capacity of private sector energy service providers/ ESCOs by engaging them as subcontractors
- Capitalized by MOF with assistance from IFIs, donors
- Governance structure (Board of Directors) - includes public and private sector representatives
- Provides 100% financing for EE projects in public agencies with loan repayments from project cost savings
- Offers range of financing products to serve the needs of different public sector entities
- Develops partnerships with banks/FIs, equipment suppliers, leasing companies, etc.
- Provides training and capacity building to private ESCOs; TA may be provided by donor agencies

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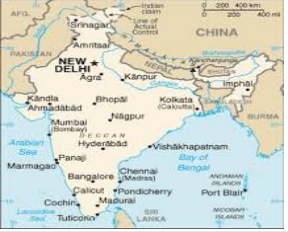

Case Study: India EESL

- EESL established by Government of India in 2008 to implement EE projects in municipalities on a turnkey, performance-based service model
- EESL also conducts many bulk purchase programs to bring down prices for end users (from lighting and fans to street lights and electric vehicles)
- To date, EESL has substantially transformed the lighting market and is now turning its attention to air conditioning, buildings and other
  - Installed 4.3 million LED street lightings, distributed 284 million LED bulbs, 1.5 million fans and 4.7 million LED tube lamps to households
  - Signed 2k agreements with public buildings
  - All projects are subcontracted to local construction firms
  - All contracts are based on deemed savings
  - Some utility partnerships to allow on-bill repayment for residential consumers
  - Some concerns raised by local ESCOs over monopolistic tendencies of EESL

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Status of EE Financing in the Balkans

- There are now several active EE Revolving Funds in the region: Armenia (R2E2 Fund), Bulgaria (EERSF), Croatia (EPEEF), Moldova (FEE), Slovenia (ECO Fund), Romania (FREE)
- Albania: EE Law (approved Nov '15) called for the creation of an EE Fund, 3rd NEEAP (approved Jan '18) also indicated EEF, Options Paper being prepared
- Bosnia & Herzegovina: Additional financing expected to include revolving financing mechanisms on basis of achieved energy cost savings with partial recover of investment costs; strengthening capacity and involvement of existing Environmental Protection Funds
- Kosovo: Draft EE Law, includes EEF with ESAs, now being finalized by GOK (approval expected June '18); World Bank and EC to capitalize Fund with ~€15m
- FYR Macedonia: Government approved EEF creation under its development bank (MBDP), but has been delayed due to proposed restructuring of MBDP; World Bank and EC had proposed to capitalize Fund with ~€25 million
- Montenegro: World Bank agreed with Government to establish a revolving financing model under new project using a budget capture scheme for all EE investments
- Serbia: Government now undertaking legal review of EEF creation with EU-IPA funds, preparing medium-term public building renovation program, expect to establish EEF in 2019
- EE Funds are now being considered in several countries in the region, including Belarus, Kazakhstan, Ukraine, Turkey

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Thank you!

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