What are the steps?

Enabling investment with energy efficiency policies

Buildings: Session 6

Buildings energy efficiency sessions in partnership with:

INDO-SWISS BUILDING ENERGY EFFICIENCY PROJECT

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Energy Efficiency Training Week: Buildings Program

1. **Where to start:** Energy use in buildings
2. **Where to start:** Energy efficiency potential in buildings
3. **Toolkit:** Energy efficient building design
4. **Toolkit:** Energy efficient building technologies

   Where do I get help? IEA's Technology Collaboration Programmes
5. **Toolkit:** Energy efficiency policies and target setting
6. **What are the steps?** Enabling investment with energy efficiency policies
7. **What are the steps?** Implementing building energy codes and standards
8. **What are the steps?** Building operations and procurement

   Special session. The multiple benefits of energy efficiency
9. **Did it work?** Evaluation and energy efficiency indicators

   Where do I get help? International and regional energy efficiency initiatives
10. **Energy efficiency quiz:** Understanding energy efficiency in buildings

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6. What are the steps? Enabling investment with energy efficiency policies

Trainers: Brian Dean and Shruti Narayan

Purpose: To teach the fundamentals of energy efficiency policies that can enable effective investment and finance for energy efficiency in buildings.

Scenario: You continue to hear from stakeholders that all they need is money and then they will consider doing energy efficiency in buildings. *What policy approaches can be used to enable energy efficiency investment?*

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Investment-grade energy efficiency policy

Why investment-grade

Introduction to a “banker”

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Why is “investment-grade energy efficiency policy” important?

$16 trillion

Estimated additional investment needed for energy efficiency in buildings through 2050

Source: EBRD and IEA

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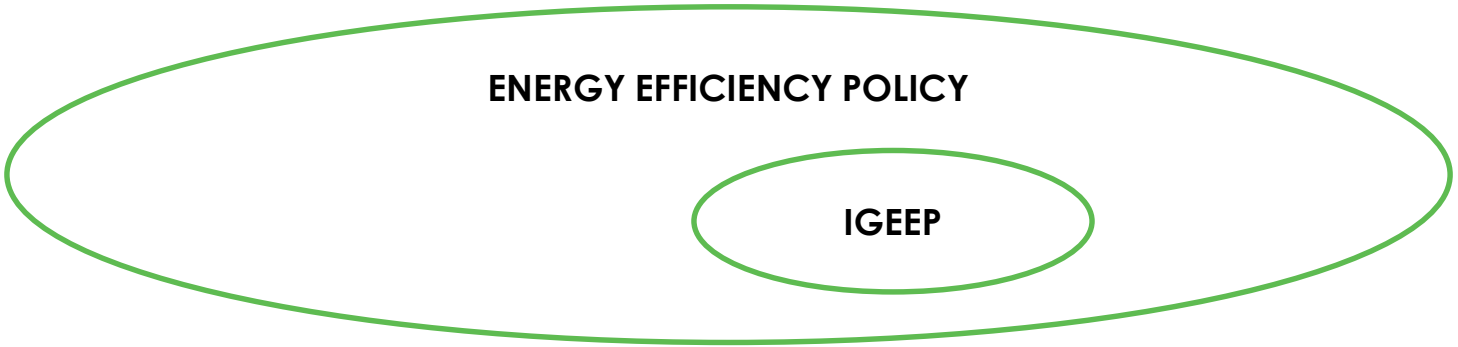
Investment-grade energy efficiency policy. What do I mean?

- **What is energy efficiency policy?**

  A set of strategies, legislation, regulations, measures and programmes that together stimulate energy efficiency improvement

- **What is investment-grade energy efficiency policy?**

  A set of strategies, legislation, regulations, measures and programmes that together stimulate energy efficiency improvement



Source: EBRD

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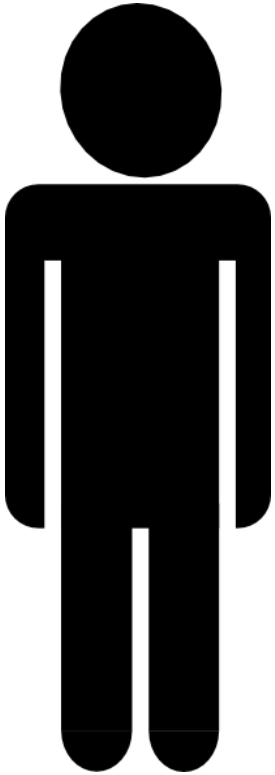
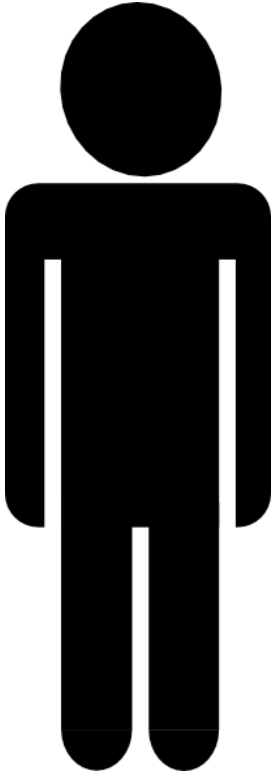
Introductions to a banker



Policy maker

Long term	**Time horizon**	Short term
Public good	**Motivation**	Revenue target
Social cost benefit analysis	**Evaluation criteria**	Internal rate of return (IRR)
Political	**Relationship to risk**	Legal
Casio	**Type of watch**	Rolex
Economic impact Political impact	**Big concerns**	Risk, bankability, creditworthiness,



Banker

Source: EBRD

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Investment-grade policy

How is it different?

What does it look like?

© OECD/IEA 2017

How is investment-grade different to ordinary energy efficiency policy?

- Focused **goal**
- Focus on specific set of **barriers**
- Focused group of **stakeholders**
- Specific **criteria**
  - for evaluating appropriateness of measures
  - for evaluating success of measures
- Specific **types of measures**
  - including those not traditionally associated with energy efficiency

Source: EBRD

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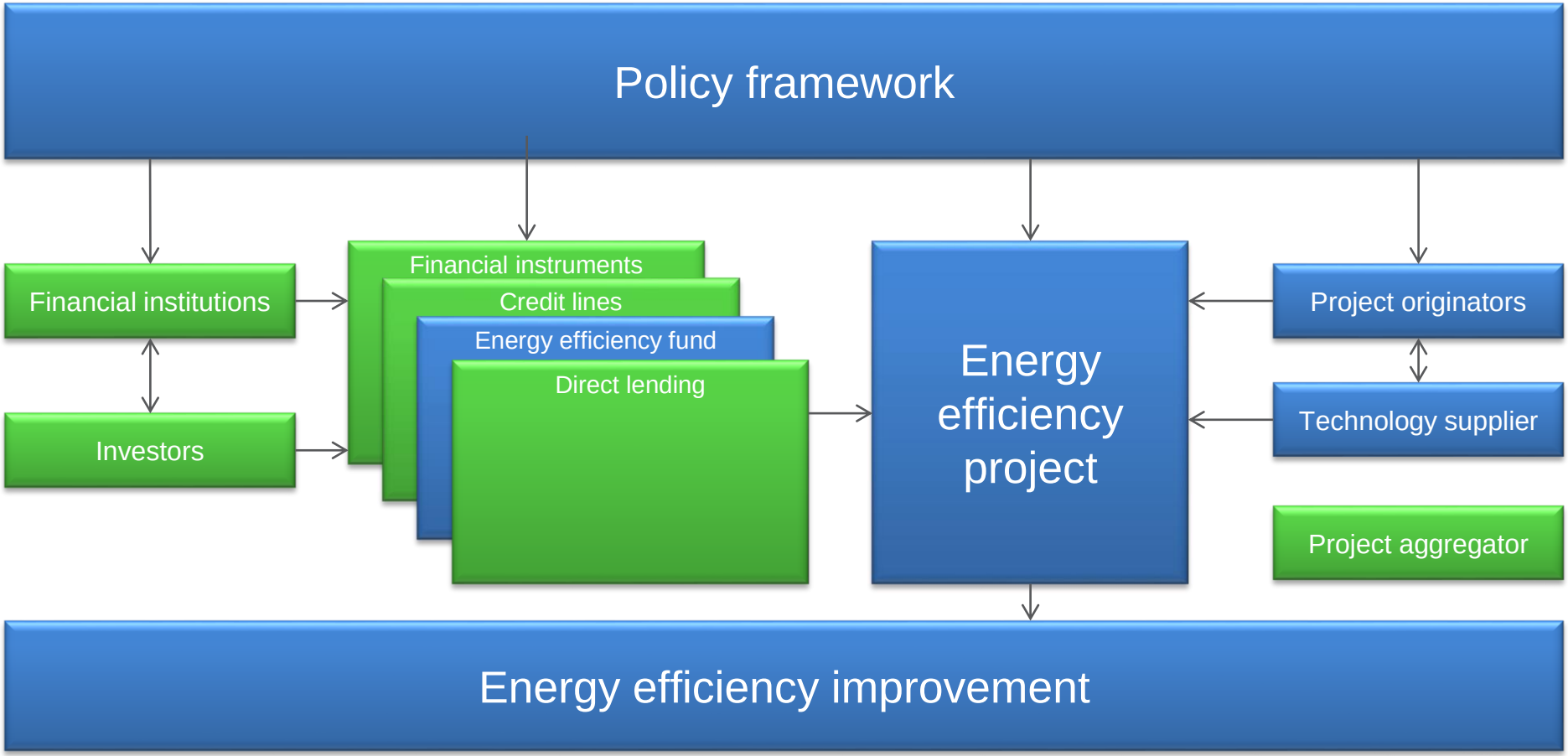
Investment-grade energy efficiency policy. What does it look like?



Source: EBRD

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Investment-grade policy examples

Russia: energy efficiency in multi-family apartments

Western Balkans: energy efficiency in buildings

Western Balkans: ESCOs

Source: EBRD

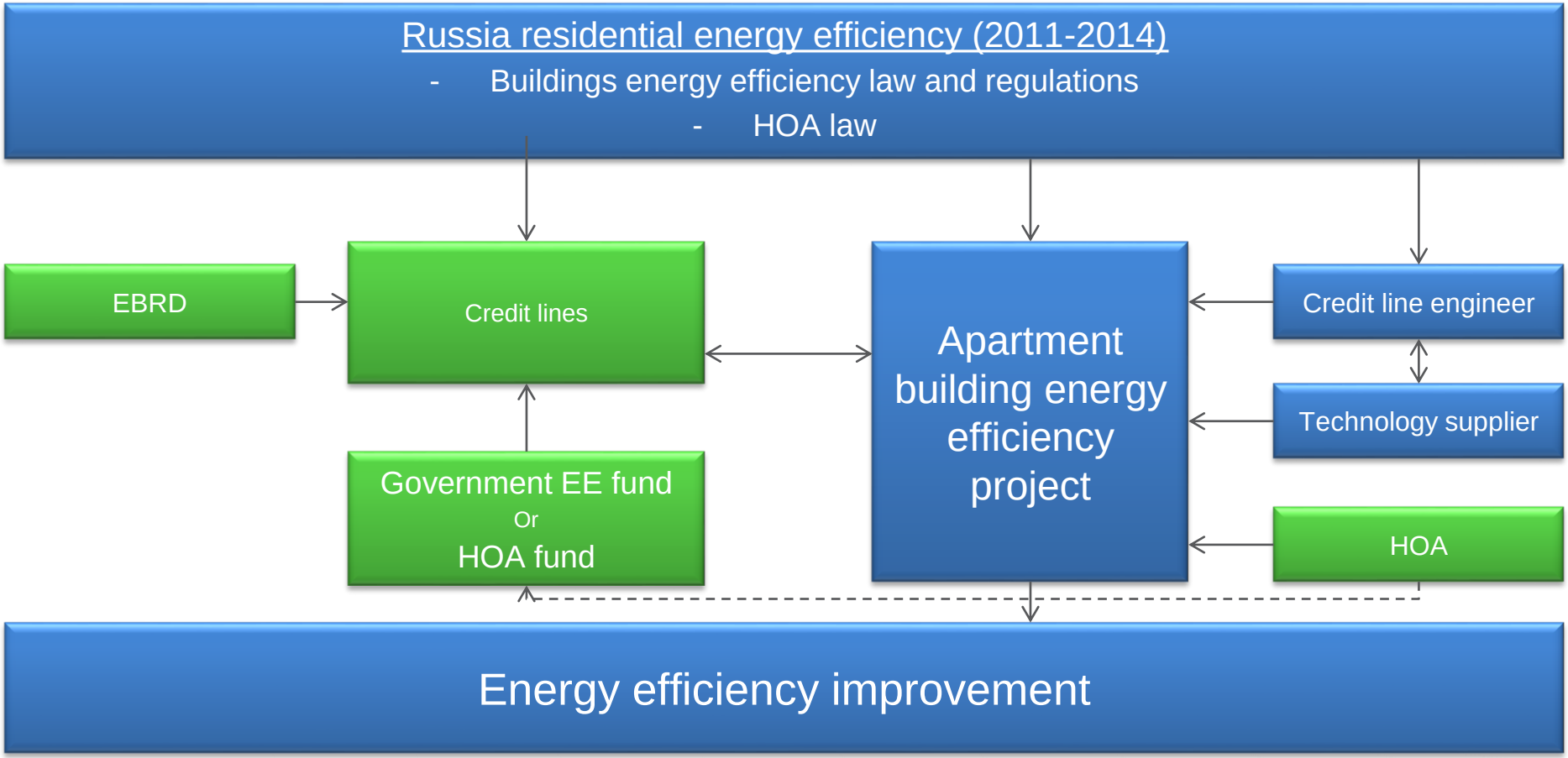
© OECD/IEA 2017

Russia: Residential energy efficiency in apartment buildings

Source: EBRD

© OECD/IEA 2018

Russia: Residential energy efficiency in apartment buildings



Source: EBRD

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Western Balkans: Buildings energy efficiency (REEP Plus)

Grants

€30m EU IPA, €1.8m WBIF, €2.7m Austrian Federal Ministry of Finance, €5m to be mobilised from other donors

Objective

Sustainable market for energy efficiency in the Western Balkans

Window 4
Direct Lending to Municipalities

€20m direct EBRD financing
€4.5m grants (EU IPA + Other Donors)

- Direct loans to the State, cities or municipal companies
- Focus on public buildings EE
- Capital expenditure grant co-financing and TA

Window 2
Intermediated financing
&
Window 3
Direct financing

€108m EBRD & KfW financing via FI
€27.05m grants (EU IPA + Other Donors)

- SME and public sector lending (KfW)
- Residential sector lending in all 6 WB countries (EBRD).

€1.8m WBIF, €2.7m Austrian Federal Min. of Finance for TC

€30m direct EBRD financing
€1m grants (EU IPA + Other Donors)

- Direct lending for Medium scale RE, EE
- Target financing of ESCOs
- TA for project preparation

WeBSEDFF Western Balkans Sustainable Energy Direct Financing Facility

Window 1
ESCO support
&
Policy dialogue

ESCO development
€3m grants (EU IPA + Other Donors)

- TA for ESCO projects and tenders preparation

Policy dialogue
€2.5m grants (EU IPA)

- Key focus on residential sector regulations

Source: EBRD

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Western Balkans: ESCO development

OBJECTIVE

Support enabling environment for ESCO business models in the Western Balkans.

ACTIVITIES AND RESULTS (COMPLETED 2017)

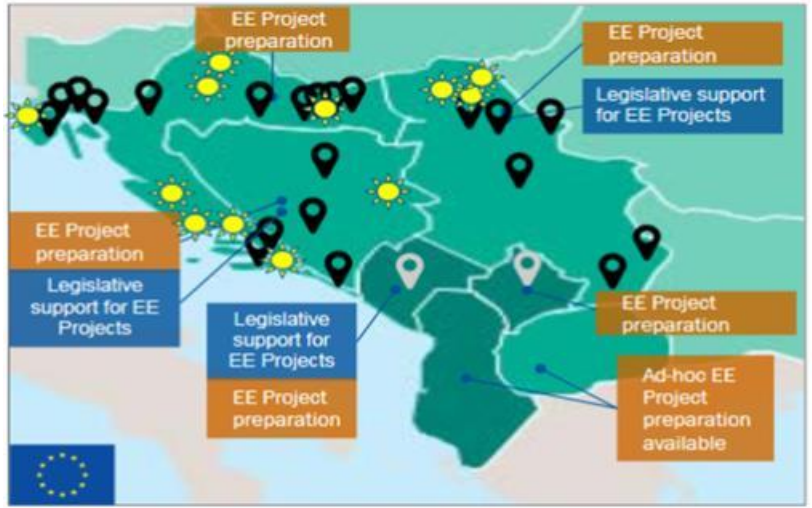
- **Legislative support of EE projects,**
- **Providing model ESCO contracts** including energy performance contracting and energy supply contracting,
- **Standardising public procurement and contracting documents** to lower transaction costs,
- **Energy Efficiency Project Preparation,**
- **Procurement laws.**

TARGETED GET OUTCOMES

- 11 street lighting projects tendered/implemented, 6 projects to be tendered and implemented in Q1/2017, 20 projects under preparation for tendering, including street lighting in Belgrade and Novi Sad

INVESTMENT OUTCOMES

- Total potential capex of ca. €53m arising from REEP support



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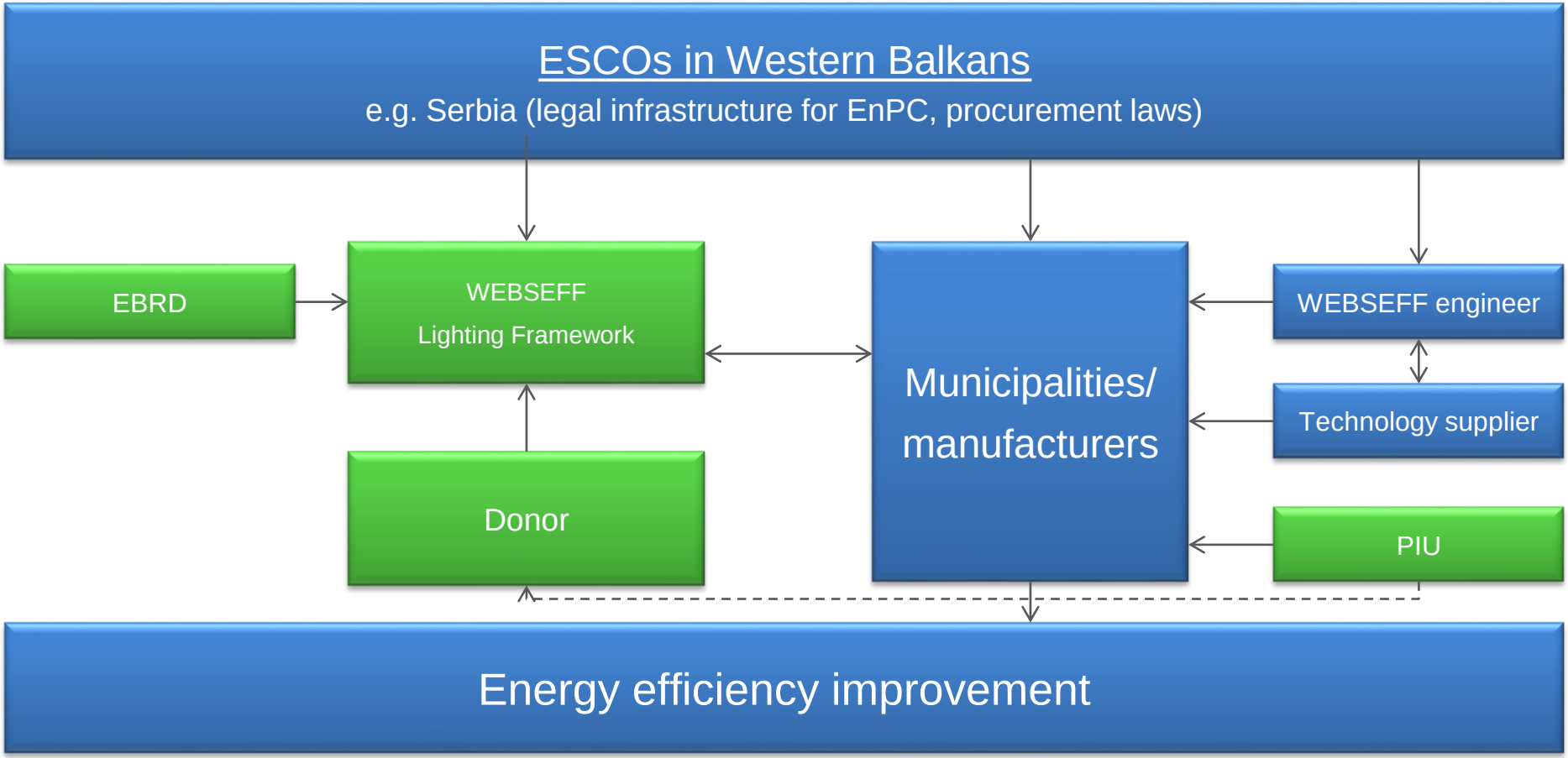
Buildings energy efficiency in Western Balkans



Source: EBRD

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Group exercise

Scenario:

You continue to hear from stakeholders that all they need is money and then they will consider doing energy efficiency in buildings.

What policy approaches can be used to enable energy efficiency investment?

- ***Break into groups*** *(preferably one region or country per group)*
- ***Select a policy instrument*** *(e.g. one you are working on/have worked on/would like to see)*
- ***Evaluate the strong and weak investment grade components*** *(e.g. what stakeholders were involved? what investment does it lead to? etc.)*

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Removing barriers to investment in buildings through policy dialogue

Aim: Apply appropriate best-practice policy instruments in COOs to remove well-known barriers to investments and market development for **improving energy performance of buildings**

Barriers to investment	Policy tool to address the barriers	Description of main tools	Indicative cost and time
Building owners do not consider lifecycle cost and split incentives	**Minimum energy performance requirements for buildings**	Introduction of legislation, regulations, and modifying building codes to mandate minimum energy performance requirements for buildings (e.g. transposition of EPBD Art. 4,5), based on local climatic conditions and costs.	Approximately 700k EUR and 1-3 years.
Limited information suppresses demand	**Energy Performance Certification**	Energy Performance Certification (e.g. transposition of EPBD Art. 11) gives information on building performance, and ensures that it is communicated in a clear and consistent way, and associated support for data management and IT systems.	300k and 1-2 years.
Up-front cost, constrained budgets	**Mandatory public renovation programmes**	Mandatory renovation programmes covering 3% of floor area per year of public buildings (e.g. EED Art. 5) forces allocation of government budget to economically sound investments.	200-300k EUR and 1-2 years.
Lack of technical capacity in the market	**Public procurement of high EE buildings;**	Government acts as a first-mover through public procurement of high energy efficient buildings (e.g. EED Art. 6) stimulates the market and helps develop local technical capacity.	200-300k EUR and 1-2 years.
Dispersed actors and transaction costs	**Energy efficiency obligation (EEO) schemes;**	Energy efficiency obligation schemes (e.g. EED Art. 7) require energy distributors and/or retail energy sales companies to achieve end-use energy savings.	200-300k EUR and 1-2 years.
Lack of overarching strategic framework	**National Energy Efficiency Action Plans (NEEAPS)**	National Energy Efficiency Action Plans (NEEAPs) (e.g. EED Art. 24) set out estimated energy consumption, and planned energy efficiency measures, providing a strategic framework .	200-300k EUR and 1-2 years.
Existing legal frameworks limit effectiveness of ESCO business models.	**Legislative and regulatory reform for ESCOs / Energy Performance Contracts**	ESCO market assessments to identify potential barriers for ESCOs. Amendments and / or introduction of primary law and secondary regulation (s) to enable ESCO business models through Energy Performance Contracting.	200-300k EUR and 1-2 years.
Lack of information	**Information & awareness raising**	Website development, workshops, targeted information campaigns	50k EUR and 6- 12 months
Low government capacity	**Support for voluntary, industry-led green building certification**	LEED and BREEAM certification	100k EUR and 1 year

Source: EBRD

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Ukraine: Transposing the Energy Performance in Buildings Directive

OBJECTIVE

Ukraine lacks a legislative and regulatory framework for energy efficiency measures in residential buildings. This project aims to support MinRegion transpose EPBD to help build a market for EE investments.

ACTIVITIES AND RESULTS (ON-GOING)

- **Raising awareness of energy efficiency in buildings through capacity building and the maintenance of a website** www.teplydim.com.ua (funding now ceased for this site). This site received over 500 visits per month.
- **Roadmap developed** to achieve improved energy efficiency in the residential sector (2013).
- **Five regulations approved and in force** from the 13 required for EPBD transposition (2014).
- **EPBD law approved** in 1st reading in Rada (04/2017)
- **Software developed** for MEPS, EPC and Energy Passports (2016-2017).
- **Active participation in regular donor coordination meetings** on buildings EE policy.

TARGETED GET OUTCOMES

- Estimated energy efficiency market potential over the next 5 years is approx 11.5 million MWh/year (9% of total energy consumption), representing a cumulative present value of about 2.64 billion UAH (€ 230 million) in savings.
- Improving the energy performance of buildings will positively influence energy security concerns and the local economy.

INVESTMENT OUTCOMES

- Clear policy framework needed for effective implementation of €75 million Ukraine Residential Energy Efficiency Financing Facility (IQ energy).

Source: EBRD

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Western Balkans Regional Energy Efficiency Programme (REEP/REEP+): Policy dialogue (EPBD/EED)

OBJECTIVE

Many countries in the Western Balkans lack legislative and regulatory frameworks to incentives building EE investments. This programme supports EPBD transposition, supporting EBRD finance facilities.

ACTIVITIES AND RESULTS (ON-GOING)

REEP (first phase), in close cooperation with Energy Community Secretariat (ECS), submitted 27 deliverables, including:

- **Adopted Energy Efficiency in Buildings Laws** for Kosovo and Albania.
- **EPBD implementation support** to Albania, Bosnia and Herzegovina (FBiH and RS), Croatia, Former Yugoslav Republic of Macedonia, Kosovo and Serbia.
- **Support for the development of public energy efficiency procurement policies,** guidelines and codes in Montenegro and Serbia.
- **Support for the development** of utility energy efficiency obligation (EEO) schemes in Croatia and Montenegro.

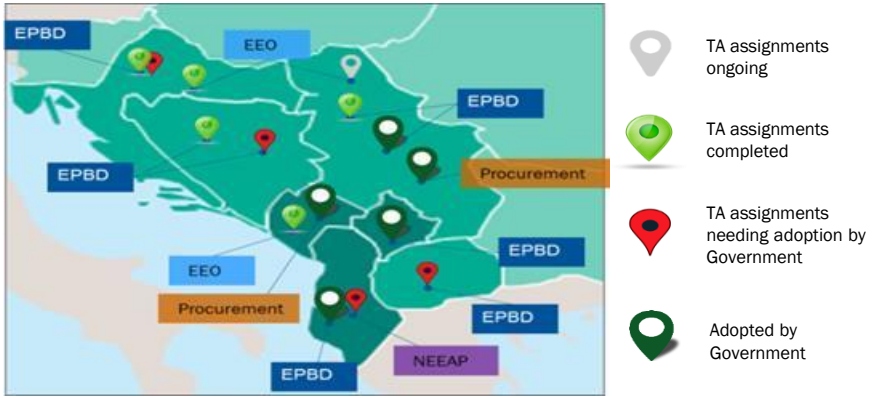
REEP+ (second phase) will continue these efforts (now excluding Croatia), particularly in the residential sector.

TARGETED GET OUTCOMES

- The energy intensity of the six Western Balkans' countries (Albania, Bosnia & Herzegovina, Kosovo, FYR Macedonia, Montenegro, Serbia) is around three times higher than the average for the EU. This project helps reduce this intensity.

INVESTMENT OUTCOMES

- Supports Western Balkans Credit Lines (€177m), financing for RES through WeBSEDFF (€80m), and direct lending for municipalities (€20m). It also supports EBRDs 25m EUR investment in the Green for Growth Fund.



Source: EBRD

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Creating an enabling legal framework for ESCO projects in Ukraine

OBJECTIVE

Work with MinRegion on improving the regulatory framework for ESCOs in Ukraine, in order for the public sector to be able to procure energy efficiency works and services according the principles of an energy performance contracting (EnPC) approach.

ACTIVITIES AND RESULTS (COMPLETED 2017)

- **Identified remaining regulatory barriers to fully flexible use** of EnPC mechanism for public buildings in Ukraine.
- **Drafted documentation to effect required changes** for preparing, procuring, implementing and monitoring EnPC projects, commercial EnPC contract template, EnPC tender package and commercial EnPC forfeiting contract template.
- **Supported approval of amendments to ESCO Laws enabling e-procurement for ESCO contracts, ultimately approved** by the Rada (parliament) of Ukraine (2017).

TARGETED GET OUTCOMES

- Ukraine has done much in recent years to reduce its energy intensity. However, there is still significant potential in public sector buildings such as hospitals, schools, and kindergartens. Wasted energy resources in these buildings create a burden on municipal budgets and inadequate heating and uncomfortable environment for vulnerable groups that rely on public institutions for their care.
- Estimated potential energy savings can be as high as 50% and require significant investments.

INVESTMENT OUTCOMES

- UKEEP is designed to utilize EUR 100 million for individual municipal loans to participating Ukrainian cities by way of loans of up to EUR 20 million to municipal companies under guarantee of the city to improve energy efficiency in public buildings (i.e. schools, hospitals, government buildings) and street lighting.

Source: EBRD

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Kyrgyz Republic: Transposing the Energy Performance in Buildings Directive

OBJECTIVE

Assist the Kyrgyz Government to develop a set of primary legislation and regulations based on principles of the EPBD.

ACTIVITIES AND RESULTS (ON-GOING)

- **Adoption in 2012 of the Law on Energy Performance of Buildings.**
- Approval of a Government Decree in 2012 introducing implementation procedures for **energy performance certifications of buildings, regular inspections of boilers and heating systems and minimum energy performance requirements** (in compliance with ISO EN 13790/2008).
- **Harmonising the Law on Energy Savings with the LEPB and in addition insert provisions for financial instruments** (having in mind Kyrseff), potentially paving the way of blending Kyrseff III with concessional finance from global carbon funds (2015-)

TARGETED GET OUTCOMES

- The building sector is by the far the largest energy end-user in Kyrgyzstan with more than half of the total national final energy use.
- Kyrgyz Republic became the first country in the post-Soviet area (except the three Baltic states) to set legislation on energy efficiency of buildings based on EU best practice.

INVESTMENT OUTCOMES

- Policy framework supports EE lines of Kyrgyz Sustainable Energy Financing Facility (KyrSEFF) phases 1 and 2 of US$ 20 million and US$ 35 million, respectively.

Source: EBRD

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Turkey: Development of the National Energy Efficiency Action Plan

OBJECTIVE

To work with the Turkish Government to develop, adopt, and publish a National Energy Efficiency Action Plan ("NEEAP") which includes a wide range of sector-based resource efficiency measures aimed at achieving Turkey's 2023 energy efficiency targets.

ACTIVITIES AND RESULTS (COMPLETED 2015)

- **Undertook analysis of existing regulatory framework and sector-specific situation** including comparing average EE performance for different sectors and assessing EE strategy and policy gaps.
- **Identified key drivers of EE investments in Turkey** highlighting potential constraints to growth.
- **Prepared and supported introduction of NEEAP to the business community.**
- **Prepared guidelines for multi-year communication plan** to increase public awareness nationwide.

TARGETED GET OUTCOMES

- SEI impact as of 2013 - GHG savings: 4.6 million tonnes of CO2-eq/year (or 1.5% of Turkey's emissions in 2010), Primary energy savings: 1.5 million toe/year (or 1.5% Turkey's annual primary energy supply in 2010)

INVESTMENT OUTCOMES

- Supports TurSEFF (600m EUR phase 1 and 2 – 400m EUR new financing in 3rd phase), MidSEFF (1 billion EUR facility) and TuREEFF (270m USD fund) facilities, and direct lending to the corporate sector (e.g. iecam, Aksa, EtiAlu and Suta transactions).

Source: EBRD

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Kyrgyz Republic: Policy support for buildings energy efficiency

POLICY DIALOGUE ACTIVITIES

Comprehensive assistance to prepare:

- Primary Law on Energy Performance of Buildings, introducing responsibilities of building owners and instruments to promote EE in buildings
- Secondary legislation on energy performance certifications and regular inspections of boilers and heating systems
- Tertiary legislation on harmonising technical standards (on thermal protection of buildings, heating networks, water supply, etc.)

REGULATORY RESULTS

- The new legislation transposes all key provisions of the EU Directive on Energy Performance of Buildings (EPBD) up to the best practice level in EU countries.
- Primary law was approved by Parliament and signed by the President of the Kyrgyz Rep. in 2012. It defines legal obligations related to energy efficiency of building owners, public bodies and state authorities.
- Secondary legislation introduces minimum mandatory energy efficiency requirements, a methodology for energy performance assessment (in compliance with ISO EN 13790/2008) and for certification of buildings.

WIDER MARKET DEVELOPMENT

- Legislative upgrades incentivize developers, owners and residents to invest in thermal rehabilitation and equipment upgrades.
- Policy dialogue part of wider, integrated, market development approach – in parallel, the Kyrgyz Sustainable Energy Financing Facility was launched, to enhance the availability of financing for energy efficiency.
- KyrSEFF offers credit lines to 4 partner banks to on-lend to energy efficiency projects in the business and residential sectors. Commercial funding is complemented by incentive grants and technical assistance from the EU.

Source: EBRD

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SEFFs in Romania: Sustainable energy in the commercial and industrial sectors

PROGRAMME

Two EBRD Sustainable Energy Financing Facilities were active in Romania in 2008-2015 aiming to develop the local financing market for sustainable energy projects in the industrial and commercial sectors.

EEFF and RoSEFF combined credit lines to local partner banks, technical assistance for sub-project appraisal and banks' capacity building, and partial grant incentives.

STRUCTURE OF FACILITIES

EBRD credit lines	€ 130 million
Incentive payments and technical assistance from the EU	€ 19 million € 7 million

RESULTS TO DATE

- 7 local participating banks
- 470 sub-projects, total investment value of €164 million
- 290,000 tonnes of CO_2 estimated annual emission reductions – comparable to 15% of the annual emissions from the energy use of buildings in Bucharest
- 900 GWh estimated energy savings – comparable to 6% of the hydroelectricity produced in Romania.

PROJECT EXAMPLE

- SE-GES, a Romanian ESCO, received a SEFF loan of € 1.1 million from BRD Groupe Société Générale to build a heat and power cogeneration unit.
- The unit supplies baseload electricity and hot air to the factory of one of Europe's largest maize-based food producers, Sam Mills.
- The "Build-Own-Operate-Transfer" model means the ESCO builds the unit, gradually recovers the costs from energy sales and eventually transfers it to the site owner.
- The investment received an EU grant of €165,000.
- Primary energy savings were of 32% and emission reductions of 3,300 tCO_2/year.

Source: EBRD

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SEFF: Promoting energy efficiency in public buildings in Central Europe

PROGRAMME

MunSEFF has been setup to develop the capacity of banks in Hungary, Romania and Slovakia to provide financing for municipal sector energy efficiency opportunities.

The facility brings together dedicated credit lines, technical assistance to supplement local capacity in running tenders, as well as grant support for the less commercial rehabilitation measures often required by these projects.

STRUCTURE OF THE FACILITY

EBRD credit lines (2009-2014)	€ 105 million
Technical Assistance from the EU	€ 5 million
Grant support for partial incentive payments	€ 21 million

RESULTS TO DATE (by end of 2015)

- 2 partner banks in Hungary, 1 in Romania and 2 in Slovakia
- 420 projects supported up to date with 94% of the MunSEFF funds. 80% are energy efficiency projects in buildings, the rest municipal infrastructure projects, mainly public lighting.
- 66 of the projects are implemented under concession or long-term maintenance or supply contracts.
- 18,000 tonnes of CO_2 estimated annual emission reductions and 88GWh of primary energy savings.

Source: EBRD

PROJECT EXAMPLE

- Refurbishment of the heating system of a primary school in the municipality of Szombathely (of 80,000 inhabitants)
- The executing company, entered into an 12 years energy supply contract with the public authority, and delivered measures leading to 30% energy savings.
- The company benefited from a MunSEFF loan of €30,000 and an incentive payment of €4,500.

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Mongolia: Climate technology transfer for commercial buildings

THE FINTECC PROGRAMME

FINTECC (Finance and Technology Transfer Centre for Climate Change) enables the uptake of high efficiency technologies in countries with underdeveloped supply chains and low market penetration rates.

The programme offers up to 25% grant cover for the cost of eligible climate technologies with high replication potential. Targets early market development, affordability and “first-mover” barriers. The programme is supported by the Global Environment Facility.

PROJECT EXAMPLE

A subsidiary of Mongolia’s leading retailer for consumer goods and apparel is building a chain of new wholesale and retail stores.

Based on technical assistance support, the company will be including solar voltaic installations in the investment plans of the new buildings.

EBRD loan	€ 10.2 million
of which EBRD green finance and grant support from the Global Environment Facility	€ 0.9 million

PROJECT EXAMPLE

A Mongolian group with interest in consumer goods manufacturing and trade is constructing a state-of-the-art car repair and maintenance centre.

Based on the efficiency audit supported with grants from the Japanese Government, the company will include high-grade insulation and efficient HVAC systems in its new building.

EBRD loan	€ 10.2 million
of which EBRD green finance and grant support from the Global Environment Facility	€ 0.4 million

Source: EBRD

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