Financing Energy Efficiency in Kazakhstan: New Opportunities with EBRD

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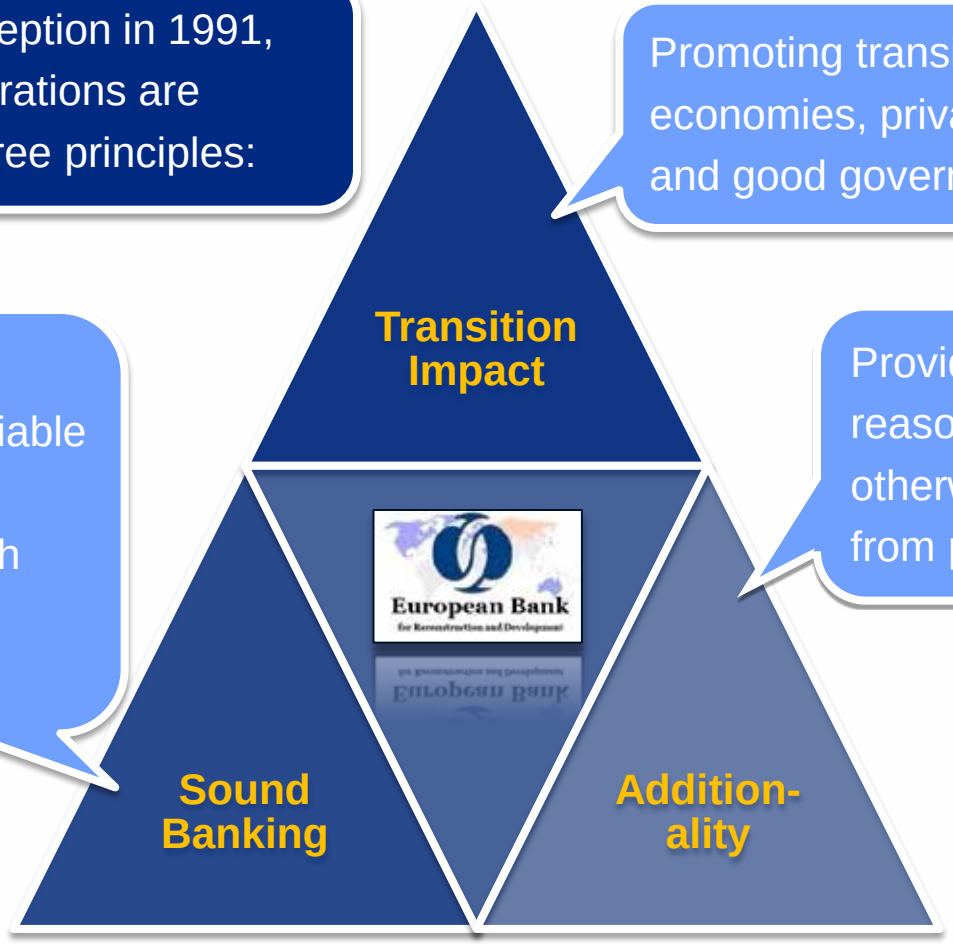
EBRD: Mission and Operations

The European Bank for Reconstruction and Development:
Mission and Vision

Since its inception in 1991, EBRD's operations are based on three principles:



Promoting transition to market economies, private ownership and good governance

Invests in financially viable projects, together with the private sector

Provides financing at reasonable terms, otherwise not available from private sources

Focusing on the triple-bottom line benefits: Economic, Social and Environmental

The European Bank for Reconstruction and Development:

Type of Investments

Catalyst for Commercial Investment: Every € 1 invested or lent by the EBRD mobilises more than € 3 from other sources

Debt | Equity

- **Debt co-financing**: working with commercial banks to provide appropriate debt package
- **Project finance** loans
- Corporate with specified use of proceeds
- Hard/local currency
- Medium/**long tenors** (>15 years)
- Fix/floating rates
- Carbon financing

Debt | **Equity**

- Investing with majority sponsor to **reduce equity burden** and add partnership value
- Common or preferred stock
- Privatisation and initial public offering
- **Mezzanine equity** and subordinated debt

The European Bank for Reconstruction and Development:
Modus Operandi

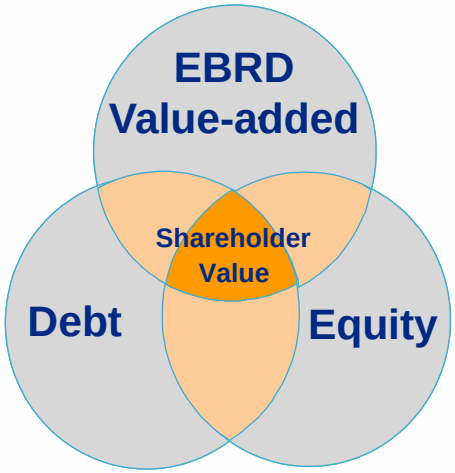
- **Financing Facilities** through partner financial institutions – individual clients, small size projects and SMEs; up to $ 5 million loans ($ 20 million project value)
- **Direct Lending Facilities** – limited recourse, mid-sized projects, flexible approval procedure; up to $ 15 million investments ($ 50 million project value)
- **Direct Investment** – loans and equity investment; investments above $ 15 million for overall project value of $50 million+
- **Technical Assistance** (e.g. energy audits, financial advisory services) – applicable to any sector and project size

EBRD's Competitive Advantage:

Benefits of Working with Us

- Strong, internationally recognized partner with long term perspective
- Mitigation of political and regulatory risks
- Policy dialogue with Government and Regulators
- Grant-funded technical assistance
- Finance and operations monitoring

- Flexible deal structure
- Debt finance to both public and private sector
- Syndication under preferred creditor status
- Catalyst to access additional debt

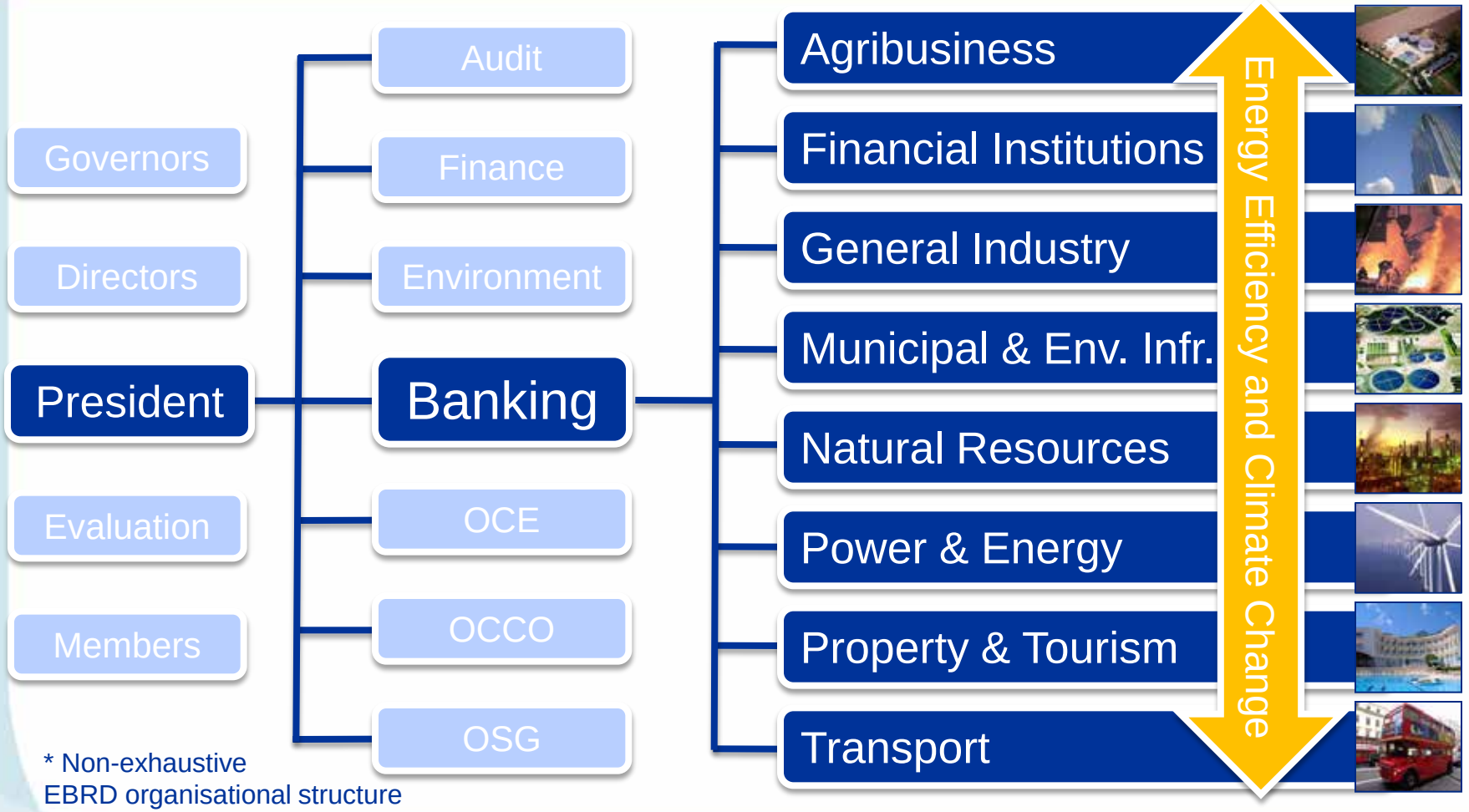


- Support of strategic investors
- Perception of quality investment
- Sector expertise through Board of Directors
- Good corporate governance
- Catalyst to access additional equity
- Positioning as neutral party

The Energy Efficiency and Climate Change Team and EBRD‘s Sustainable Energy Initiative

EBRD Organisational Structure:

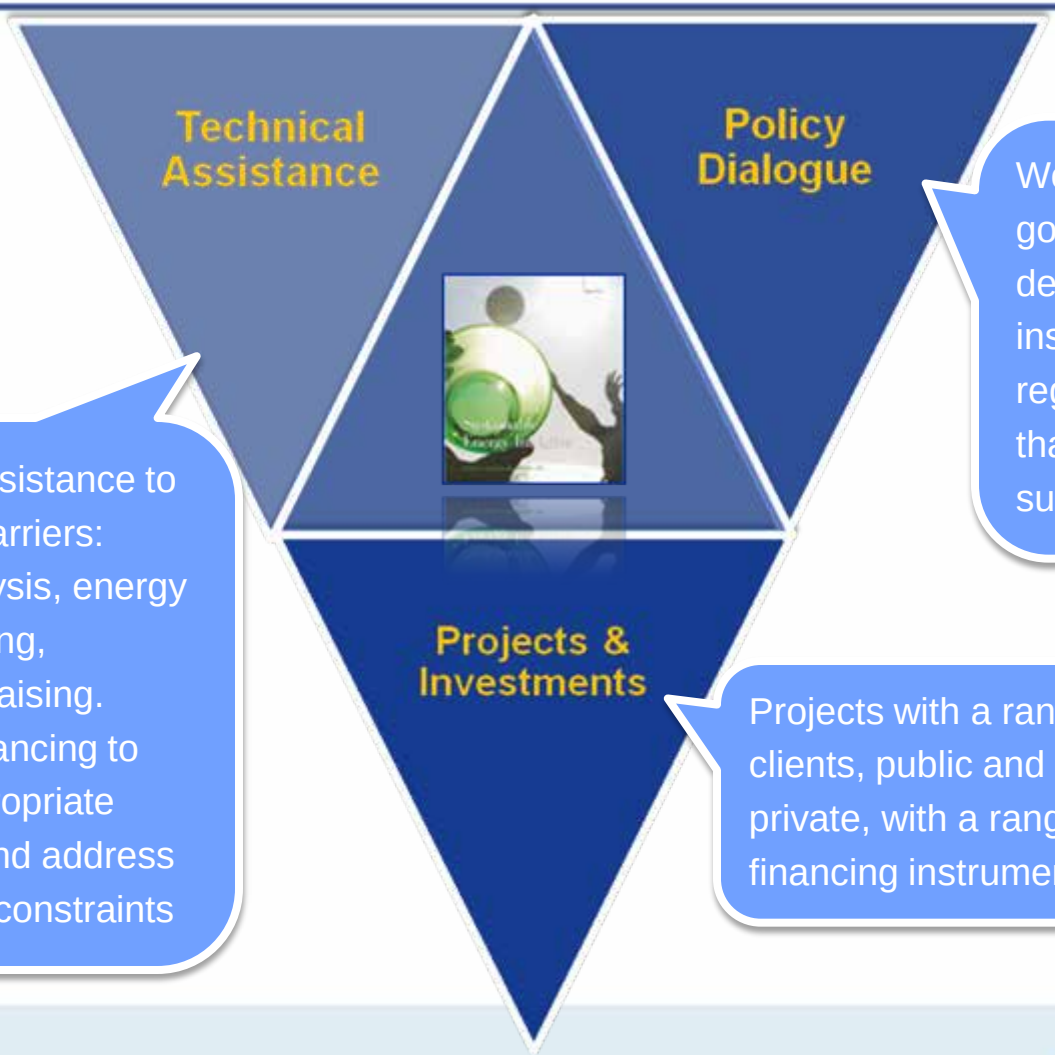
The Role of the Energy Efficiency and Climate Change team



* Non-exhaustive
EBRD organisational structure

EBRD SUSTAINABLE ENERGY INITIATIVE
OPERATIONAL APPROACH

Via these three parallel activities SEI accounted for 24% of EBRD's portfolio in 2010



Technical assistance to overcome barriers: market analysis, energy audits, training, awareness raising. Grant co-financing to provide appropriate incentives and address affordability constraints

Working with governments to support development of strong institutional and regulatory frameworks that incentivise sustainable energy

Projects with a range of clients, public and private, with a range of financing instruments

Energy Efficiency and Climate Change Tools:
More Added Value to Our Clients

- **Additional value to clients**
  - Free-of-charge (donor funded) Energy Audits, development of Energy Efficiency action plans and policies
  - Energy Management Systems and training
  - Country and sector studies and dedicated feasibility studies
- **Market analysis and product development** e.g. direct lending facility for renewables in Ukraine and ESCOs
- **Policy dialogue** to enhance regulatory framework (e.g. RE) and to strengthen policy framework (e.g. EE)
- **Carbon finance** (origination and definition of emission reduction projects and purchase of carbon credits through Bank-managed funds)
- **Sourcing donor funds** to reduce transaction costs and fill skills gaps

EBRD's Sustainable Energy Initiative, Phase I (2006-2009):
Achievements Up-to-Date

SEI's achievements have been:

- EBRD SEI investments of **€ 2.7 billion (+80%)** for total project value of **€ 14 billion (+180%)**
- Investments in **166 projects and 24 countries**, 64% in the private sector
- EBRD SEI financing accounted for **20% of the Bank's total investment** in 2008
- Annual emission reduction of **21 million tonnes of CO_2** (equivalent to Croatia's emissions ~ **8% of Turkey's emissions**)
- Annual energy savings of **8 million tonnes of oil-equivalent** (three times Albania's energy consumption ~ **8% of Turkey's consumption**)

EBRD's Sustainable Energy Initiative, Phase II (2009-2011):

- **SEI's achievements have been**:
  - SEI financing target: **€ 5.4 billion** (total project value: of € 29.7 billion)
  - Carbon emissions reduction range: **24.8 million tonne CO_2/annum**
  - **Technical assistance grant funding: € 94.3 million**; investment grant funding: € 356 million

- **SEI PHASE II DIRECTIONS:** Building on existing SEI areas; further scaling up investment within the same 6 core activities:



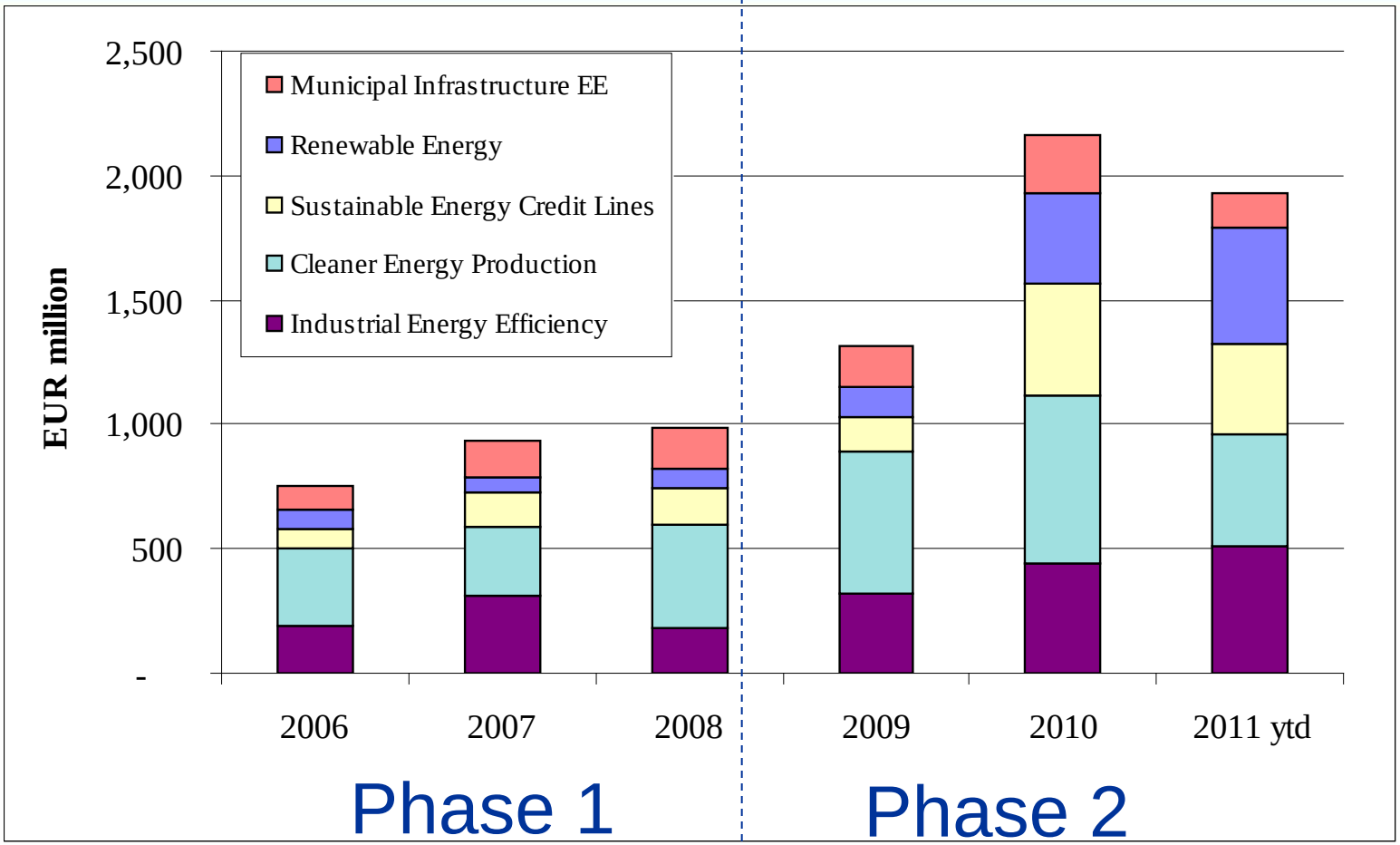



SEI PHASE 2 POLICY DIALOGUE

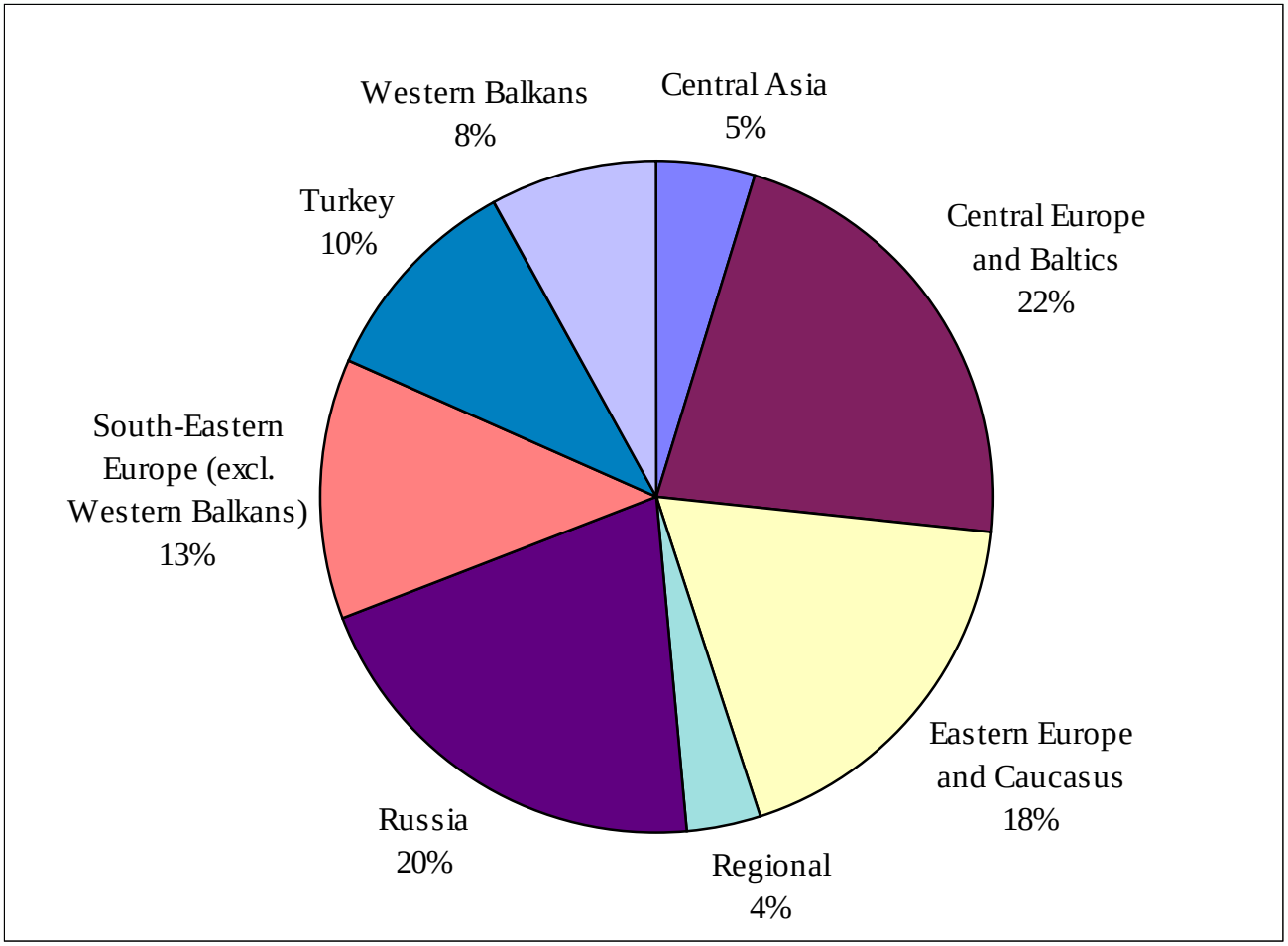
- SEI Policy Dialogue activity:
  - supports transformational/systemic impact;
  - enables investments through policy/legislative/regulatory changes;
  - creates knowledge at country level; and
  - builds local institutional capacity
  - Range of ‘products’ from framework strategies to drafting regulations

SEI2 Policy Dialogue activities	Number	Notes
Policy dialogue assignments	31	Example: assistance to government of Russian Federation to develop legislation on improving energy efficiency in public buildings
Countries covered by policy dialogue activities	9 + Western Balkans	Bulgaria, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Romania, Russia, Turkey, Ukraine, Western Balkans
Number of regional studies conducted	8	Example: Western Balkans Sustainable Energy Direct Lending Facility: institutional capacity building
Sustainable Energy Action Plans signed	7	Bulgaria, Georgia, Kazakhstan, Moldova, Russia, Turkey, Ukraine

SEI Investment by sector 2006-2011



SEI investment volume by region



SEI 3: Potential development directions
- New components

Expand use of SEI business model to:

Water efficiency

- Build upon the pilot water audits
- Promote at water basin and industrial facility level the sustainable use of water resources promoting effective public and private financial participation
- Links to adaptation issues
- Apply across sectors where water is a significant resource input (agribusiness industries, manufacturing processes, power generation) and the water supply network

Process efficiency

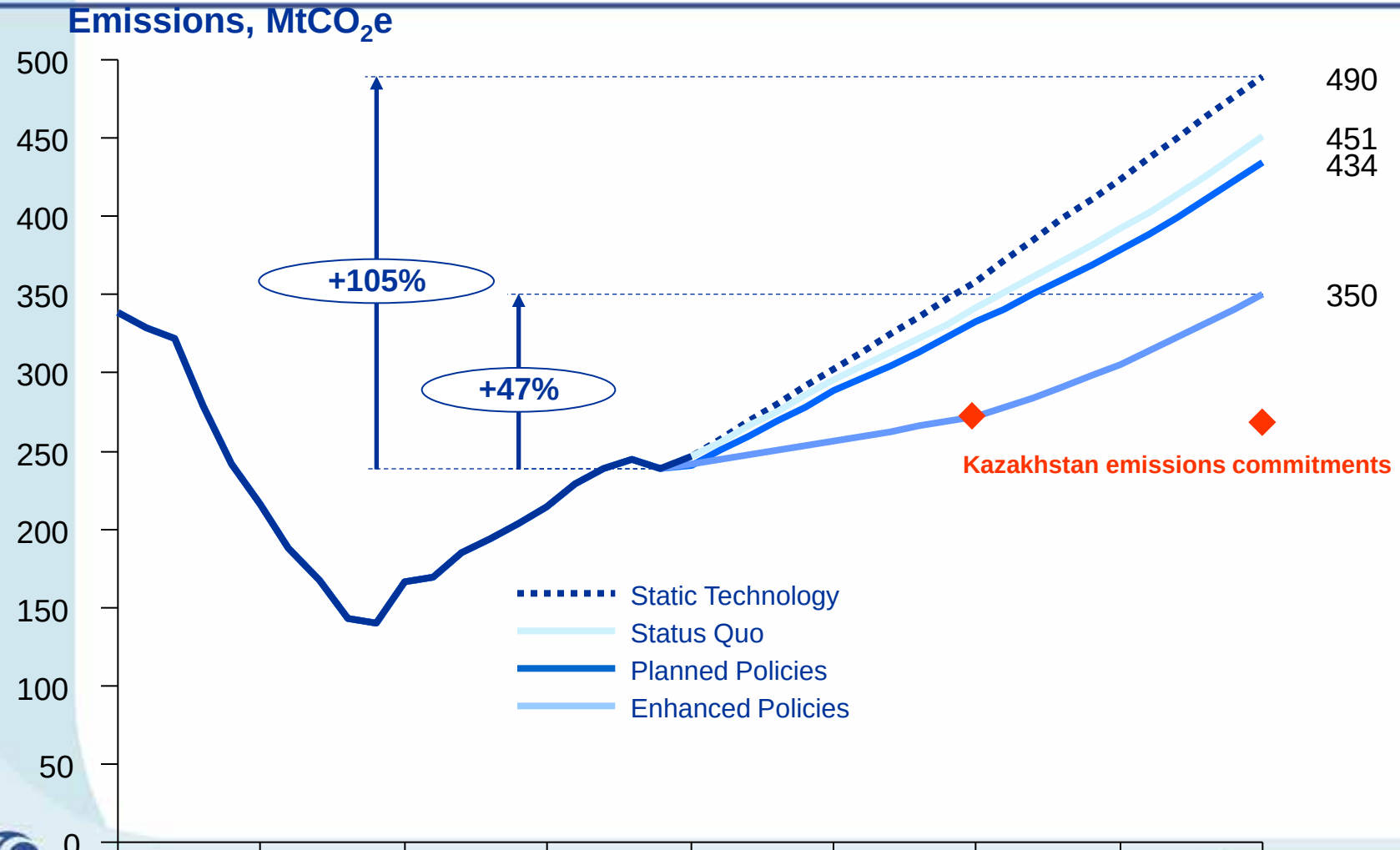
- Increasing interest in applying SEI approach to the production process
- Develop process audit tool
- Potential focus includes waste minimisation; product life cycle including recycling
- Link to innovation and ICT

SEI 3: Potential development directions
- Financial product innovation and policy dialogue

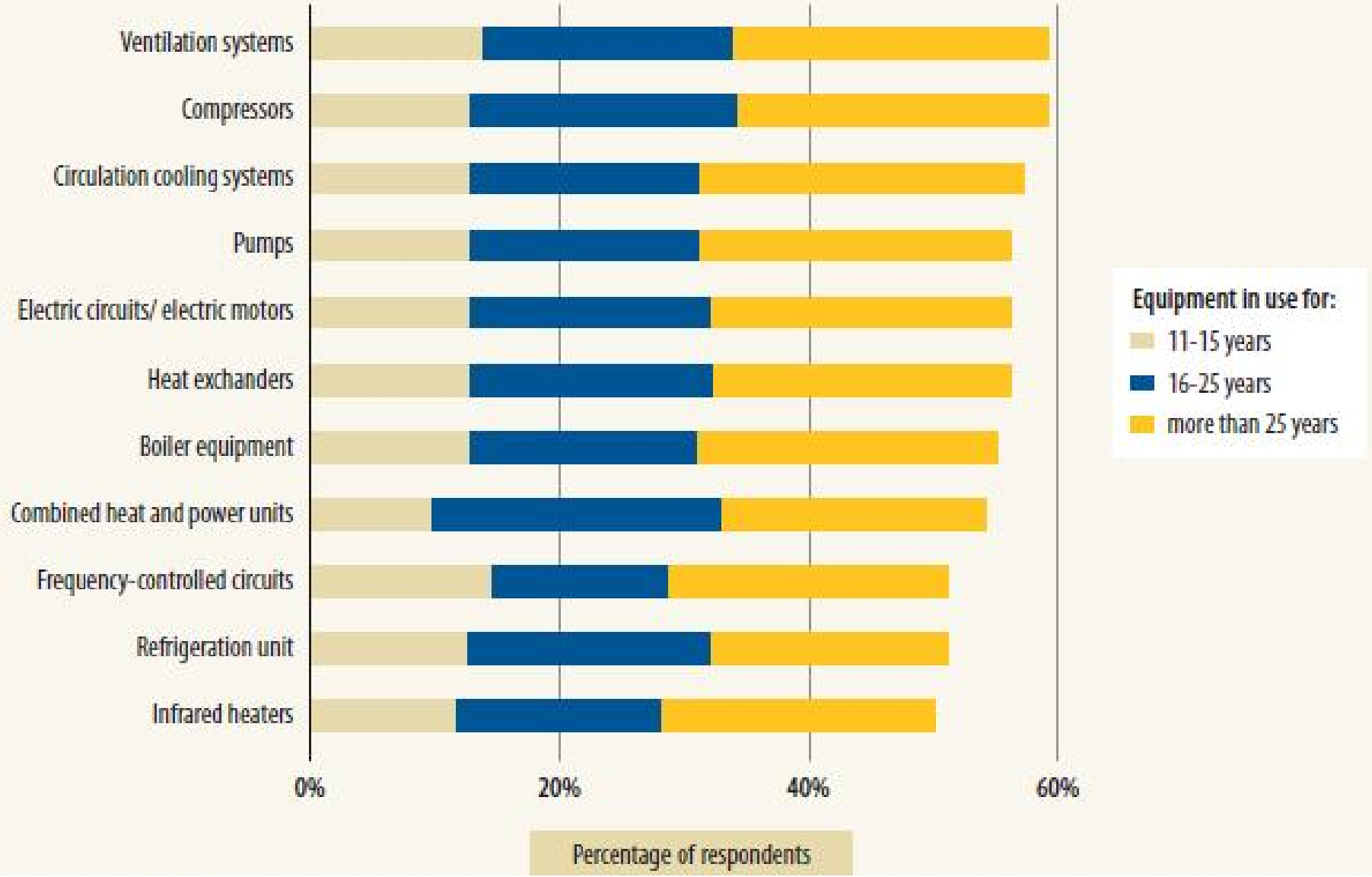
- Continue to develop innovative financing instruments:
  - *Direct lending* – remain core instrument; expand green bonds market?
  - *Structured finance* – expand range of products: vendor finance, lease finance, EPC
  - *Intermediated finance* – develop and expand SEFF programme, including to water and process efficiency
- Policy dialogue
  - Continue to:
    - Link finance with transformational policy dialogue
    - Offer full range of tools from sustainable energy action plans and market based instruments to regulatory reform and institutional capacity building

Policy Dialogue and Institutional Support in Kazakhstan

What a government can do to attract investors?

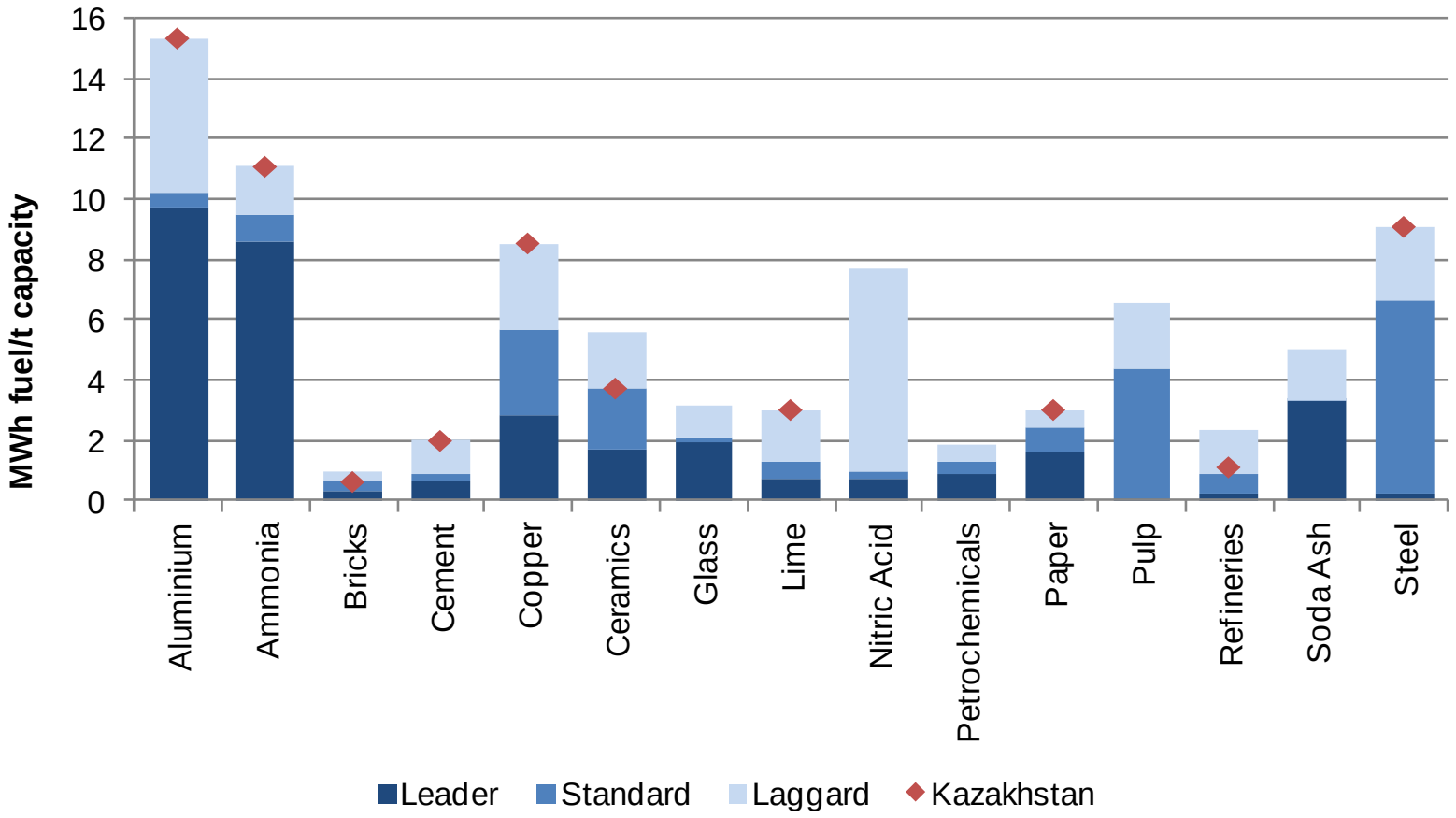


The percentage of companies operating energy equipment that is more than 10 years old



Source: IFC *On the road to energy efficiency: experience and future outlook.*

Industry Energy Intensity in Kazakhstan - International Benchmarks



Factors contributing to resource intensiveness of industries in Kazakhstan

- Low penetration of best practice in the area of resource management;
- Marginal market share of state-of-the-art resource efficiency technologies, due to inadequate market drivers, e.g., energy tariffs, but also because of underdeveloped local supply chains;
- Information asymmetry related to engineering and economic aspects of resource efficiency technologies;
- Lack of data on internal resource use and operational parameters of systems and processes;
- Inadequate standards and regulations in the area of environmental management and resource efficiency;
- Management complexity (e.g., in the area of project management);
- Up-front transaction costs and scarce financial resources.

Kazakhstan Policy Dialogue:

First EBRD National Sustainable Energy Action Plan

In June 2008, a Sustainable Energy Action Plan (SEAP) for Kazakhstan was signed between the Bank and the Kazakh Government, the first ever signed by the Bank and one of its countries of operations.

Objective: Assist Government of Kazakhstan in reducing energy intensity of Kazakh economy by:

- improving framework of energy legislation and regulation; and
- investment in power generation, T&D, industrial energy efficiency and renewable energy.

SEAP Priority Activities include:

- Draft laws review and improvements
- Strengthening of regulatory agencies and specialized bodies
- Tariff levels, metering and methodology improvements
- Focusing on priority investments and financings.

Expected outcomes:

Link top priority policy objectives of the Government of Kazakhstan to EBRD financing instruments.

Creating an enabling environment in which related investments can achieve maximum impact.

Kazakhstan Resource efficiency Transformation Program

– GEF grant of $7.0 million

– Aim is to establish enabling environment for private sector financing of Industrial sector EE projects

Programme has two parts:

1. **Policy support to government**

   Development of legal and regulatory framework that supports best practice in industrial energy efficiency

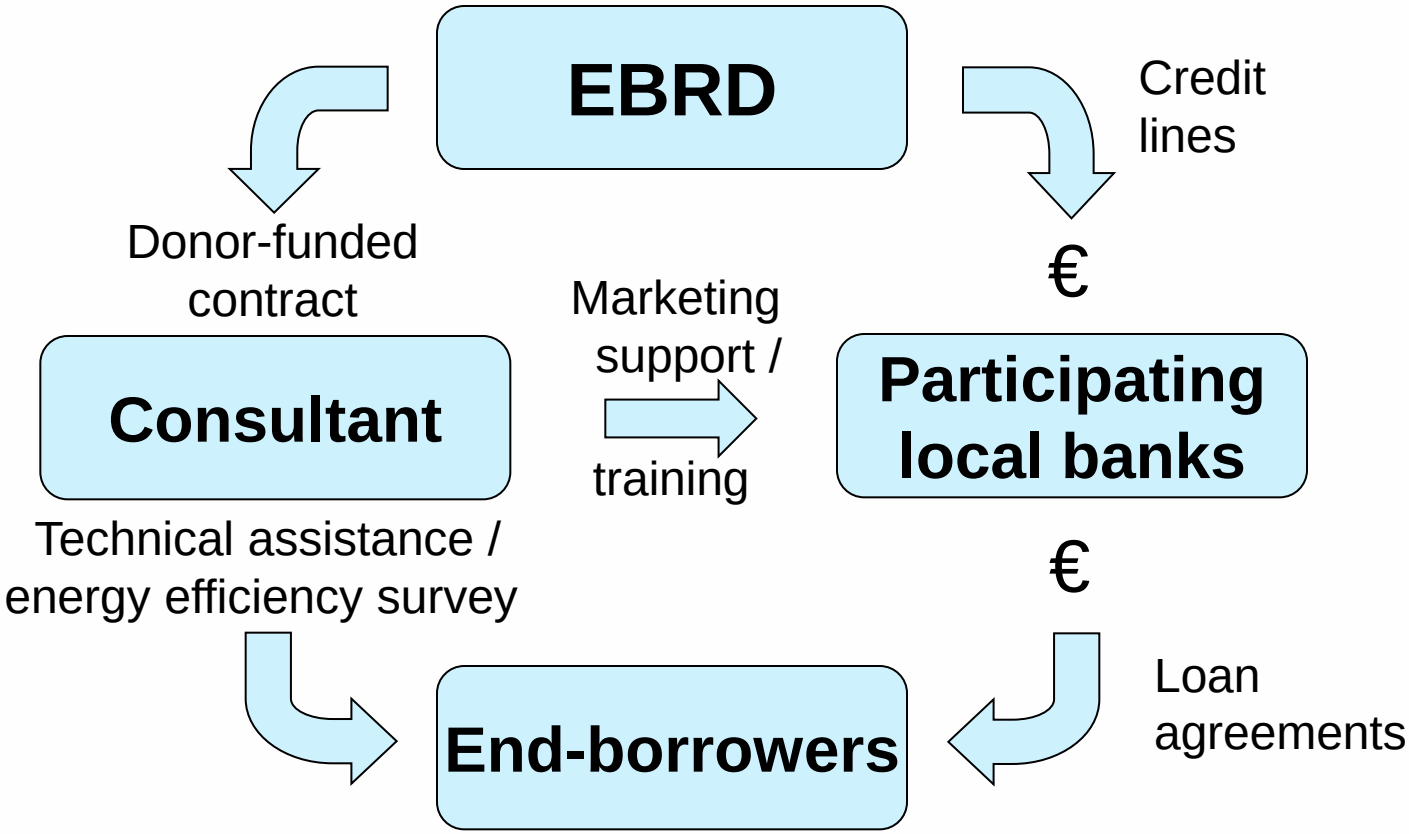
   - » Development of energy benchmarks for industry
   - » Support voluntary adoption of ISO 50001
   - » Prepare harmonization of standards and labelling scheme for efficient industrial equipment

2. **Investment support for participating companies**

EBRD Energy Efficiency Financial Instruments


EBRD
SEFF

Energy efficiency credit line facilities



Benefits for businesses

Sustainable energy investments make business sense

EBRD criteria
IRR > 10%

In reality, EBRD SEFF projects average
IRR = 20 – 25%

EBRD SEFF

A successful model

SEFF's Technical Assistance:

Providing Additional Services to our Clients

- **Project Consultant**

  Consultancy firm working with the Participating Banks and Sub-borrowers to identify eligible sub-projects, perform Energy Audits, draft **Rational Energy Utilization Plans (REUPs)**, prepare loan applications, undertake marketing activities and ensure optimal uptake and utilisation of the facility

- **Independent Energy Expert**

  Consultancy firm to conduct completion validation reviews for each sub-project to ensure that they met the eligibility criteria

Track record

- More than 2 billion USD of EBRD financing has been allocated to Sustainable Energy Credit Lines in 15 countries
- More than 0.5 billion USD has been disbursed to end-borrowers through almost 50 banks
- Average size of sub-projects:
  - USD 2.2 million larger companies
  - USD 0.7 million smaller companies

EBRD SEFF – scaling-up

- Extensive outreach / origination activities of the EBRD SEFF Implementation Teams.
- Scaling-up opportunities include:
  - Sector focus (technology specific)
  - Technology focus (e.g. biomass boilers)
  - Vendor finance schemes
  - Lease finance
  - Risk-management products

KazSEFF Sub-project example (1): Oskemen-Mai LLP, Oskemen

Main business area: Food industry, sunflower oil production.

KazSEFF project: Reconstruction of the boiler-house, replacement of mazut-fired boiler by sunflower husks fired boiler and energy inefficient equipment components in press-room and extraction shop.

Total project investment: $ 1.5 million

KazSEFF loan: $1.1 million

KazSEFF Technical Assistance: Technical and Financial Appraisal of the project, Identification of equipment supplier and technical specifications, Setting up implementation schedule and monitoring milestones.

Key Benefits:

Annual energy (mazut) saving: 45% (2,169 tons),

Annual cost savings: $0.88 million

Annual CO2 reduction: 6,746 tons

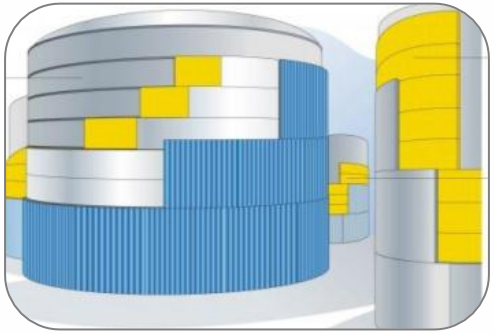
Payback: 3 years

IRR: 35.4 %

KazSEFF Sub-project example (2): Biogas plant and CHP in cattle farm

The Company	
Economic sector	Agriculture and cattle breeding
Region	Kostanay region
Project Goals and Main Investments	
Project goals	Implementation of biogas units
Main investment	Equipment, construction
Investment size	USD 2.1 million
Expected result of the Project	
Energy saving Saving ratio	• 6.470 MWh per year • 3.13 kWh saved per USD invested
Financial viability	• Annual savings: USD 615.000 • Payback period: 3,8 • IRR: 10,7%
Other benefits	Cost reduction for heat, power, and fertilizers; Reduction of CO2 emissions.
CO_2 reduction	3000 tons per year

KazSEFF Sub-project example (3): Insulation and improved boiler combustion



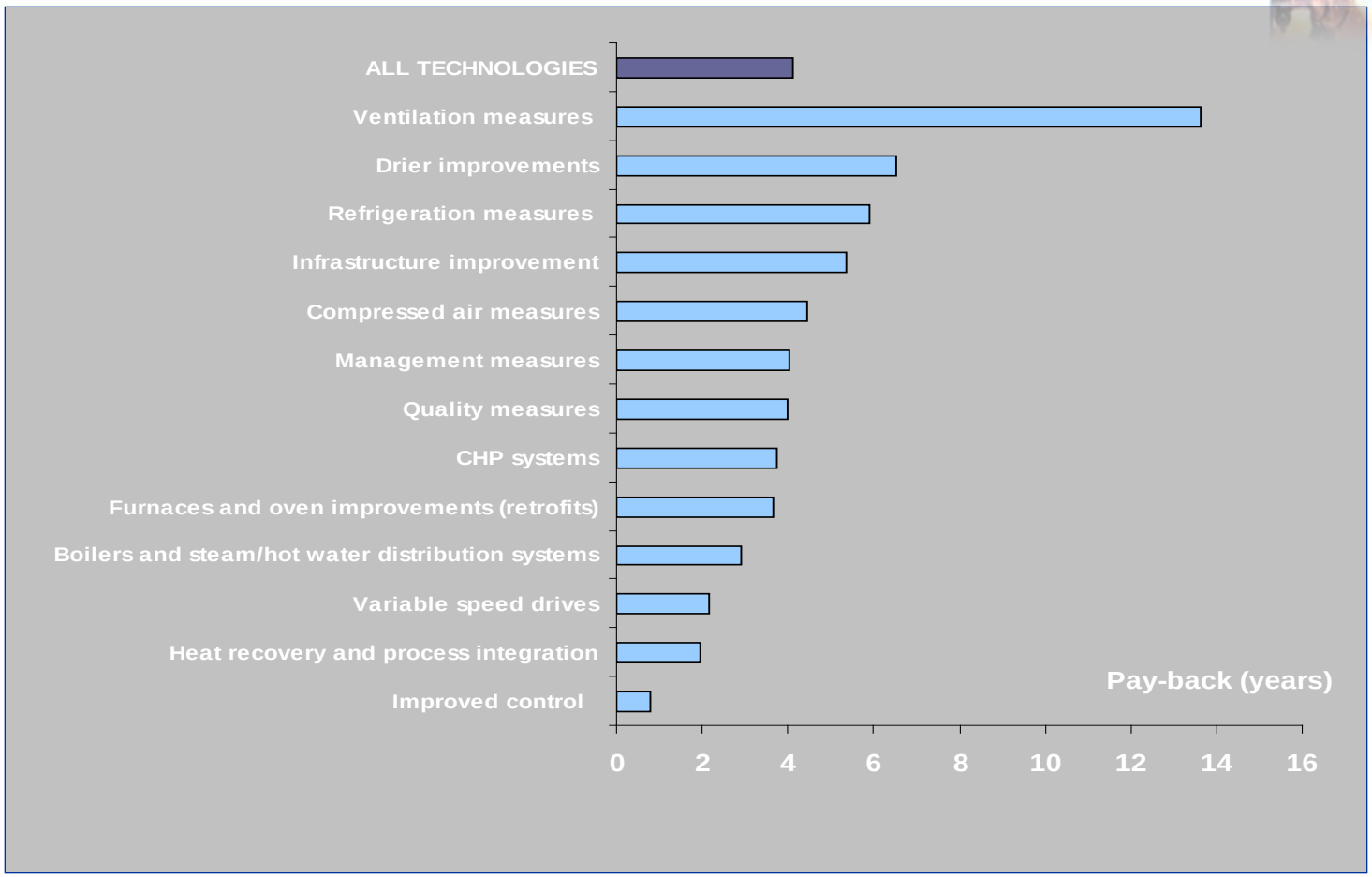
The Company	
Economic sector	Food production
Region	Karaganda
Project Goals and Main Investments	
Project goals	Cost savings
Main investment	Equipment, insulation material
Investment size	USD 380,000
Expected result of the Project	
Energy saving Saving ratio	• 19.5 MWh per year • 53 kWh saved per USD invested
Financial viability	• Annual savings: USD 390,000 • Payback period: 1 years • IRR: 102,1%
Other benefits	Improved oil storage and transportation system
CO_2 reduction	5,300 tons per year

SMEs and Large Industrial Clients

Role of EBRD technical assistance

- Additional resource and expertise to technical personnel
- Objective estimation of energy saving potential (often times underestimated), development of an integrated strategic approach to EE and priority investment program
- Bridging the gap between technical staff and financial decision makers and helping raise the profile of EE projects with top managers
- Increase the volume and accelerate the pace of investments into EE through long-term external financing

Energy Efficiency – short paybacks



Source: EBRD / AEA study, 2007

Large Industrial Client, Russia:

Energy audit results short payback

Project Description	Investment (USD million)	IRR (%)	Payback, yrs	CO2 Reduction (1,000 t/y)
Energy Management System	3.6	35	2.7	32.7
Rehabilitation of electricity distribution system	2.75	27.0	3.4	12.6
Electric motors replacement and VSD	4.0	26.4	3.4	17.8
Modernisation of compressor stations	3.0	23	3.8	12
Installation of frequency converters for induction furnaces	1.8	105	0.95	28.9
Combined heat and power plant (CHP)	21	33.8	2.8	53.9
TOTAL	36.2	--	< 3	158

ELECTRICITY SAVINGS – 25%, GAS SAVINGS – 10%

Energy Management System

Low cost and high benefits

Energy Management System:

- Cornerstone of all future activities towards improved energy efficiency
- Critical to developing a strategic approach to energy efficiency
- Overall cost of the measures small as compared to expected benefits

Expected benefits:

- Investment Cost: 3,6 USD mln.
- Energy savings: 3-6% of electricity and natural gas
- High Profitability: IRR 35%
- Payback: 2,7 years

Implementation of Energy Management System

1) Restructuring of the energy management department
   - Dedicated staff and higher responsibility
   - Direct reporting to the top management
   - The endorsement of a Corporate Energy Efficiency Policy by top management
2) Performance of detailed energy audits, training and awareness
3) Installation of instrumentation & control system
   - 400 electronic electricity meters
   - 50 measuring points for gas (150 signals for temperature, pressure and flow)
   - 60 measuring points for compressed air and oxygen (180 signals)
   - 30 measuring points for steam (90 signals)
   - 30 measuring points for water (90 signals)
4) Implementation of monitoring and targeting (M&T) systems

Case study # 4:
Industrial EE in Severstal Steel Mill, Russia

- Largest energy efficiency loan:
  €600 million investment of which EBRD has financed €150 million syndicated to 3 major international Banks
- Russia's leading steelmaker, Severstal
- 5 -10% energy savings
- The programme consists of 11 specific EE investment projects that were identified and analysed in common work of the Bank's team and SeverStal's technical management
- Estimated to cut CO_2 emissions by 900,000 tonnes a year

Other Examples: Interglass (Kyrgyzstan), 2004

- $6.6 million loan for fixed assets and WC
- Float glass + mirrors manufacturing
- $0.6 million energy efficiency component to finance the implementation of Energy Management System and rehabilitation of the power distribution system
- Energy savings estimated at around 15%
- TC funded Energy Audit and Energy Management Training
- Assistance for structuring a CDM deal

Other Examples: Vetropack-Gostomel (Ukraine), 2006

- $59 million loan glass company OJSC Vetropack Gostomel Glass Factory to finance:
  - Modernisation of furnaces
  - Upgrade of glass packaging section
- Anticipated benefits:
  - energy savings $9.2 million cubic metres of natural gas and 6,800 MW_{th} of electricity
  - Emission reduction: >20,000 tonCO_2eq/yr
- Assistance for structuring a JI transaction

Renewable Energy

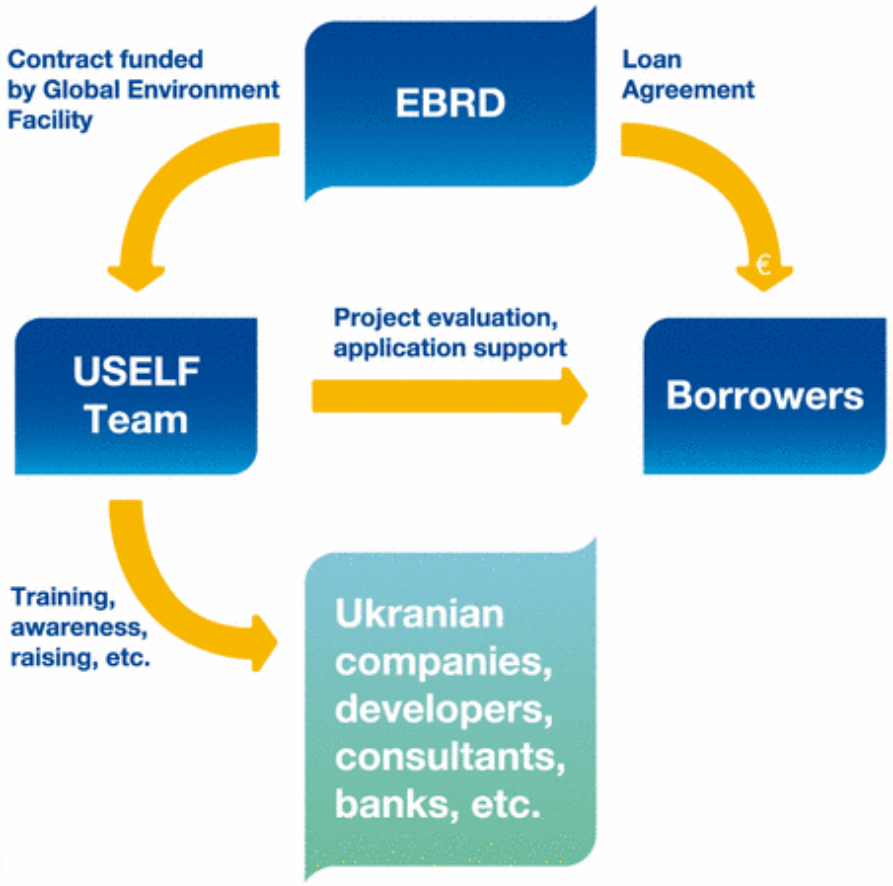
EBRD: Wind Farms Financed

	Project	Sponsor	EBRD Investment	Debt	Equity
Bulgaria	- St. Nikola 156 MW - Suvorovo 60 MW	- AES - Grupo Enhol	- EUR 70 mln - EUR 60 mln	ü ü	
Estonia	- Raisner OU 130 MW	- Iberdrola Renovables	- EUR 0.9 mln		ü
Hungary	- Wind farm portfolio	- Iberdrola Renovables	- EUR 50 mln		ü
Poland	- Tychowo 50 MW - Wind farm portfolio	- Global RPI - Iberdrola Renovables	- EUR 30 mln (in PLN) - EUR 75 mln (in PLN)	ü	 ü
Turkey	- Rotor 135 MW	- Zorlu Enerji	- EUR 45 mln	ü	
Regional	- Enercap RE Fund - FreEnergy	- Various - Nelja Energia	- EUR 25 mln - EUR 19 mln		ü ü

EBRD: Hydro Plants Financed

	Project	Sponsor	EBRD Investment	Debt	Equity
Bulgaria	- Vez Svoghe 26 MW	- Petrovilla	- EUR 47 mln	ü	
Russia	- Hydro OGK 10,000 MW	- RusHydro	- EUR 53 mln	ü	
Albania	- Power Sector Reconstruction 800 MW	- KESH	- EUR 30 mln	ü	
Georgia	- Okami and Lopota HPPs (3.5 MW)	- Various	- EUR 0.2 mln	ü	
Armenia	- 20 Various HPPs	- Various	- EUR 5 mln	ü	

EBRD: RES Financing Mechanisms USELF



- USELF is structured to provide financing directly from the EBRD for small and medium projects with a simplified and rapid approval process, so reducing transaction costs.
- Advantages
  - Loans starting from €1 million
  - Reduced transaction costs
  - Longer term limited recourse finance
  - Technical assistance free of charge

Municipal Infrastructure

Municipal Infrastructure Energy Efficiency

- Sectors:
  - EE projects in DH systems
  - EE projects in Urban Transport systems (including public transport);
  - EE projects in water systems (drinking water supply and waste water treatment);
  - GHG reduction projects in waste water treatment systems;
  - Energy generation projects in waste water treatment systems;
  - GHG reduction projects in solid waste management systems;
  - Energy generation projects in solid waste management systems

Municipal Infrastructure Energy Efficiency in Kazakhstan: Clean Technology Fund

- District Heating Network Modernization:
  - EUR 200 million total project volume
  - EUR 42 million concessional co-financing
  - DH Tariff reform
- Municipal Solid Waste Management Program (with waste to energy production):
  - EUR 100 million total project value
  - EUR 20 million concessional co-finance
  - Modern waste management regulatory framework

Thank you!

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