

# GREEN ECONOMY TRANSITION AT THE EBRD

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**European Bank**  
for Reconstruction and Development

## THE CONTEXT

MAINSTREAMING GREEN FINANCING AT EBRD

RECENT HIGHLIGHTS FROM EBRD UFM COUNTRIES

# What is the EBRD?



**European Bank**  
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- Public financing institution established in 1991 to foster transition to market economies
- Owned by 65 countries, the EU and the EIB
- Operates in 35 countries in Central and Eastern Europe, Central Asia and the Southern and Eastern Mediterranean

- €30 billion capital base
- €41 billion portfolio
- €8.9 billion average annual business volume in the past three years
- AAA rated

- 3 key operational principles
- Sound banking
  - Transition impact
  - Environmental sustainability

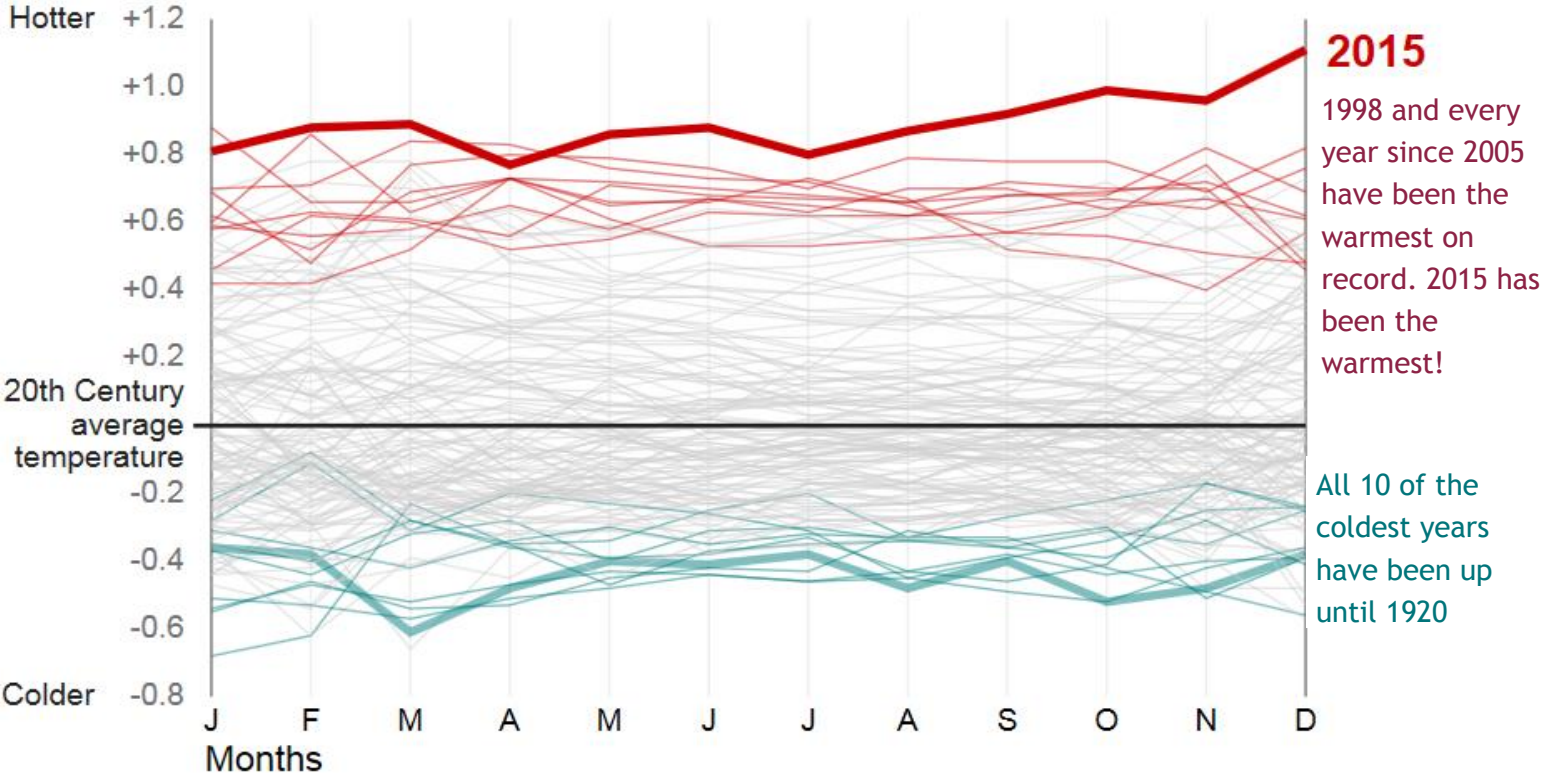
# Climate Change – the challenge



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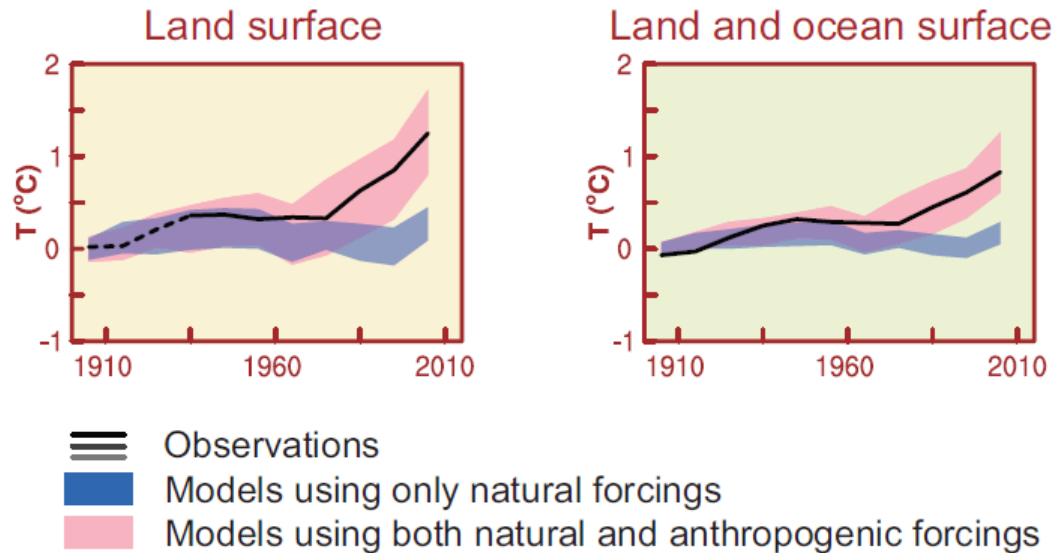
## Global annual average temperatures in 1880–2015

— 10 warmest years    — 10 coldest years



Source: NOAA

Graphics from [bbc.co.uk](http://bbc.co.uk)



Source: IPCC (2013) Fifth Assessment Report  
Modelled global average temperatures with and without human interference inputs; represented as decadal anomalies relative to the 1880-1919 average temperature (the 0° C baseline).

*Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia.*

IPCC (2013)  
Fifth Assessment Report



- **The International Energy Agency** estimated **US\$ 8-13 trillion** are needed for energy efficiency investments in transport, industry and buildings between 2014-2035.
  - **US\$ 130 billion** were invested in 2012 = one fifth of power sector investments
  - **US\$ 530 billion** needed in 2035 for a pathway consistent with energy and climate policies already pledged by governments as of 2014; ~40% of this are investments in industry and transport;
  - **US\$ 1,300 billion** needed in 2035 for a more ambitious policy pathway consistent with limiting global average temperature increase to +2°C by the end of the century. Resulting energy cost savings will be twice the investment amount required.
- **The IPCC 5th Assessment Report** estimated **US\$ 6.4 trillion** are needed in 2010-2029 for energy efficiency investments across sectors for a pathway consistent with a +2°C increase.
- **MDBs** delivered **US\$ 103 billion** of climate finance in 2011-2014.



## International context

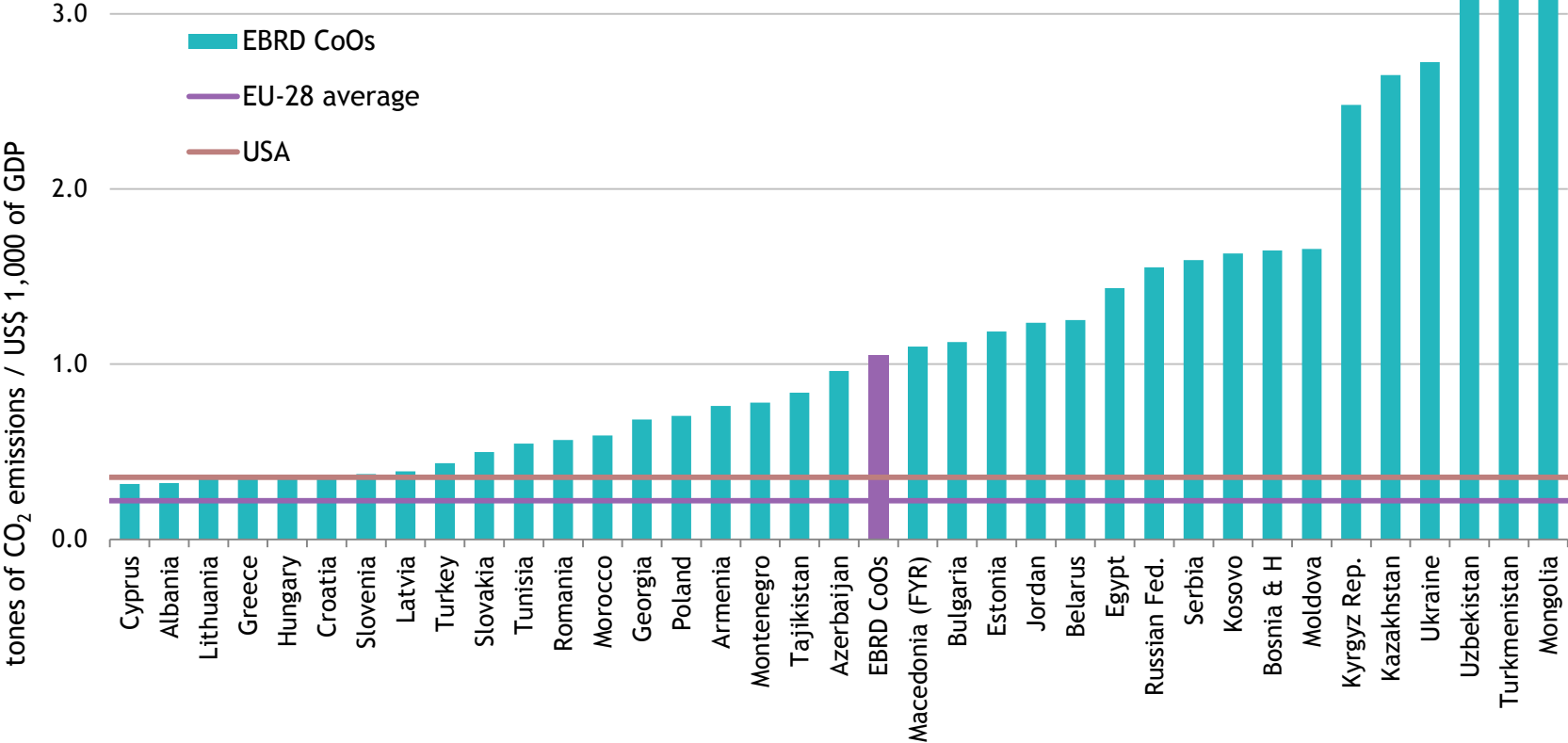
- **COP21 Paris** : universal and ambitious agreement to limit the increase in global average temperatures to +2°C; also, “to pursue efforts” to limit to 1.5°C
- **The Sustainable Development Goals**, adopted in 2015, provided increased focus on environmental sustainability
- **G7 Summit Leader’s Declaration** in June 2015: MDBs need to maximise their balance sheets in delivering climate finance and helping countries transition to low carbon economies
- EBRD is at the forefront of efforts to channel resources from existing and emerging **global climate finance funds** to projects on the ground.

## EBRD context

- Special mandate to foster transition to market- economies - this implies that resources are used efficiently; EBRD focus is placed at the crossroad between sustainability and market development and private sector support.
- Legacy of big enterprises and utilities having developed not reflective of costs and environmental externalities
- Several EBRD economies display some of the highest energy and carbon emissions intensity levels in the world
- Imperative to increase energy security
- Existing and forecasted water stress in Central Asia and SEMED countries

# Carbon intensity of EBRD economies

## CO<sub>2</sub> emission intensity of economies in the EBRD Region



2013 energy-use related CO<sub>2</sub> emissions per unit of GDP (2005US\$ at market exchange rates) from IEA



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# Mainstreaming green financing: EBRD strategies



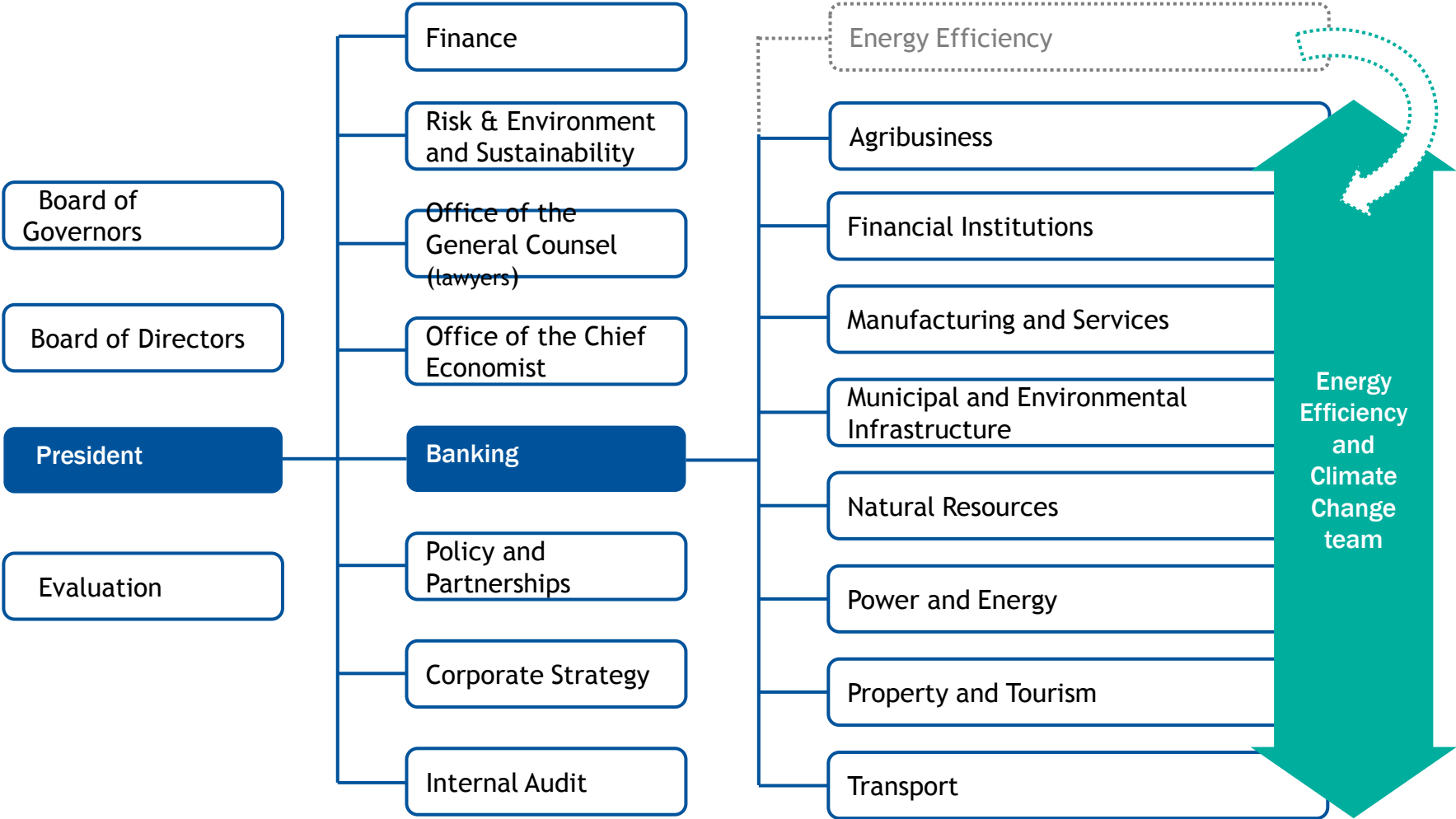
- Since 2006 the EBRD has adopted cross-sectorial strategies:
  - **to mainstream** across the Bank’s operations, and
  - **to increase** the share of Bank business represented by measures which enhance the efficient use of energy and resources (water, materials) and contribute to the mitigation of, and adaptation to, climate change.
- The latest strategy, the Green Economy Transition (GET) aims to further scale up the Bank’s green business, and to include new areas of activity, such as environmental protection and technology transfer.

1994	2006 Sustainable Energy Initiative	2013 Sustainable Resources Initiative	2015 Green Economy Transition
Energy Efficiency banking team	<ul style="list-style-type: none"> <li>• Energy efficiency</li> <li>• Renewable energy</li> </ul>		
	<ul style="list-style-type: none"> <li>• Water efficiency</li> <li>• Material efficiency</li> <li>• Adaptation to climate change</li> </ul>		<ul style="list-style-type: none"> <li>• Environmental protection</li> <li>• Technology transfer</li> </ul>

# Mainstreaming green financing: The E2C2 team



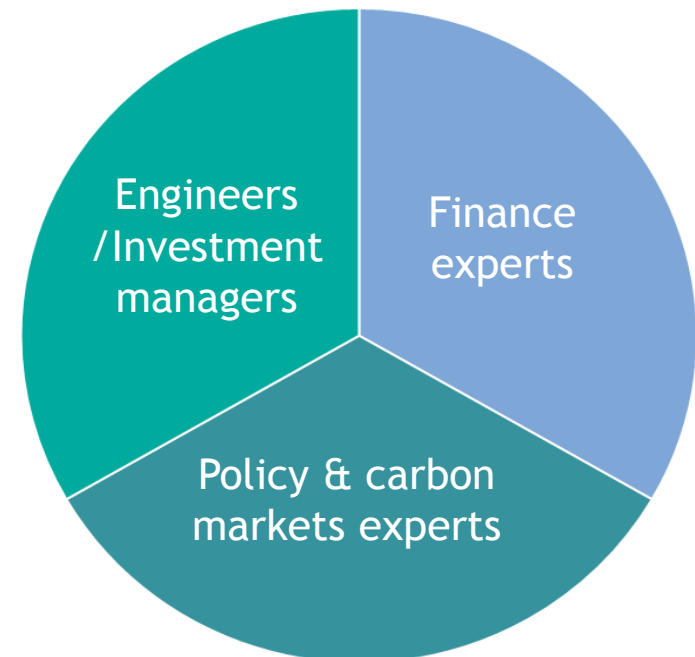
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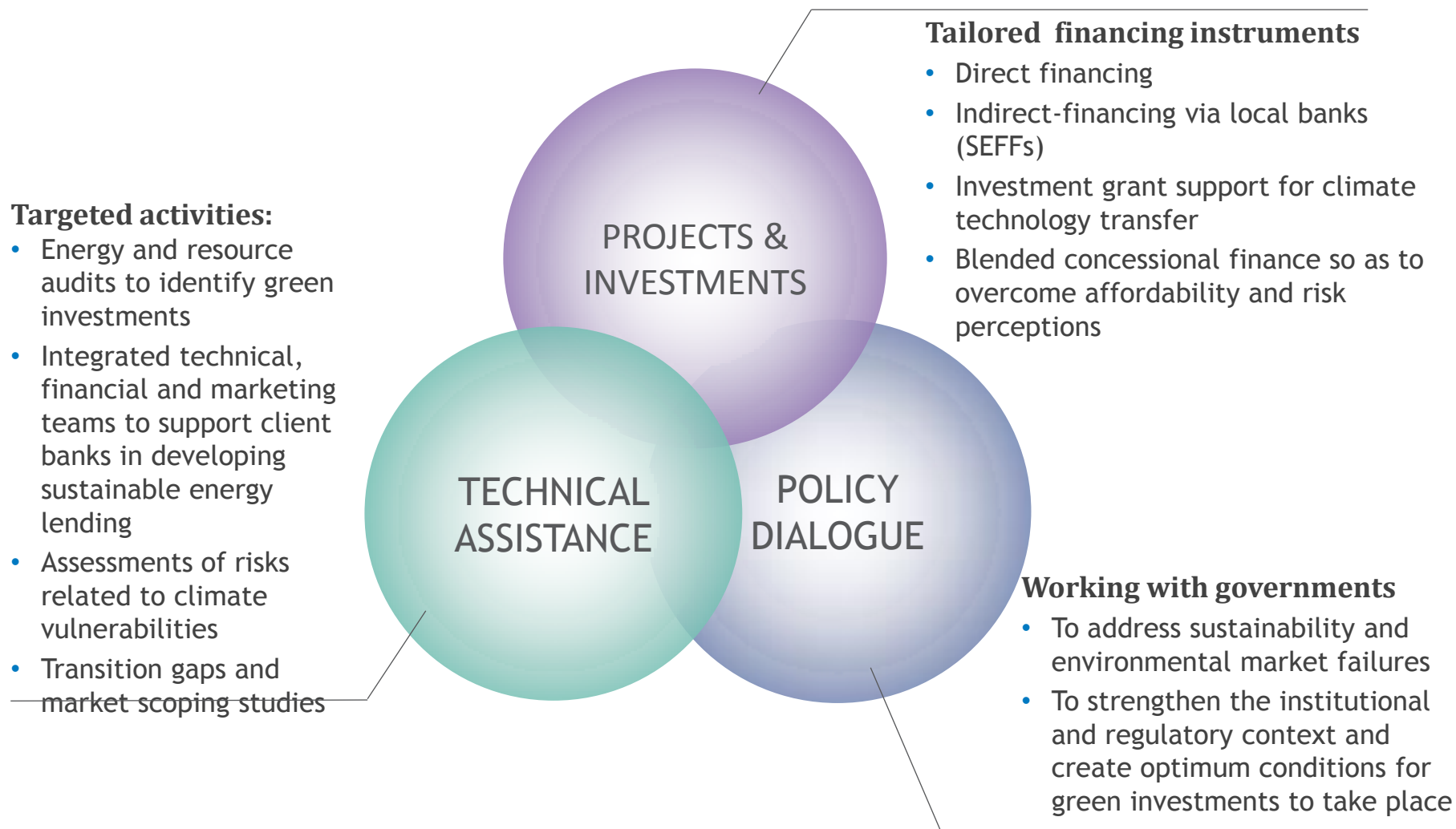
\* Non-exhaustive EBRD organisational structure

# Mainstreaming green financing: The E2C2 team

- **A supportive, not transactional role**  
We work with sector teams to help them integrate green investments into their operations
- **The right mix of skills**  
Technical and finance expertise complemented by specialists in policy dialogue, marketing and communication and technical assistance managers.  
In-house expertise complemented with external consultants for project-specific engagements.
- **Specific performance targets**  
Expressed as the % of the Bank's and of the sector teams' annual business volume which is green financing.



# Mainstreaming green financing: The business model



# Mainstreaming green financing: Business development tools



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## RESOURCE EFFICIENCY AUDITS

Offering audits to the Bank's clients who have resource efficiency potential, to identify and prioritise resource efficiency investments based on the financial return from input cost savings.

## SUSTAINABLE ENERGY FINANCING FACILITIES

Extending credit lines to partner banks for on-lending to local projects, together with dedicated technical assistance teams who help identify and assess green investment opportunities, train up banks' staff and develop marketing activities.

## TECHNOLOGY TRANSFER SUPPORT

Identifying clients with potential to invest in higher resource efficiency technologies in early transition markets and supporting them with partial investment grants that help overcome first-mover risks and affordability barriers.

## CLIMATE VULNERABILITY ASSESSMENTS

Supporting businesses and utilities which are most exposed to future climate change impacts to identify risks and integrate adaptation measures in investment programmes.

## BLENDING OF CLIMATE FUNDS

Sourcing and structuring dedicated resources from international providers of climate finance for blended financing operations for terms appropriately matching the risk and duration profiles of green projects.

## POLICY DIALOGUE

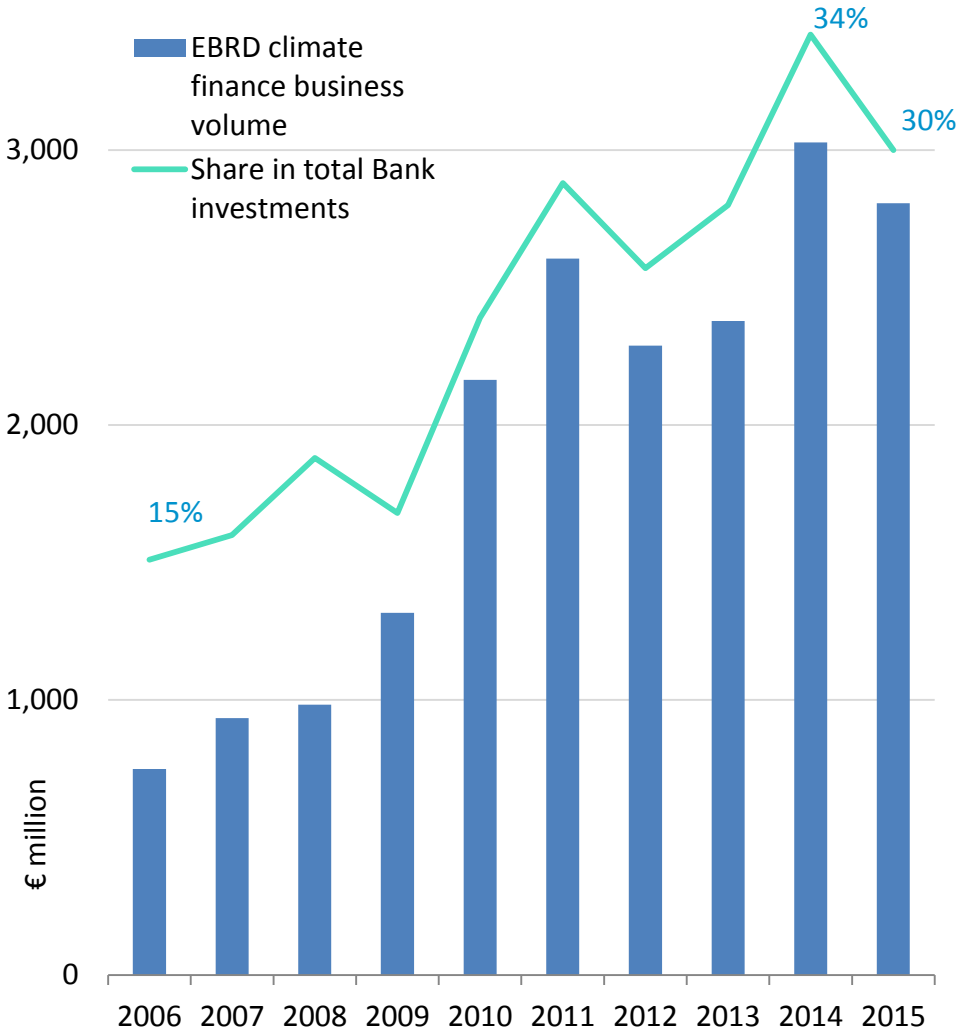
Working with governments and authorities to environmental market failures, strengthen the institutional and regulatory context and create optimum conditions for green investments to take place.

# Mainstreaming green financing: Financing results



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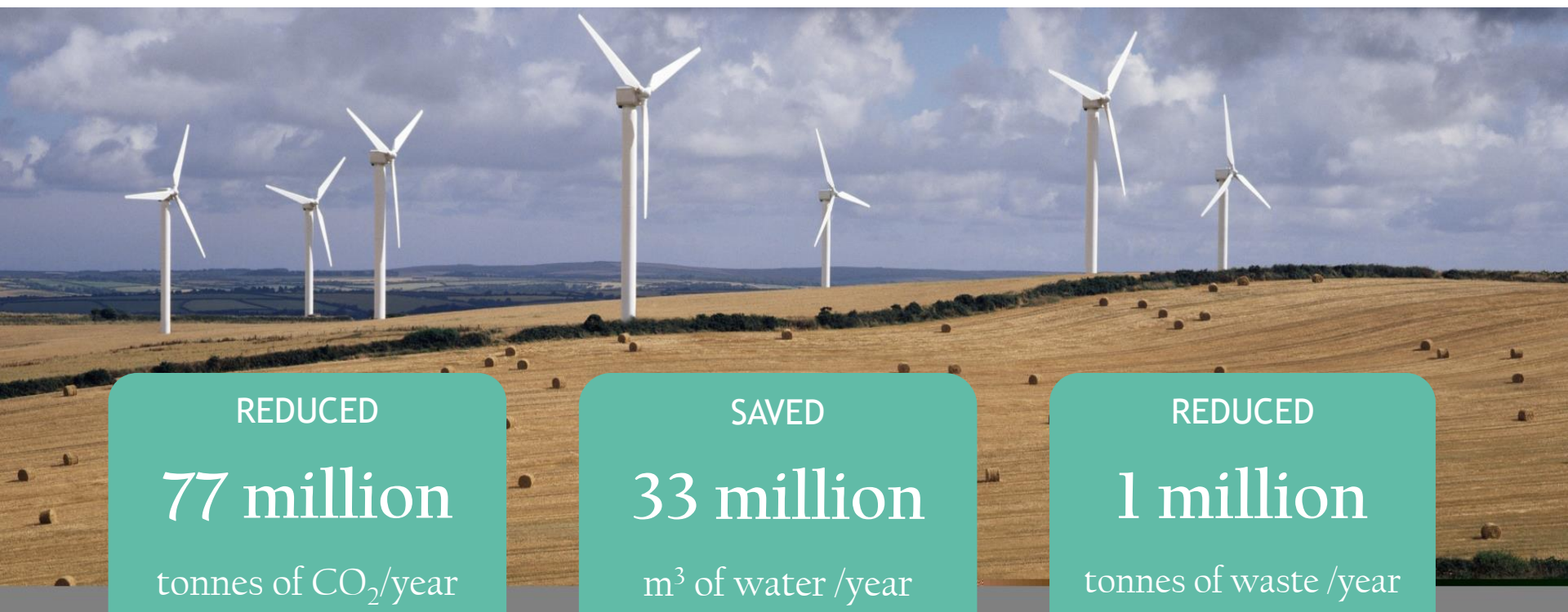
- **€ 19.3 billion** cumulative EBRD green financing in 2006-2015
- **1,080 projects** EBRD-financed projects with green components with €100 billion total value
- **30%** the share of green financing in total EBRD annual business in 2015, up from 15% in 2006.



# Mainstreaming green financing: Physical impacts



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REDUCED

77 million

tonnes of CO<sub>2</sub>/year

In 2006-2015

More than the annual energy use related CO<sub>2</sub> emissions of Romania or twice those of Sweden

SAVED

33 million

m<sup>3</sup> of water /year

In 2013-2015 from 70 water efficiency projects

Equivalent to a third of the annual water consumption of the population of Prague

REDUCED

1 million

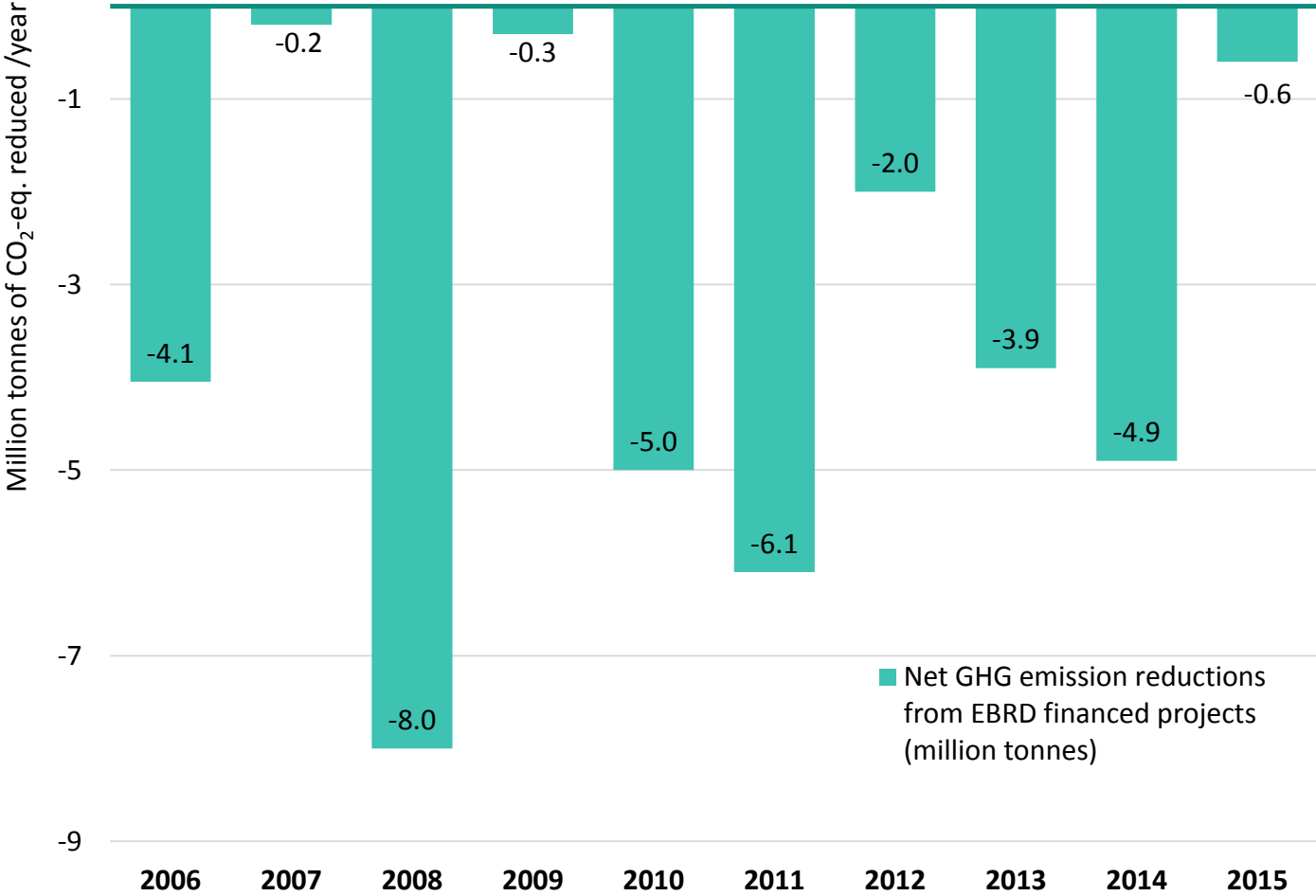
tonnes of waste /year

In 2013-2015 from 40 waste efficiency projects

Various streams of waste: metals, minerals, agricultural waste



# Mainstreaming green financing: The overall net EBRD annual climate impact

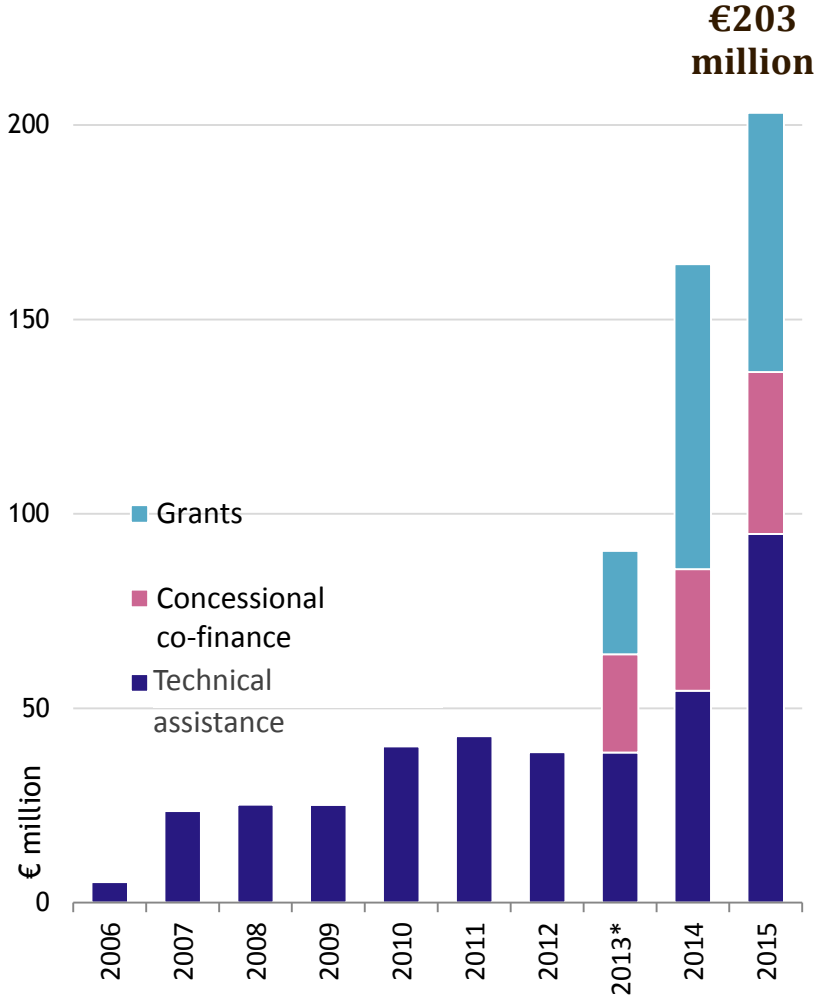


# Mainstreaming green financing: Climate finance and donor support



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- The E2C2 team facilitates access to specialised donor resources for:
  - Targeted technical assistance to complement project scoping or implementation
  - Concessional finance to blend with EBRD financing
  - Grant incentives for borrowers
 to help overcome barriers such as affordability constraints, first-mover risks, behavioural and perceived risks, low technology penetration rates
- Via E2C2, the EBRD partners with major providers of multilateral concessional climate finance resources



\* Full SRI concessional co-finance and grant data available from 2013 on

# Mainstreaming green financing: The new GET strategy

The GET aims to address market opportunities, as well as market failures, related to resource use and environmental degradation.

Main aspects of the GET strategy:

- **further scale-up** the Bank's operational and policy activities to accelerate transition to low carbon economies and climate resilience
- **broaden the environmental dimension** of investments supported by the Bank - this includes elements of environmental compliance or remediation
- **Engage new areas and flexible financing channels:** expanding to areas like pollution prevention, green logistics, water efficiency in power sector and irrigation; and engaging public financing channels when opportune to accelerate low-carbon transition (energy efficiency in public buildings, green cities).



# Mainstreaming green financing: GET aims



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## 40%

2020 target for the share of green finance in EBRD annual business, from a current level of 30%

## €4 billion

Target annual EBRD green business by 2020

## €18 billion

Target cumulative EBRD green business 2016-2020



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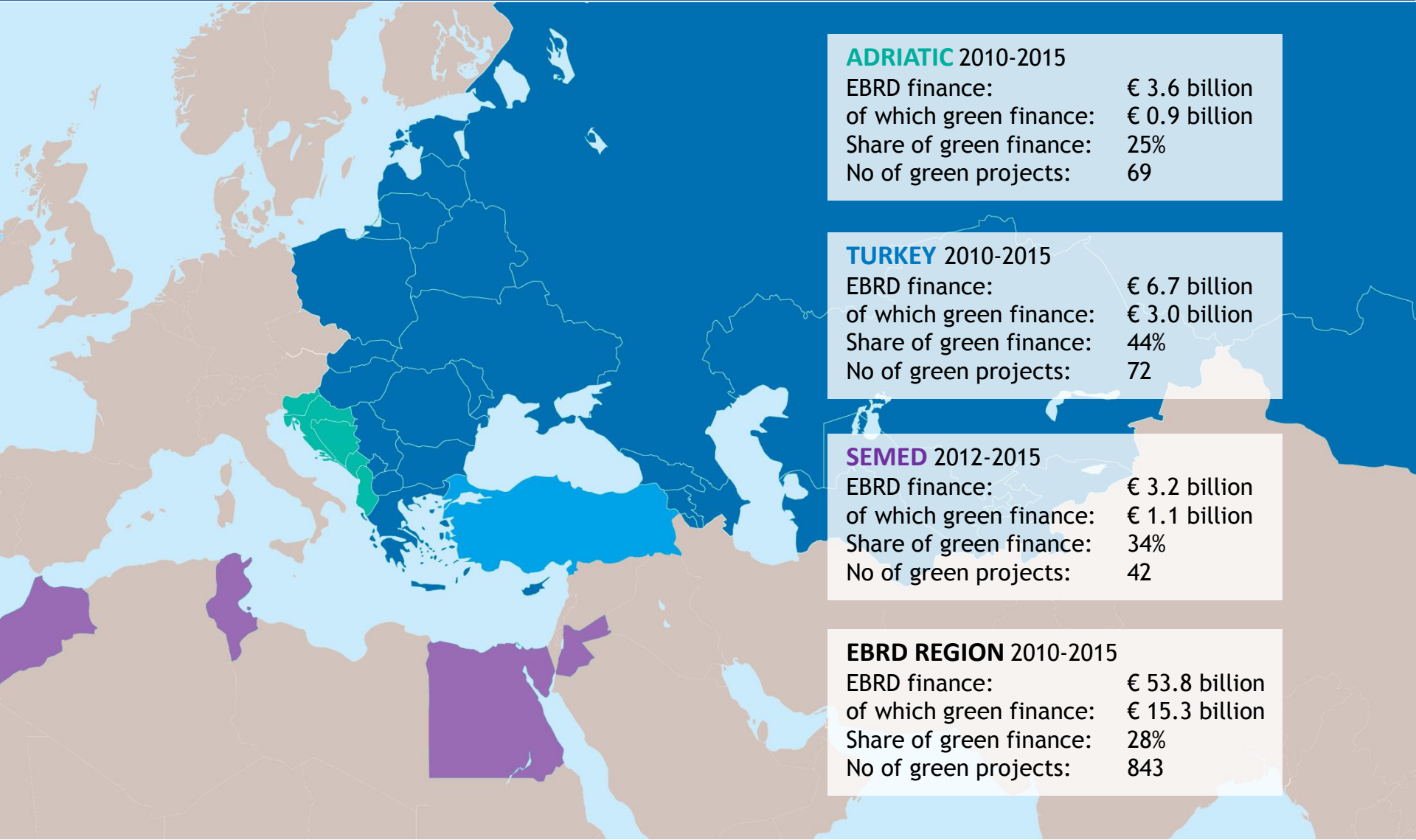
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# EBRD green financing in Mediterranean countries



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**ADRIATIC** 2010-2015  
EBRD finance: € 3.6 billion  
of which green finance: € 0.9 billion  
Share of green finance: 25%  
No of green projects: 69

**TURKEY** 2010-2015  
EBRD finance: € 6.7 billion  
of which green finance: € 3.0 billion  
Share of green finance: 44%  
No of green projects: 72

**SEMED** 2012-2015  
EBRD finance: € 3.2 billion  
of which green finance: € 1.1 billion  
Share of green finance: 34%  
No of green projects: 42

**EBRD REGION** 2010-2015  
EBRD finance: € 53.8 billion  
of which green finance: € 15.3 billion  
Share of green finance: 28%  
No of green projects: 843

# Energy and materials efficiency in Turkey manufacturing

## CLIENT

The second largest manufacturer of PVC window profiles in Turkey.

## PROJECT

Supporting the company in constructing a new state-of-the-art plant and in enhancing its plastic waste recycling capabilities, both of internally produced waste streams as well as from external collection.

## INVESTMENT PLAN

EBRD loan	€ 25 million
of which green finance	€ 7 million
Concessional parallel loan from the Clean Technology Fund	€ 1 million

## RESOURCE AUDIT

Audit funded by the Government of Spain recommended innovative measures (payback time):

- trigeneration system (3 years)
- improved automation and control (3 years)
- high efficiency motors and drives and (3 years)
- solar photovoltaics (7.5 years)
- wastewater treatment (5 years)



## IMPACT OF PROJECT

- The company will increase plastic waste recycling rates from below 10% currently to over 15%
- Estimated plastic recycled of 800 tonnes per year
- Estimated emission reductions of 22,000 tCO<sub>2</sub>/year

# Integrating resource efficiency and climate resilience in buildings in Jordan

## CLIENT

A Jordanian shareholding company, majority owned by a leading private real estate developer in the MENA region, and partially by a state-owned corporation established to drive urban regeneration projects.

## PROJECT

Support for the construction of a retail and entertainment centre as part of the larger Abdali Urban Regeneration Project in Amman. This is the largest mixed-use development undertaken in Jordan.

EBRD involvement contributed with special emphasis on climate resilience and sustainable resource use:

- Energy efficient design: highly efficient heating and cooling system design, use of natural light.
- Materials efficiency: use of GGBS concrete (ground-granulated blast furnace slag, a metallurgical by-product), recyclable polyester roofing;
- Water efficiency: rain water harvesting, grey water recycling.

## INVESTMENT PLAN

EBRD loan	US\$ 80 million
of which environmental financing	US\$ 33 million
Total project value	US\$ 300million



## IMPACT OF PROJECT

- Advanced efficiency measures in electrical systems and district heating and cooling design will lead to 6,000 tCO<sub>2</sub> emission reductions annually.
- The mix of materials used will result in an overall carbon footprint 10% lower than common practice.
- Water efficiency measures enhance regional resilience to increasing water stress.



# Modernisation and efficiency investments at Croatian refineries

## CLIENT

A leading Croatian oil and gas company operating two refineries in Croatia, at Sisak and Rijeka.

## PROJECT

Support for the modernisation programme of the two refineries, including:

- Introduction of modern state-of-the-art technologies to enable production of EU quality products (EURO V fuels)
- Comprehensive environmental remediation
- A series of energy efficiency measures, most identified through an EBRD led energy audit of the two sites.

## FINANCING STRUCTURE

EBRD loan	€150 million
of which, green financing	€ 68 million
Commercial investment funds parallel loans	€ 60 million
Client equity support	€284 million

## EXPECTED IMPACTS

- 1 million t of CO<sub>2</sub> estimated annual emission reductions from energy efficiency measures – equivalent to the average annual CO<sub>2</sub> footprints of 160,000 Zagreb residents
- 673,000 tonnes of oil-equivalent of energy savings.



## TECHNICAL ASSISTANCE

Energy audit funded by the Government of Netherlands identified improvements such as (payback time):

- Energy management systems (3 years)
- Waste heat recovery furnaces (4 years)
- New power connections (3 years)
- Switching from fuel oil to flared natural gas (4 years)
- Condensate recovery system (3 years)
- Replacement of steam boiler (8 years)
- Water treatments plant for process water (2 years)

# Scaling up financial intermediation for renewable energy in Turkey

## PROGRAMME

The Mid-size Sustainable Financing Facility supports the development of the financing market for renewable energy projects requiring financing in the range of €million 5-50.

MidSEFF provides debt support through 7 Turkish banks, on terms matching the financing needs of the sector. Credit lines are complemented with technical assistance:

- to banks to enhance their marketing, assessment and monitoring capacity of renewable energy projects,
- to project developers for technical, environmental and social assessment, and for activities related to monetising emission reductions.

## FINANCING FACILITY

EBRD credit lines in 2011-2015	€700 million
Parallel EIB credit lines	€ 300 million
EU-funded technical assistance support	€ 6.8 million

## RESULTS TO DATE

- €1.14 billion total value of the projects supported (by Q4 2015, corresponding to 71% of MidSEFF credit lines)
- 42 projects accounting for 760 MW of new generation capacity – represents 2.6% of all renewable capacity in Turkey
- Diverse mix of technologies: 40% of MidSEFF funds supported hydro projects, 32% wind power and 15% geothermal
- 1.1 million tonnes of CO<sub>2</sub>/year estimated emission reductions – equivalent to the annual emissions footprint of a population the size of the city of Izmit.



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## PROJECT EXAMPLES

- Construction of a 45 MW geothermal plant in the Aegean region, worth €47 million, was supported with a €37 million MidSEFF loan. The project has a payback time of 5 years and its energy output covers the demand of 140 households.
- Construction of a 30MW wind farm in the Marmara region, worth €43 million was supported with a MidSEFF loan of €30 million. The project emission reductions estimated at 160,000 tCO<sub>2</sub>/year are registered under the Gold Carbon Standard.

# Developing sustainable energy financing in the Western Balkans

## PROGRAMME

The Western Balkans Sustainable Energy Financing Facility aims to increase financial intermediation for small-scale energy efficiency and renewable energy projects in the region.

EBRD has extended WeBSEFF credit lines to 12 partner banks in Bosnia and Herzegovina, Croatia, FYR Macedonia and Serbia.

Banks benefit from technical assistance for capacity building and project origination. End-borrowers can access incentive payments for adopting eligible efficiency technologies.

## FINANCING STRUCTURE

EBRD WeBSEFF credit lines	€152 million
Grant support for incentive payments from the EU Western Balkans Investment Framework	€ 25 million
Technical assistance support from the EU and the EBRD Special Shareholders Fund	€ 7 million

## RESULTS

- 320 projects signed in 2009-2015
- Total investment value of €178 million (for 72% of WeBSEFF credit lines used)
- 255,000 t of CO<sub>2</sub> of estimated annual emission reductions
- 700 MWh of primary energy savings and renewable energy generation annually.



## PROJECT EXAMPLE

- A Bosnian SME ,grown to become a leading regional manufacturer and retailer of electrical installation fixtures.
- WeBSEFF-supported investment of € 410,000 introduced two plastic injection machines, ultrasonic welding machines, heaters and dryers for the injection machines.
- Although production capacity has increased by 60%, energy consumption has decreased by 80%. This enables a payback period of 4.8 years for the investment.

# Supporting energy efficiency financing markets in Turkey

## PROGRAMME

The Turkey Sustainable Energy Financing Facility aims to accelerate the development of the local lending markets for energy efficiency and renewable energy projects.

In a first phase, TurSEFF combined EBRD credit lines with concessional loans from the Clean Technology Fund, aiming to overcome barriers related to perceived risks, banks' first-time transaction costs and availability of long-term finance.

## FINANCING FACILITY

EBRD credit lines (in 2010-15)	US\$ 530 million
CTF concessional financing (in 2010-13)	US\$ 47 million
EIB and JBIC parallel co-financing	US\$ 110 million
EU and CTF technical assistance support	US\$ 13 million

## RESULTS TO DATE

- US\$ 790 million is the total value of the projects supported (by Q4 2015, corresponding to 76% of TurSEFF funds)
- 700 projects - mostly in the commercial and industrial sector
- 1.8 million tonnes of CO<sub>2</sub>/year estimated avoided emissions, equivalent to the average annual emission footprint of 500,000 Istanbul residents
- 5 TWh-equivalent of primary energy consumption savings and green energy generation.



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## PROJECT EXAMPLE

- A Trabzon-based company specialised in machinery for the marble and mining industries, replaced a sand blasting machine with a new fully automated line.
- A TurSEFF loan of € 178,000 covered 95% of the investment costs.
- Specific energy consumption was lowered by 90%, with capacity increased by 50% - payback time of 3.8 years.



# Sustainable energy financing support for Moroccan food manufacturer

## CLIENT AND PROJECT

A family-owned Moroccan SME producing confectionary products for local and export markets.

EBRD is providing support for the construction and operation of a new production site on the outskirts of Casablanca. The total investment value is of €15 million.

## INVESTMENT PLAN

EBRD loan (in Moroccan Dinars)	€ 4.6 million
of which finance for integrating sustainable energy measures	€ 2.2 million
Grant support for adopting advanced technologies	€ 0.3 million
Other commercial and own financing	€ 10.4 million

## SUSTAINABLE ENERGY MEASURES

Assessment funded by the EBRD Special Shareholders Fund evaluated feasibility of on-site PV generation and recommended additional energy efficiency measures (average payback of 6 years):

- Roof-mounted PV system
- Ice-based energy storage system to balance daily energy use and supply between cooling and cold storage needs
- Energy management system and ISO 50001
- Energy recovery from furnace chimney
- High-grade thermal insulation of building.



## TECHNOLOGY TRANSFER SUPPORT

The project benefits from partial grant support from EBRD's FINTECC programme which aims to accelerate the uptake of advanced resources efficiency technologies in countries with low market penetration levels and underdeveloped supply chains.

## IMPACT OF PROJECT

- Fuel savings of some 600 tonnes of oil and annual emission reductions of 2,200 tonnes of CO<sub>2</sub> (equivalent to the annual footprint from driving 500 average household cars in the UK).
- At the time of signing, the planned roof-mounted solar installation of 1.4 MW was the largest of its kind in Morocco.

# THANK YOU

For more information:

<http://www.ebrd.com/what-we-do/sectors-and-topics/sri.html>



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