Current trends in Renewable Energy, Hydrogen and Storage – EBRD experience

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EBRD is a multilateral development bank that has supported the transition to market economies since 1991

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Who we are	Capital base **€30 billion**	Portfolio size **€52.5 billion**	Delivered **€13.1 billion** of investments in 2022	Owned by **71 countries** as well as the EU and EIB

Our transition qualities	Competitive	Well-governed	Inclusive	Resilient	Integrated	Green

Where we invest

Central Europe & Baltic States
1. Croatia
2. Czech Republic
3. Estonia
4. Hungary
5. Latvia
6. Lithuania
7. Poland
8. Slovak Republic
9. Slovenia

Eastern Europe & the Caucasus
18. Armenia
19. Azerbaijan
20. Belarus*
21. Georgia
22. Moldova
23. Ukraine

Southern & Eastern Mediterranean
33. Egypt
34. Jordan
35. Lebanon
36. Morocco
37. Tunisia
38. West Bank and Gaza

South-eastern Europe
10. Albania
11. Bosnia and Herzegovina
12. Bulgaria
13. Kosovo
14. Montenegro
15. North Macedonia
16. Romania
17. Serbia

Central Asia
24. Kazakhstan
25. Kyrgyz Republic
26. Mongolia
27. Tajikistan
28. Turkmenistan
29. Uzbekistan
30. Greece
31. Turkey
32. Russia*

*In April 2022, the EBRD's Board of Governors decided to suspend access to the Bank's resources by Russia and Belarus in response to the invasion of Ukraine

Green electricity needs to grow sharply to meet net zero targets

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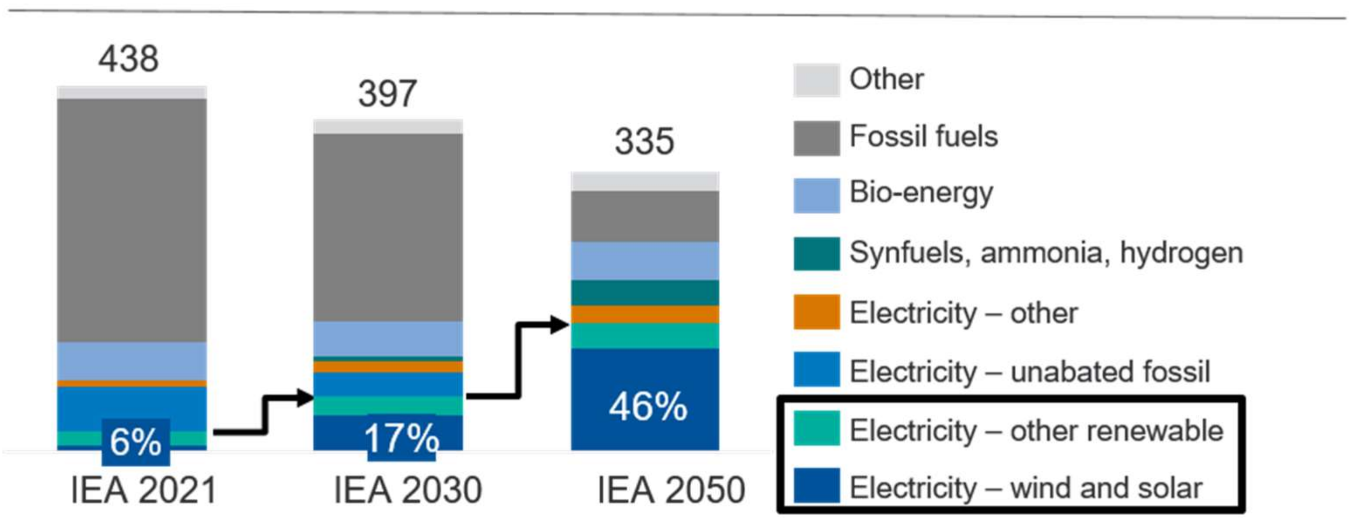
- Electrification and economic growth will require very significant power additions.
- Annual energy consumption to shift from 20% electricity in 2021 to 27% in 2030, and more than 50% by 2050.
- **Electricity from solar and wind** will need **to increase 5x between 2021 and 2030.**
- **By 2050, electricity generation from wind and solar to account for more than 70%** of total generation.

Global final energy consumption, EJ



Snapshot of EBRD energy activities (2019-22)

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152
No. of projects

€7.7 billion
Cumulative investments

75%
Private-sector projects

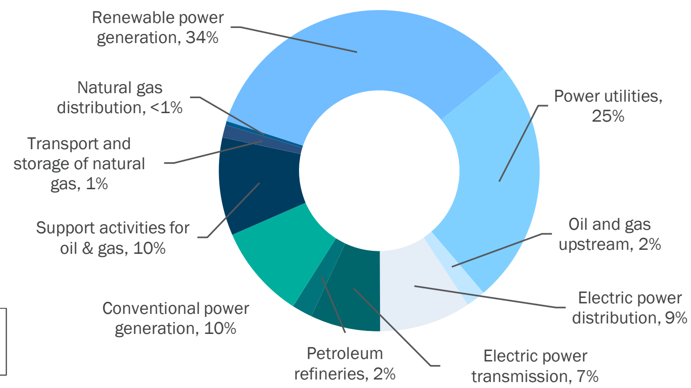
>16,700 (kt/y)
CO_2e reduction[1]

78%
GET-related projects[2]

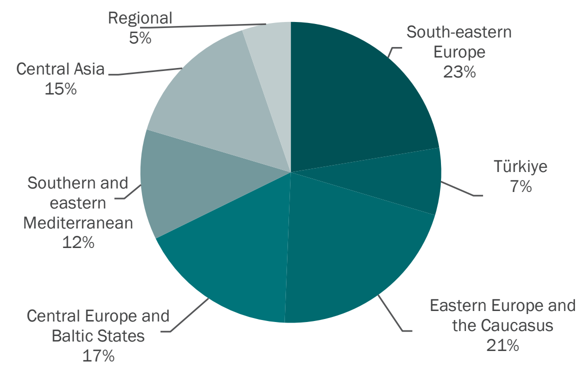
>12 GW
Power generation capacity

of which 8.9 GW of renewables

Investments by sub-sector



Investments by region



Operational highlights

- **One hundred and one operations.** The countries expected to deliver the greatest GHG reductions: **Kazakhstan, Uzbekistan, Poland and Greece.**
- Eighty-nine renewable energy projects delivered over 9 GW of capacity. **Wind was the largest technology financed by capacity**
- One hundred and fourteen operations contributed to **more widespread private ownership**, notably multiple private-sector renewable energy projects
- Complemented by **significant packages of policy engagement** and capacity building, including training for the workforce and capacity of regulators.

Drivers of the Climate Agenda… in wealthy countries

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Countries are rolling out their national mitigation and adaptation plans in alignment with Paris Agreement

- Countries and regions accounting for more than 98% of anthropogenic emissions have ratified or acceded to the Paris Agreement
- **Net-zero** is the new fashionable word!

Industrial policy actions– new Marshall plan?

- **Large financial packages** are now being channelled towards green sectors, **in advanced economies**: European Green Deal, REPowerEU, the Green Industrial Plan, the European Union’s Carbon Border Adjustment Mechanism, the US Inflation Reduction Act, etc**.**
- Rise of **localisation policies**, the importance of a **“just” transition**

ESG agenda is driving investors

- **Mandatory ESG reporting** is becoming a requirement in EU countries and others
- A greater focus on climate risks and disclosure e.g. mandatory reporting under the Corporate Sustainability Reporting Directive (CSRD) in the EU and the Taskforce on Climate-Related Financial Disclosures (TCFD)

Other trends observed in EBRD emerging markets

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- War on Ukraine brought sharp **concerns around energy security**

- Increase of **gas and fossil fuel prices + COVID** effects had an enormous impact on energy companies – liquidity injections needed, limited additional borrowing capacity

- **Affordability** is part of the social contract– freeze of energy tariffs to very low levels

- **Just Transition** is a key consideration – can slow down the green economy transition

- **Grid expansion**– significant effort needed

- **Renewable energy tenders** are often the only route for growth outside Europe – will likely remain so in the absence of competitive markets

- **Record low awarding tender prices** in many jurisdictions– are they sustainable?

- **Local content** provisions on the rise – not always successful

Other trends observed in EBRD emerging markets (2/2)

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- **New investor types**, e.g. pension funds, with Impact requirements
- **Hydrogen** – more words than action
- Some renewable tenders require **storage solutions**
- **Severe disruptions** to the supply of key components – projects delay and cost recalculation
- Access to **critical raw materials** and the new “minerals” diplomacy
- **New financing tools** for green investments – green bonds, sustainability linked bonds, transition bonds…
- Availability of **climate funds** depends on the geographical region
- Emerging economies tend to focus on **climate adaptation**

EBRD’s Just Transition Initiative

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The EBRD’s Just Transition Initiative aims to ensure **the benefits of a green economy transition are shared**, while **protecting vulnerable countries, regions and people from falling behind.**

The initiative focuses on 3 key themes:

- Green economy transition (GET)
- Human capital development (incl. worker reskilling)
- Regional economic diversification: businesses & infrastructure

Our support

Policymakers

- Integrating just transition (JT) considerations into key policy documents (NDCs, Long term strategies, NECPs)
- Preparation of regional JT diagnostics and action plans with active stakeholder engagement to facilitate transition
- Support for creating enabling environment for economic & human capital development
- Creation and dissemination of knowledge products

Clients

- Financing for JT projects across the three key themes
- Technical cooperation, including:
  - Reconversion of assets to low carbon use, environmental rehabilitation and remediation
  - Corporate climate governance
  - Re/up-skilling of workers
- Mobilisation of concessional finance and grants to support projects

Landmark transactions, policy engagement and capacity-building initiatives (1/2)

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Landmark renewable energy investments

- In Uzbekistan, the EBRD financed wind capacity of 1.5 GW in 2022, including **its largest renewable energy project to date**, the 1 GW Bash and Dzhankeldy Windfarm.
- The EBRD's US$ 80 million equity bridge loan to Egypt Green supported the development of a 100 MW electrolyser facility as the first component of an integrated hydrogen production facility powered by renewables. The project is **Africa's first large-scale green hydrogen production facility** and is due to deliver up to 15,000 tonnes of green hydrogen annually. The EBRD and the Government of Egypt launched the **Nexus on Water, Food and Energy (NWFE) initiative's energy pillar**, which includes building 10 GW of renewables, decommissioning 5GW of inefficient thermal capacity and strengthening the grid.
- The EBRD financed the development of the Szymankowo Windfarm in northern Poland, the **first fully merchant wind energy project financing** in the Bank's regions.
- The EBRD provided financing for two windfarms in Croatia with total capacity of 111 MW. The project was the **first corporate PPA/merchant project in Croatia** and **the first renewables project financing to feature a bank guarantee for the benefit of the merchant electricity offtaker** in the EBRD's regions.

Policy engagements to foster renewables and private investment

- The EBRD's ambitious **renewable energy auctions** programme spans 14 countries and has led to more than €2.5bn in investments and 2.5 GW of clean energy.
- The EBRD supported the Ministry of Environment and Energy of Greece in developing Greece's **offshore wind framework**, comprising a high-level plan and new law on the development of offshore wind power, targeting 2GW of offshore wind by 2030.
- **Low-carbon pathways:** The EBRD and the Government of Uzbekistan developed a long-term decarbonisation strategy to support the achievement of a carbon-neutral power sector by 2050. The EBRD is also working with the Government of Kazakhstan on a low-carbon pathway and national long-term strategy to achieve carbon neutrality in the country's power sector by 2060.

Promoting the switch to cleaner generation sources - largest CO_2 reduction projects

- Under the EBRD Green Cities programme in Almaty, Kazakhstan, the Bank supported the **modernisation and coal-to-gas switch of an existing combined heat and power plant**, which will reduce CO_2 emissions by nearly 3 million tonnes overall and, crucially, improve the city's air quality.
- The EBRD provided a loan of €80 million, alongside EU and European Investment Bank financing, for **a floating storage and regasification unit** in Cyprus that will replace expensive and polluting heavy fuel oil with cleaner natural gas, reducing the country's CO_2 emissions by 10% in total.

Landmark transactions, policy engagement and capacity-building initiatives (2/2)

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Supporting corporatisation and the privatisation of SOEs

- The EBRD invested €75 million in a series of sustainability-linked bond (SLB) issues by Greece's largest electricity generator and supplier, PPC – **the first SLB in the Bank's regions.** The issue included the ambitious sustainable performance target of reducing CO_2 emissions by 57% by the end of 2023. Subsequently, the EBRD invested €75 million in PPC's share-capital increase, aimed at reducing the state's holding in the company. The EBRD became the **largest minority shareholder in Lithuania's Ignitis Group**, a leading utility and renewable energy company, with an investment of €67.5 million, corresponding to 15% of the €450 million initial public offering (IPO). The IPO underscored the successful raising of capital by SOEs via the stock exchange and was, at the time, the largest IPO in the Baltic States.

Crisis response

- The EBRD provided a financing package of €370 million to **Ukraine's electricity transmission company, Ukrenergo,** to enable it to make emergency repairs to civilian power infrastructure damaged by heavy bombing during Russia's war on Ukraine and to keep the country's energy system operational and stable. The package comprises an EBRD sovereign guaranteed loan of €300 million and a grant of up to €70.6 million provided by the Netherlands. The EBRD previously repurposed a €147.2 million infrastructure loan to Ukrenergo as emergency liquidity funding.
- The EBRD extended a revolving three-year €300 million loan to Moldova to **boost its energy security** by contracting emergency gas supplies in case of disruption to the supply currently provided by Russia through Ukraine under an existing five-year contract and the creation of a strategic gas reserve to avoid seasonal gas spikes.

Promoting the digitalisation and modernisation of grids

- The EBRD provided a US$ 110 million loan in Turkish lira to Enerjisa Enerji in 2021 to **upgrade its network and reduce CO_2 emissions by more than 30,000 tonnes annually.** This upgrade introduces smart metering and smart grid systems and digitalisation of the network, to improve the reliability of the power supply and integrate renewables. Enerjisa supplies electricity to nearly a quarter of Türkiye's population.
- The EBRD extended a €40 million equivalent loan in Romanian leu (RON) to Distributie Energie Electrica Romania SA, the electricity distribution subsidiary of Romania's Electrica Group, to significantly improve the network's reliability, reduce grid losses, introduce smart meters and other digital transformation measures, and to integrate renewables, **saving about 67,100 tonnes of CO_2 equivalent a year.**