



Draft Energy Sector Strategy

2024-2028



European Bank
for Reconstruction and Development

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Ramping up supply of clean electricity to efficiently electrify economies: scaling-up renewables from megawatts to gigawatts, enhancing grids, while promoting a just transition from fossil fuels

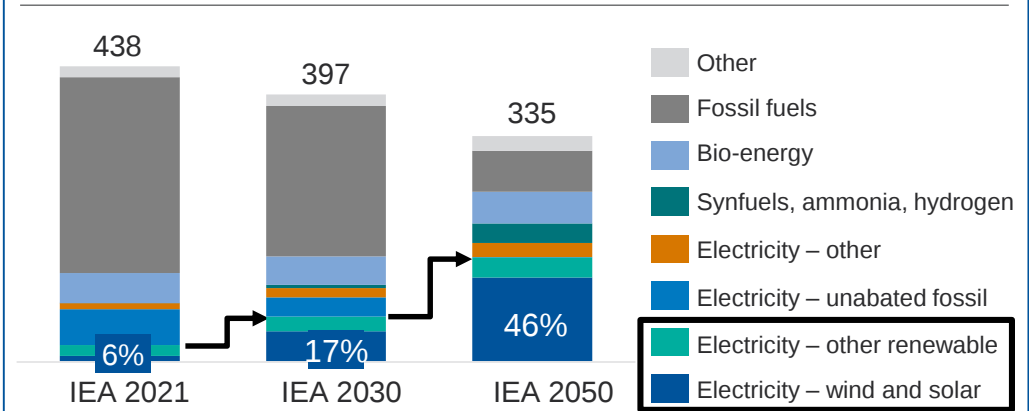
- **The central theme of this Energy Sector Strategy is the acceleration of the vital energy transition in the European Bank for Reconstruction and Development's (EBRD) countries of operations, while ensuring that the transition drives economic growth and social development.**
- This new Energy Sector Strategy is consistent with the EBRD's commitment to aligning its activities with the goals of the Paris Agreement and the Bank's Strategic and Capital Framework (SCF) (which prioritises supporting the transition to a green, low-carbon economy, promoting equality of opportunity and accelerating the digital transition) and to achieving an annual green finance ratio of at least 50% by 2025.
- Three key factors shape the strategic directions of the Energy Sector Strategy: the **climate emergency, energy security and innovation**. Both the climate emergency and energy security require an **accelerated green energy transition**: emissions must peak this decade and fall to net zero by mid-century. To achieve this, the world needs to electrify its economies and accelerate the provision of clean electricity. Innovation is key to **unlocking decarbonisation solutions**.
- The accelerated green energy transition presents **major challenges** for many EBRD economies, particularly those with high energy and carbon intensity and those which are heavily dependent on fossil fuels. Many EBRD countries of operations have limited access to long-term, low-cost capital and lack an attractive investment climate with a robust regulatory framework. Investments in modernised networks and interconnections are insufficient, hindering the integration of renewables. In addition, many countries in the EBRD region lack competitive energy markets and have gaps in their institutional capacity to deliver the green energy transition.
- These factors and challenges in the EBRD region have led to two strategic directions for the Energy Sector Strategy:
 - **accelerating the decarbonisation of energy**
 - **delivering resilient, efficient and inclusive energy systems.**
- These strategic directions entail a series of actions:
 - **Scaling-up renewables** – turning megawatts of renewable energy installed into gigawatts to accelerate electrification and decarbonisation, while building greater energy security and diversity.
 - **Upgrading power networks, storage solutions and regional interconnections** – to ensure resilient and secure energy systems that successfully integrate intermittent renewables.
 - **Promoting zero-carbon fuels** – investing in innovative technologies and harnessing renewables to decarbonise other sectors especially those that are hard to abate.
 - **Phasing out unabated fossil fuels** – the Bank will invest increasingly rarely in fossil fuels, being guided throughout by a holistic view of energy systems and the strong ambition to accelerate the low carbon transition of the sector.
 - **Promoting well-functioning markets and resilient assets** – to ensure efficient, secure energy systems adapted to a changing world.
 - **Enhancing energy efficiency and productivity** – allowing for more efficient and cost-effective decarbonisation and more efficient use of energy, resources and materials.
 - **Delivering an inclusive energy transition** – to ensure that the transition leaves no one behind.
- These actions will be delivered through **financing instruments, policy dialogue**, the mobilisation of **private-sector capital**, increased **coordination and complementarity among development partners**, and, where needed, **blended financing**.
- The energy sector lies at the heart of the green transition; it is where the greatest challenges lie but also offers extraordinary opportunities to move to a world of abundant, reliable, low-cost and sustainable energy. This Energy Sector Strategy creates the platform for the EBRD to support the Bank's countries of operations in meeting those challenges and exploiting those opportunities in the five years from 2024 to 2028.

Electrifying economies and decarbonising energy: Worldwide and EBRD region

Electricity demand will increase sharply due to electrification and economic growth, and this increase will be met by scaling up zero-carbon electricity

- 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 to increase fivefold between 2021 and 2030 (generation from unabated fossil fuels to decrease by more than 40% during this period).
- By 2050, electricity generation from wind and solar to account for more than 70% of total power generation.

Global final energy consumption, EJ

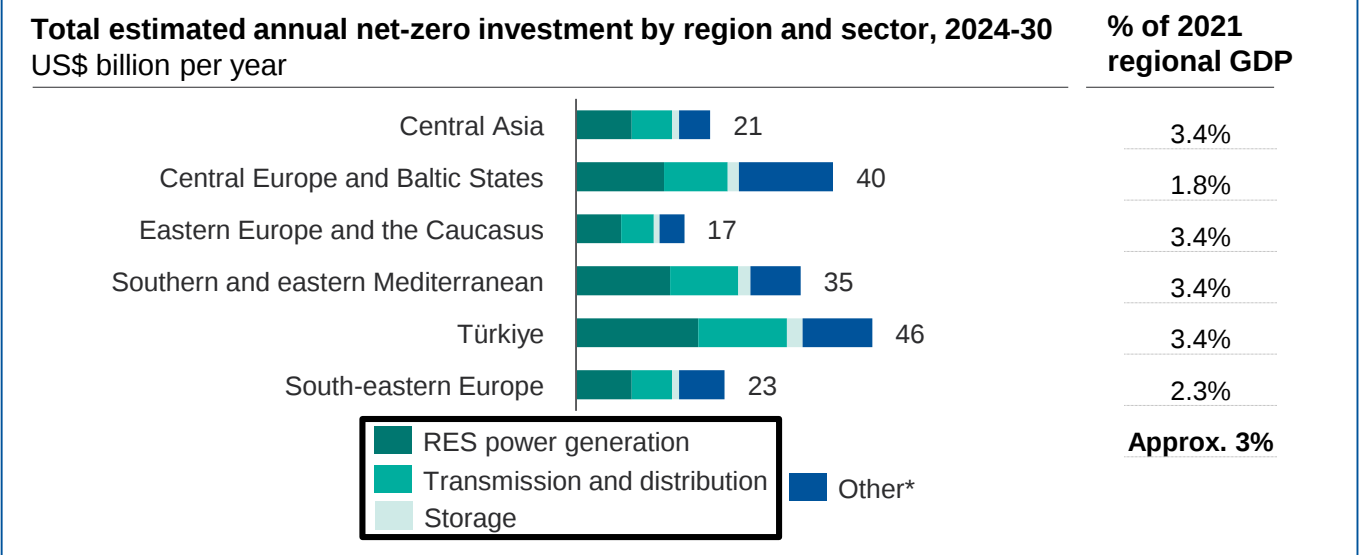


Note: 2030 and 2050 illustrate International Energy Agency's (IEA) [Net Zero Emissions by 2050 \(NZE\)](#) scenario, "a normative IEA scenario that shows a pathway for the global energy sector to achieve net zero CO2 emissions by 2050, with advanced economies reaching net zero emissions in advance of others". Please note that estimates of energy supply and associated electricity supply vary from source to source. For example, the ETC estimates 451 EJ energy supply in 2050, as opposed to the IEA's estimate of 335 EJ, and 306 EJ electricity supply in 2050, as opposed to the IEA's estimate of 176 EJ.

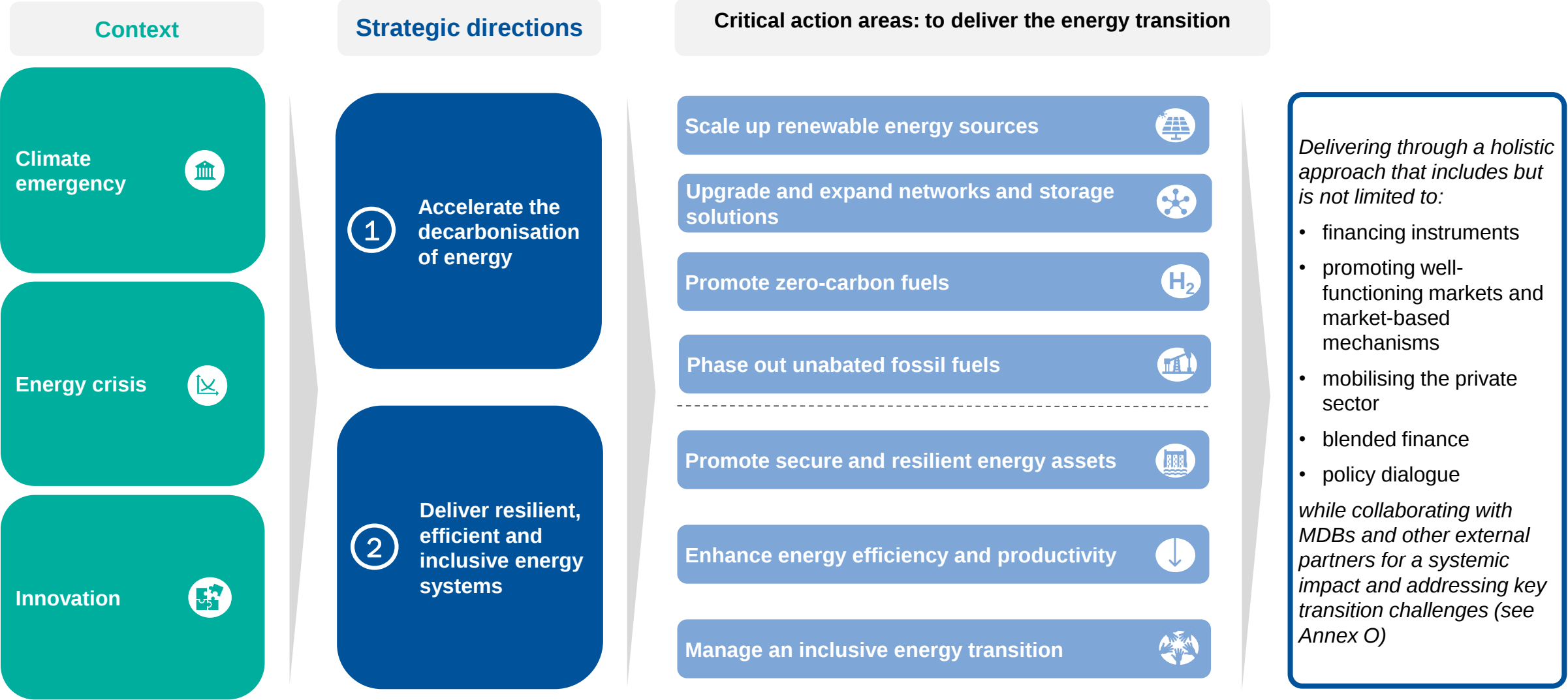


Required annual net zero power-sector investment is significantly higher than current levels in EBRD economies

- Between 2019 and 2022, the EBRD committed more than €2.7 billion of financing to nearly 90 renewable projects. This added around 9 GW of renewable energy capacity, more than double the capacity installed in the previous Energy Sector Strategy period (2014-18).
- Significant annual investment of around US\$ 182 billion, is required in the EBRD regions to enable a sustainable, secure and affordable net-zero economy by 2030.
- Around 75% of these investments will be in the power sector, corresponding to approximately US\$ 130 billion per year between 2024 and 2030. Total renewable energy investment needs will increase fivefold from the annual average in 2018 to 2022 to remain in line with a net-zero target.



*Other includes hydrogen, buildings, transport, industry and removals.



Energy Sector Strategy: Scope – interface and complementarity

The Energy Sector Strategy covers the Bank's activities from 2024 to 2028 in:

- (i) electricity generation, transmission, distribution, storage and supply
- (ii) hydrocarbon extraction, processing, transportation, distribution, storage and supply (hydrocarbons for this purpose include oil, gas and thermal coal)
- (iii) production, transportation, distribution, storage and supply of hydrogen and low-carbon fuels.

The strategy also covers utility-scale heat generation in district heating. The broader approach to district energy is covered in the Bank's Municipal and Environmental Infrastructure strategy.

The strategy covers all of the economies in which the Bank operates, taking into account their specific transition challenges.

The Energy Sector Strategy is shaped by the Bank's commitments and interfaces with other EBRD strategies, approaches and policies, including:

- **The EBRD's commitment to aligning all of its activities with the Paris Agreement from 2023**
- **The EBRD's Strategic and Capital Framework**, with three cross-cutting strategic themes: transitioning to a green, low-carbon economy; promoting equality of opportunity; and accelerating the digital transition

Country strategies

Sector strategies interface with country strategies by outlining the ways in which the Bank will achieve transition impact, reflecting sectoral developments and transition challenges across the economies in which the Bank operates. Country strategies tailor sectoral strategic direction to individual country contexts.

Thematic strategies, approaches and frameworks, such as the Green Economy Transition (GET) approach, the Strategy for the Promotion of Gender Equality, the Equality of Opportunity Strategy, the Digital Approach and the EBRD Green Cities

Other sector strategies

The Bank's sectoral strategies, including transport, the extractive mining industries, municipal and environmental infrastructure, agribusiness, property and tourism, and financial institutions. Cross-sectoral links range from the EBRD's support for energy-efficiency improvements to the promotion of lower-carbon technologies.

Policies, including the EBRD's Environmental and Social Policy, Procurement Policies and Rules and Access to Information Policy.

A photograph of a wind farm situated on a mountain ridge. Several white wind turbines are visible, with the largest one in the foreground. The background shows rolling green hills and a sky with scattered clouds. A semi-transparent white box is overlaid on the lower left portion of the image, containing the section title.

Section 1: Context

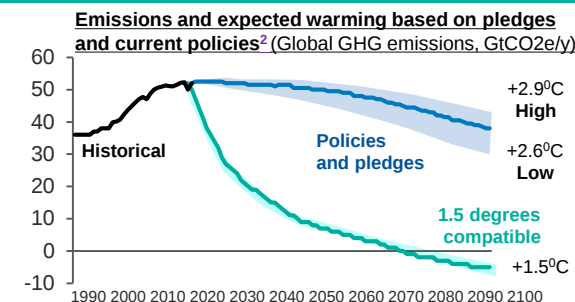
Imperative to provide a clean, secure and affordable energy system

Climate
emergency



Climate action and ESG concerns are driving change in the sector with policies and plans that aim to mitigate adverse climate change effects and drive investments in the energy transition, but more is needed.

Emissions must reach net zero by mid-century to limit warming to 1.5°C. Keeping this goal attainable requires a **major transformation**. In addition to urgently reducing emissions, the energy system needs to **adapt** and **become more resilient** to the effects of climate change.



Energy crisis



Several forces are shaping the energy sector. The war on Ukraine, the Covid-19 pandemic and the energy crisis have created volatility in prices and caused disruption to the supply of renewable energy components and materials. These forces have brought **energy security and affordability** into sharp focus, which together with climate emergency, reinforce the **need to accelerate the energy transition**.

Greater momentum is paramount in order to address these challenges and drive the energy transition. This will entail a **coordinated ramp-up of investments** in renewables, energy efficiency, storage, grid upgrades and expansion, hydrogen production and infrastructure, enabled by a **significant policy response**.

Innovation

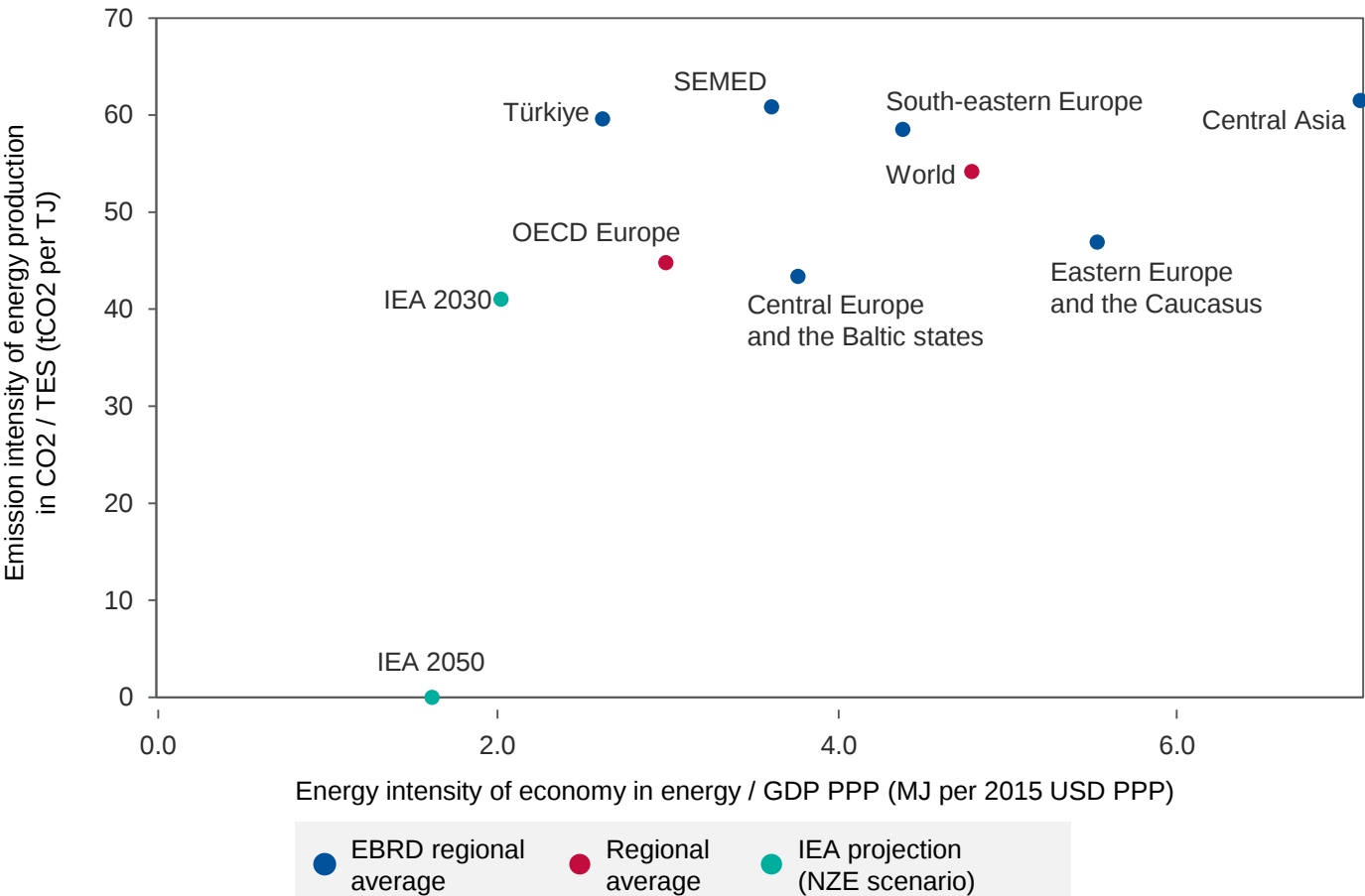


Access to cheaper zero-carbon electricity has a positive effect on **unlocking other net-zero solutions**. In combination with **innovation**, low-cost renewable electricity makes it possible to **rapidly enable zero-carbon technologies and unlock decarbonisation** solutions in different sectors and areas, especially the ones with high carbon intensity (for example, steel, aviation and transport).

→ See Annex C for more information.

Significant need in the EBRD region to reduce carbon intensity and increase energy efficiency

Energy and carbon intensity



- To meet climate goals, emissions must halve by 2030 in many of the EBRD regions.
- Several EBRD regions – Central Asia, south-eastern Europe, southern and eastern Mediterranean (SEMED) and Türkiye – have carbon intensities exceeding the world and Organisation for Economic Co-operation and Development (OECD) Europe averages. See Annex N for country-specific data.

Current context: Transition challenges in the EBRD region¹



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Green	Most of the economies in which the EBRD operates continue to rely heavily on fossil fuels for their energy production and require a concerted effort to attract investments to scale up renewable energy and transition away from fossil fuels . Access to long-term, low-cost capital remains challenging and mobilising private and public capital is a priority. Investment is also needed in segments that support renewable energy growth, and leveraging concessional finance can help deliver progress in the most innovative areas, such as advanced storage, grid expansion and upgrades, and green hydrogen . The lack of enabling frameworks inhibits the investments needed to deliver the energy transition.
Well governed	In most of the economies where the Bank operates, state-owned enterprises (SOEs) play a central role in the energy sector, but often suffer from poor corporate and climate governance, resulting in negative financial positions, poor climate reporting and chronic sectoral underinvestment. On a national level, a reduction in state ownership , the corporatisation of SOEs and the development of credible regulatory oversight of market functioning and robust legal and regulatory frameworks that promote private-sector investment remain key transition challenges. Lengthy permitting and administrative barriers delay energy investments in many EBRD economies.
Competitive	The pace of energy market development and market liberalisation varies from economy to economy across the Bank's regions. Developing well-functioning, liquid wholesale and retail energy markets remains a challenge, as does instituting sector reforms that will facilitate the use of innovative technologies and business models (such as merchant or corporate power purchase agreement (PPA)-based projects). Tariff reforms that promote cost-reflective pricing , eliminating subsidies for fossil fuels and other market-distortive policies , would also enable more private-sector participation. Despite falling technology costs, a lack of liquid energy markets and transparent merchant price signals impact further growth in renewable energy.
Inclusive	Some EBRD economies have a significant number of workers employed in the coal, oil and gas sectors and need to develop just transition plans and initiatives to encourage the reskilling, upskilling and redeployment of affected workers. Moreover, the pace of green energy transition requires increasingly new skills and human capital , which have been identified as a key bottleneck in most EBRD economies. In parallel, vulnerable customers face affordability issues. These have been exacerbated by recent events such as the war on Ukraine and the rise in energy prices.
Resilient	Resilience to energy shocks and energy security are priorities given the ongoing energy crisis. Key transition challenges include increasing energy supply diversification , as well as ensuring the reliable and uninterrupted supply of vital energy services. Energy network reliability and flexibility remain a significant transition challenge and an important barrier to further renewable energy growth.
Integrated	A lack of regional cooperation and connectivity is an impediment to energy security, supply diversification and investment. In particular, this is an issue for the small and illiquid energy markets present in some of the economies where the EBRD operates. In other cases, while countries are large, connectivity between regions is very poor. This suggests a need for continued development of cross-border and regional integration that supports energy trading , as well as the alignment of rules and regulations, market coupling and trade .



Section 2: Strategic directions

Energy Sector Strategy: An ambitious and holistic approach

Aim

The Bank will promote secure, affordable and sustainable energy through a transition to market-oriented, zero-carbon, resilient and inclusive energy systems, vital to the green development of the economies in which it operates

Deliver impact through different types of financing instruments, promoting well-functioning markets and market-based mechanisms, policy dialogue and mobilising the private sector while collaborating with MDBs and other external partners on policy and investments for a systemic impact

Dual strategic direction: stronger focus on larger-scale and faster energy transition in the EBRD region

1 Accelerate the decarbonisation of energy

Scale up renewable energy sources



Upgrade and expand power networks and storage solutions to integrate renewable energy sources



Promote zero-carbon fuels



Phase out unabated fossil fuels



2 Deliver resilient, efficient and inclusive energy systems

Promote well-functioning markets and resilient energy systems



Enhance energy efficiency and productivity



Set standards, build capacity and support an inclusive transition



Address key transition challenges. Interface with Bank-wide approaches, initiatives and policies, other sector strategies and country-specific characteristics.



2.1 Accelerate the decarbonisation of energy (1/2)

1

Accelerate the decarbonisation of energy

Targeted transition qualities

Green

Well governed

Competitive

Inclusive

Resilient

Integrated

Scale up renewable energy sources – from megawatts to gigawatts

- Invest directly in utility-scale and distributed renewable energy generation (also coupled with storage), across all **well-established, emerging or less-established technologies** (for example, **offshore wind, floating solar, waste to energy**).
- Finance, through intermediary institutions, facilities that support renewable energy projects, such as **Green Economy Financing Facilities**, bonds, green bonds, GET-eligible transactions and equity funds.
- Use blended finance (combining loans with grants, concessional loans or guarantees (such as InvestEU)) to scale up renewables and support **innovative green technologies**.
- Pursue **holistic and well-sequenced policy engagements** to develop and **reform energy markets** and regulatory frameworks:
 - low-carbon pathways for the power/energy sector as a key operational/policy framework to drive the energy transition
 - regulatory frameworks and support schemes for established and emerging technologies, covering small-scale and distributed renewable generation sources
 - competitive price discovery processes and mechanisms
 - improving the functioning of markets to facilitate arrangements allowing for the **uptake of renewable energy** by end-users (for example, corporate power purchase agreements (PPAs), municipal PPAs, cross-border PPAs and self-consumption regulation).

Upgrade and expand power networks and storage solutions to integrate renewable energy sources

- Invest in modernising and expanding **electricity grids** to facilitate electrification, integrate renewables, grow decentralised energy sources, foster energy efficiency and improve loss reduction.
- Promote policy engagement and financing that enable investment in energy storage, flexible/dispatchable generation sources and demand response.
- Invest in the **digital transformation** and development of **digital skills** for the energy sector (smart grids, smart meters, the integration of electric vehicles (EVs), active participation in the energy markets of energy consumers/demand response).
- Invest in the expansion and upgrade of **network infrastructure**, including cross-border, to support the transportation and storage of electricity and energy vectors. (including batteries and **pumped-storage hydroelectricity**) and **regional energy systems integration**.
- Develop reforms, regulatory frameworks, market rules and regulations, and market platforms (energy exchanges) that promote well-functioning energy markets and support investment.
- Finance infrastructure for the increased **electrification of the economy** (for example, EV charging stations).

Promote zero-carbon fuels

- Assist countries and companies in developing **hydrogen strategies** and investments.
- Support the production, distribution, storage and supply of renewable fuels of biological origin (biogas/bio-ammonia and/or bio-methane) and non-biological origin (green hydrogen and green ammonia).
- Support investments in downstream operations (gasoline stations) that facilitate exclusively the introduction and scaling up of **non-fossil-fuel transport** (biofuels, e-fuels, EV chargers and/or green hydrogen filling technology).



2.1 Accelerate the decarbonisation of energy (2/2)

1

Accelerate the decarbonisation of energy

Targeted transition qualities

Green

Well governed

Competitive

Inclusive

Resilient

Integrated

Phase out unabated fossil fuels

- The EBRD will invest increasingly rarely in fossil fuels, being guided throughout by a **holistic view of energy systems**. Accordingly:
 - The Bank will not invest in thermal coal mining and coal-fired electricity generation.
 - The Bank will not invest in the upstream oil or gas sectors, where upstream means exploration, production, extraction or related services. Recognising the central importance of abating fugitive methane emissions as rapidly as possible, the Bank will continue to engage with its countries of operations to address this issue, including through the Global Gas Flaring Reduction Partnership and the Global Methane Pledge.
 - In exceptional cases, and subject to specific national circumstances, the Bank will consider targeted support to fossil-fuel investments in the mid and downstream oil and gas sectors. Such investments must not only be aligned with the goals of the Paris Agreement, but go beyond that requirement to demonstrate strong ambition to accelerate the low-carbon transition. These projects must demonstrate a **low risk of carbon lock-in**, use the Best Available Techniques, meet the **highest environmental and social standards**, and be subject to an assessment of physical and carbon transition risk.
 - See Annex D for detailed guidance on individual types of investment.
- Furthermore, the Bank will engage in a number of activities that will **accelerate the decarbonisation of energy**:
 - Extend assistance to develop country and corporate strategies for a **low-carbon transition**, including assistance to develop and implement just transition masterplans.
 - Engage with governments and energy utilities (including SOEs) to develop strategies that **foster a just transition** away from the coal sector and the oil and gas sectors, addressing workforce challenges and providing alternative economic activities to affected regions.
 - Support the decommissioning and environmental remediation of existing thermal coal, oil and gas assets and the switch to **less carbon-intensive electricity and heating sources**. The broader approach to strategic direction for heating sources, including renewable heating sources, such as heat pumps in buildings, and networks and district cooling, is covered in the Bank's Municipal and Environmental Infrastructure Strategy.
 - Promote financing instruments (bonds or loans) linked to **sustainability, environmental, social and governance (ESG) and decarbonisation** targets.
 - Explore opportunities for carbon capture, utilisation and storage (CCUS) where it is economically feasible and promotes decarbonisation goals.
 - Promote policies and support governments in developing pricing mechanisms for GHG emissions and subsidy reforms that accelerate the phase-out of unabated fossil fuels.
 - Improve **corporate climate governance**, including the reporting and disclosure of emissions and carbon-related risks for high-emitting companies with significant carbon assets and the development of plans for decarbonisation.



2.2 Deliver resilient, efficient and inclusive energy systems

②

Deliver resilient, efficient and inclusive energy systems

Targeted transition qualities

Green

Well governed

Competitive

Inclusive

Resilient

Integrated

Promote well-functioning markets and resilient energy systems

- Promote electricity market development and reforms through **capacity-building** and **technical assistance initiatives** for policymakers and regulators to improve the functioning of energy markets and the investment climate.
- Support greater **private-sector participation** through privatisation, facilitating models that increase private-sector participation (for example, public-private partnerships, concessions and service contracts) and strengthening regulatory frameworks to attract private-sector investment.
- Support energy market participants contributing to greater **liquidity and competitiveness** of the energy market (such as energy traders, energy aggregators or PPA platforms).
- Foster investment and policy engagement that enhance the **climate resilience** of energy systems and improve the management of climate, biodiversity and/or nature-related risks.

Enhance energy efficiency and productivity

- Facilitate improvements in **energy efficiency through investments**; support the modernisation, upscaling and repowering of existing facilities (modernising existing hydropower plants, repowering older renewable sites).
- Support energy-efficiency initiatives across all segments, including demand-side energy efficiency and financing to energy service companies and financial intermediaries that promote energy efficiency.

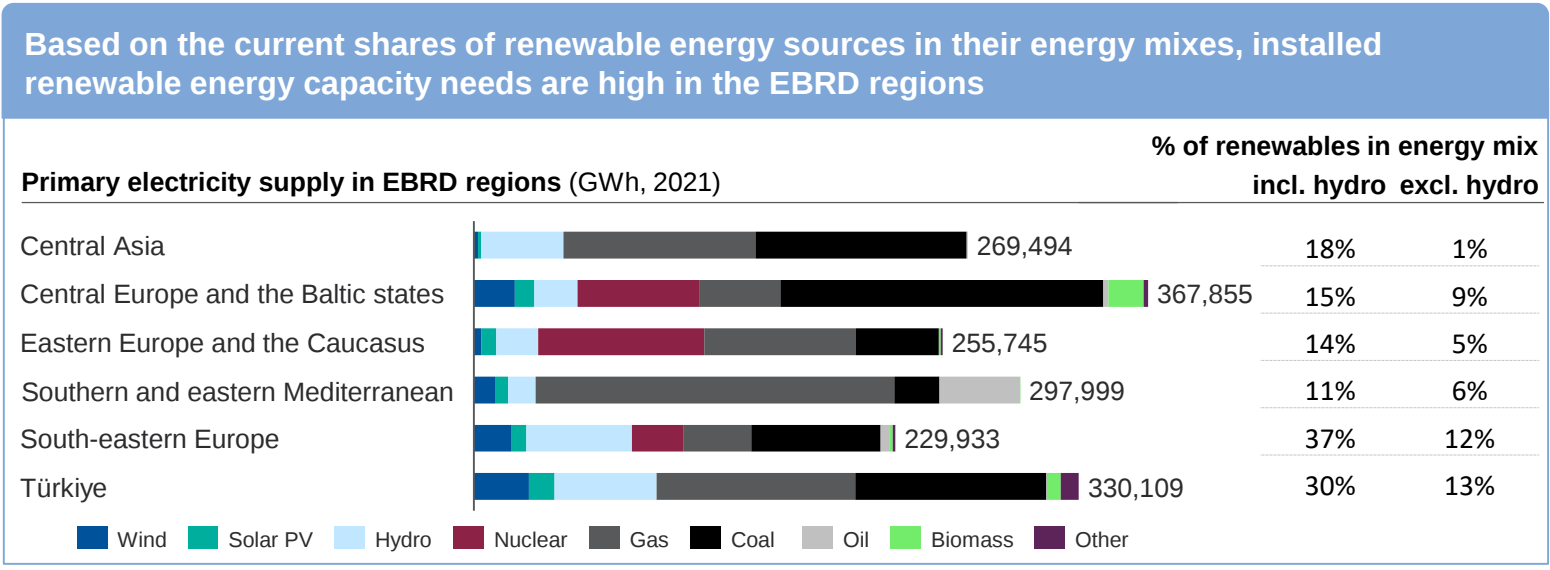
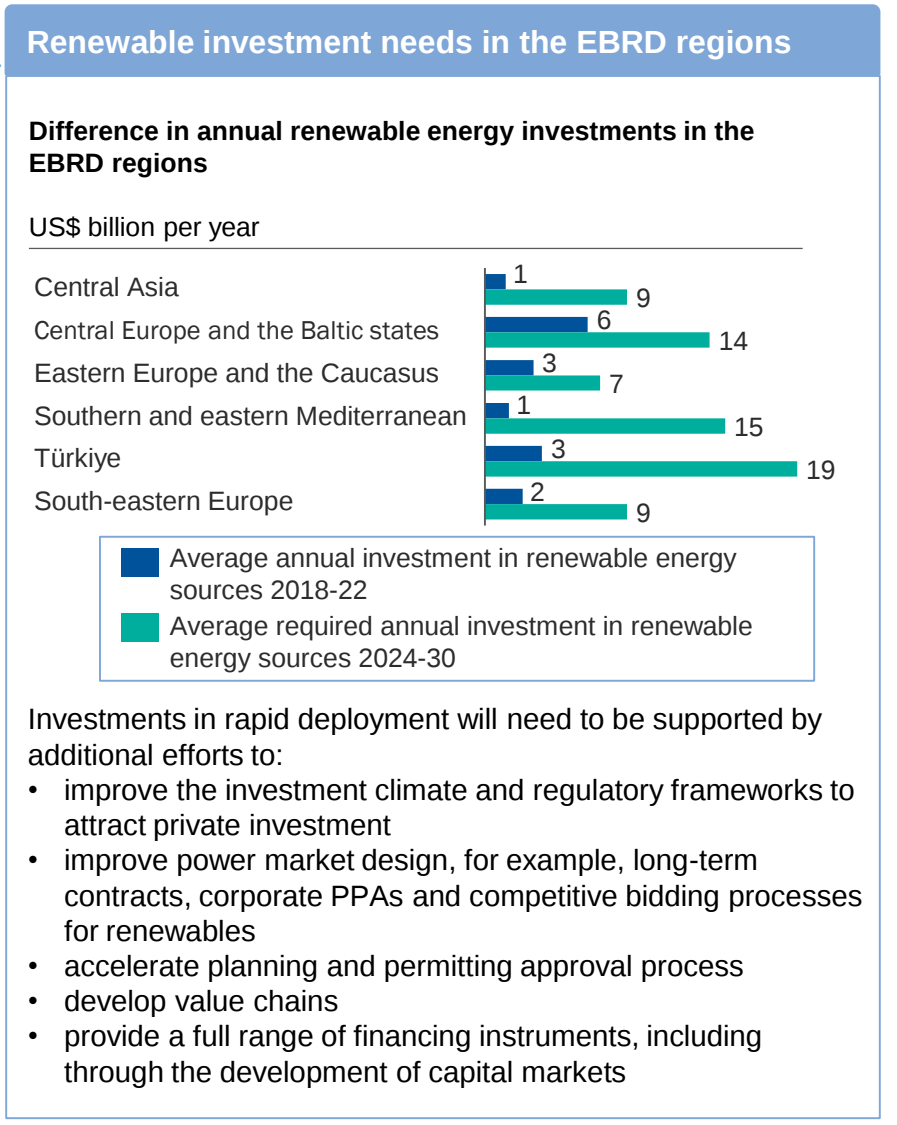
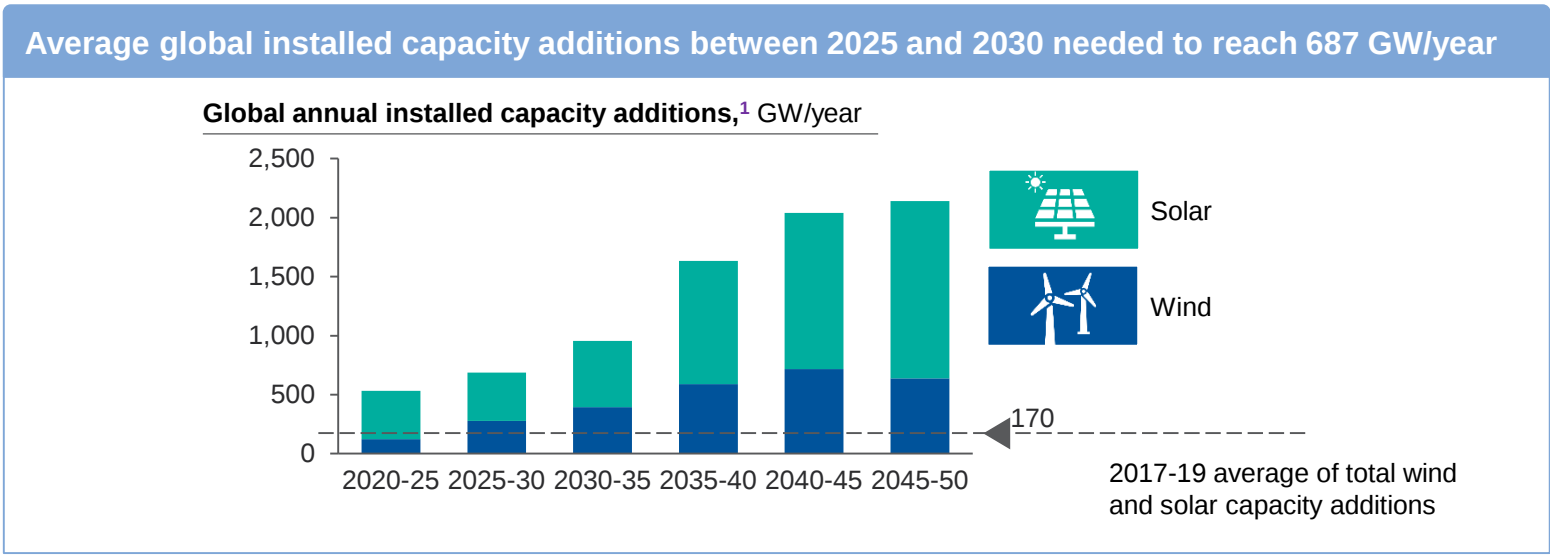
Set standards, build capacity and support an inclusive transition

- Support the adoption of practices, policies and standards that promote **inclusion and gender equality** in the energy sector.
- Help energy companies to improve ESG practices.
- Assist in the development of workforce management strategies that develop, retain and increase human capital.
- Reflecting the importance of SOEs and the successful experience of promoting transition through SOE reform, support the **commercialisation** and/or **restructuring of SOEs**, as well as initiatives to improve corporate governance and corporate climate governance standards, and adopt low-carbon transition strategies.
- Promote high standards and resilience in **clean-energy value chains** and ensure **level playing field**.
- The Bank will continue to consider funding for **safety improvements of operating plants**, as well as for radioactive waste management and the decommissioning of nuclear facilities. Recognising the role nuclear energy will play in the energy transition, we will continue to monitor developments in the nuclear sector and the needs in our countries of operations. Should any technical, cost and commercial breakthroughs emerge, we would consider revisiting our current approach.
- Support access to clean energy services for all customers.



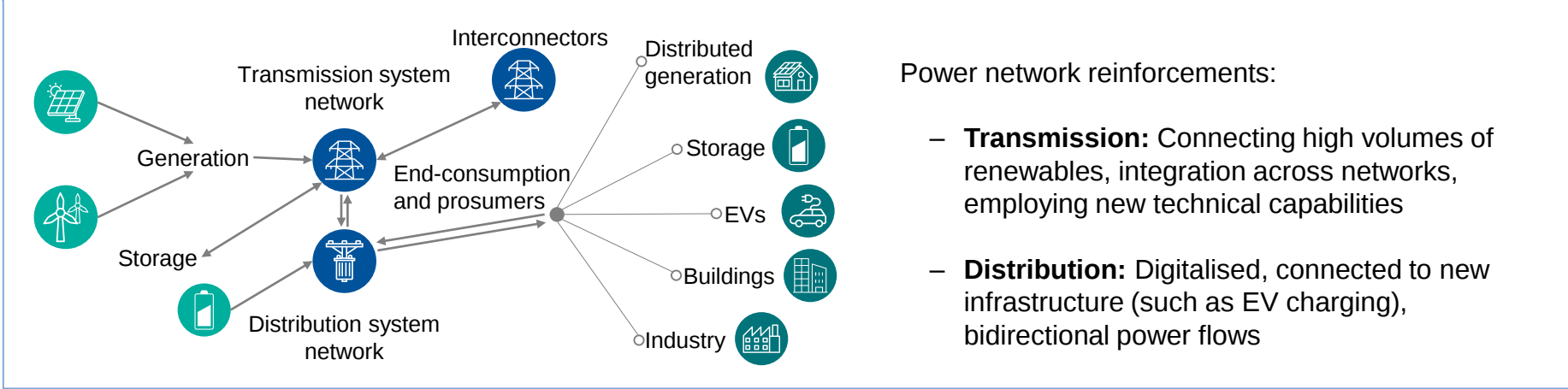
Section 3: Critical action areas

3.1 Scale up global annual renewable capacity 4-5x by 2030



3.2 Upgrade and expand networks and storage solutions to integrate renewable energy sources

Upgrade, expand and digitalise networks in order to integrate variable renewable energy sources



Networks and storage account for 32% of all net-zero investments globally

- Investments in networks (accompanied by modernised systems operating procedures, tools and policies) must be frontloaded to ensure grid capacity constraints do not inhibit the growth of renewables
 - Regulatory reforms and the commercialisation of utilities, especially SOEs, are required to enable network investment
 - Environmental and social effects, including the cumulative effects of renewable energy growth, need to be taken into account in the upgrading and expansion of networks
 - Market structures are needed to provide signals for storage investments and operating behavior. Greater digitalisation and improved digital skills (for example, to support demand-side management) are required
 - Different solutions will be needed to address daily, weekly and seasonal balancing challenges in integrating variable renewables (batteries, demand-side management and pumped hydro, where available)
- See Annex G for more on energy networks and Annex H for more on storage solutions.



The nature of the intermittency challenge and associated solutions will be specific to each country, depending on system characteristics (for example, the availability of flexible sources, such as hydropower, the flexibility of demand – and the link with heating needs – and the level of regional interconnectedness).

Increased capacity for interconnectors and more regional integration, including common markets and rules, will enable large-scale projects and renewable energy exports.

The development of well-functioning markets, particularly, short-term markets, and well-developed network regulatory frameworks will be critical to addressing the balancing challenge.

3.3 Promote zero-carbon fuels

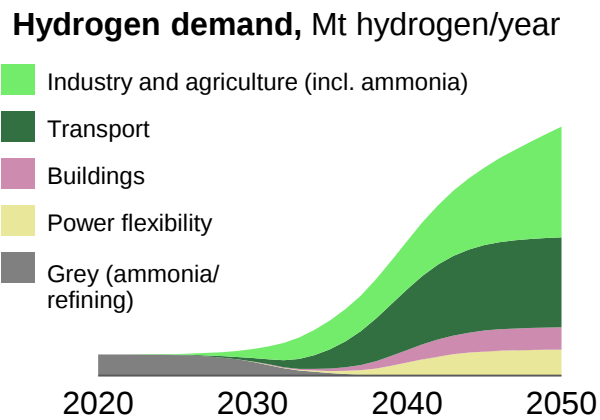
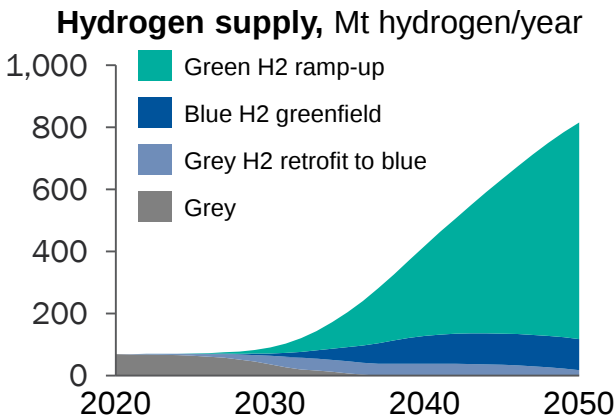


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Scale up the production and use of zero-carbon fuels in order to decarbonise the economy

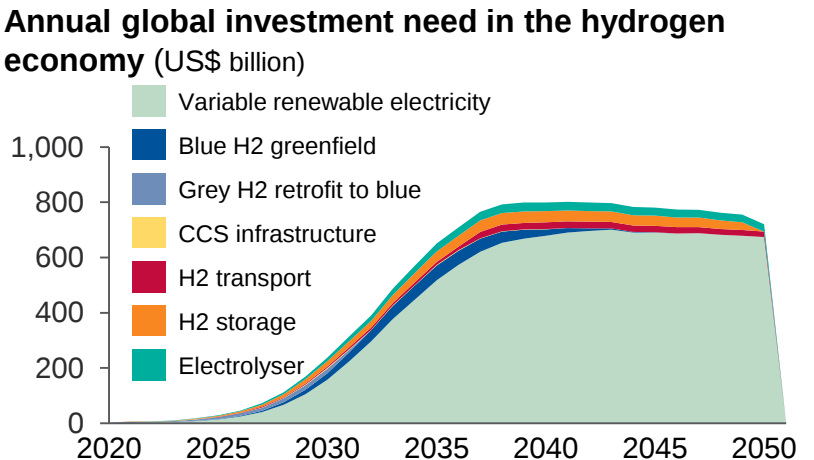
- Zero-carbon electricity will be the main source of energy in economies globally, requiring a scaling up of zero-carbon electricity production and the upgrade and expansion of grids.
- Some economic activities cannot be readily electrified and decarbonising them will require the use of different zero-carbon fuels and the development of technologies such as CCUS.
- Examples of low-carbon fuels include:
 - bioenergy, such as biomethane and biodiesel
 - synthetic fuels
 - ammonia
 - green hydrogen.
- Hydrogen is expected to play a particularly important role in multiple sectors, both as an energy vector and as a feedstock.

Hydrogen is an important source of energy for many sectors (such as industry, agriculture, transport and buildings); a 5-7x increase in green hydrogen production is needed to meet net-zero goals



Investment is needed to rapidly scale up and lower the price of green hydrogen production

- Cumulative global investment needs are around US\$ 15 trillion to 2030. Investments are dominated by renewable electricity production (about 85%).
- Early green hydrogen applications (pre-2030) are:
 - displacing current uses of grey hydrogen in ammonia production for fertiliser and hydrocracking in refineries
 - early steps in zero-carbon shipping fuels: ammonia and methanol.
- EBRD economies with high potential for producing renewable energy at low cost have the opportunity to produce and export low-cost green hydrogen or low-cost green hydrogen “products” (such as ammonia, methanol).
- Investment in green hydrogen production will be in line with relevant policies for the protection and management of water resources.

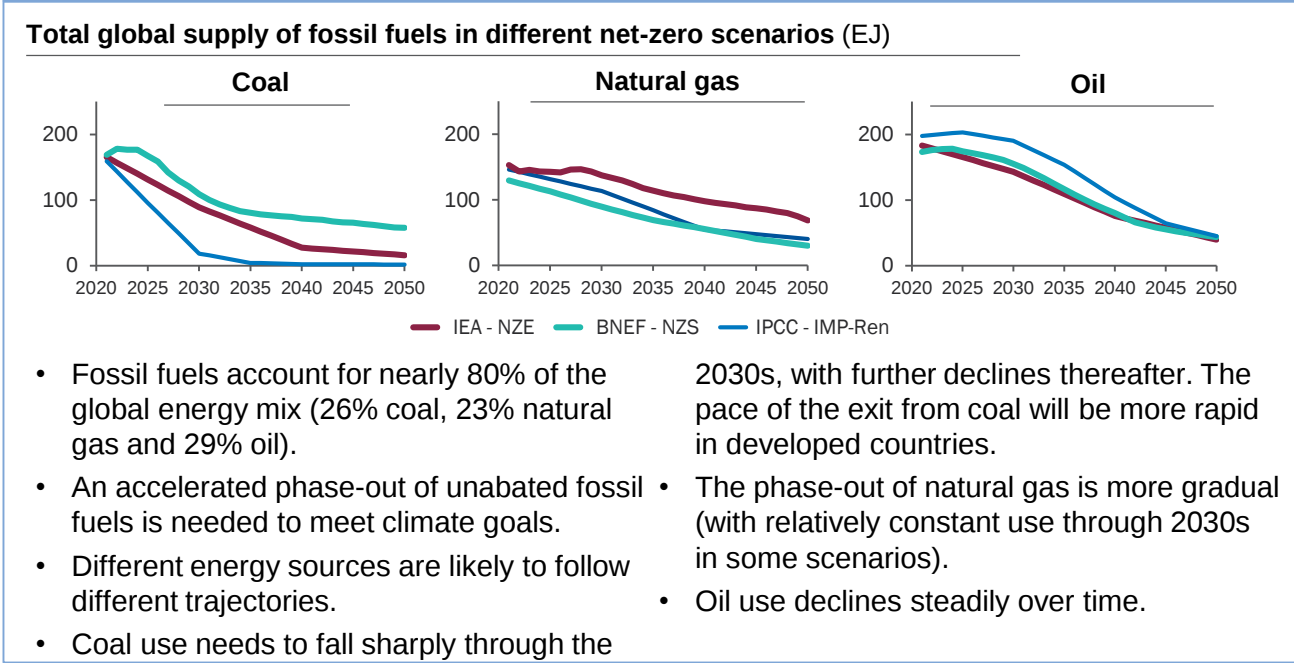


Source: [1] Hydrogen supply and demand are illustrative numbers, hydrogen production and demand are expected to reach 500-800 Mt by 2050, according to the ETC Hydrogen Report. This value is an estimate, with other sources giving smaller or higher estimates. Key insight is that hydrogen production and demand will increase significantly in the next few decades; The cost of hydrogen figures are also illustrative numbers, as real hydrogen production cost depends on the size of plant, carbon capture technology, etc. The countries highlighted are examples, based on insights from the Global Solar Atlas and Global Wind Atlas. ETC (2021), *Making the Hydrogen Economy Possible*.

3.4 Phase out unabated fossil fuels, ensure a rapid exit from coal and promote a just transition



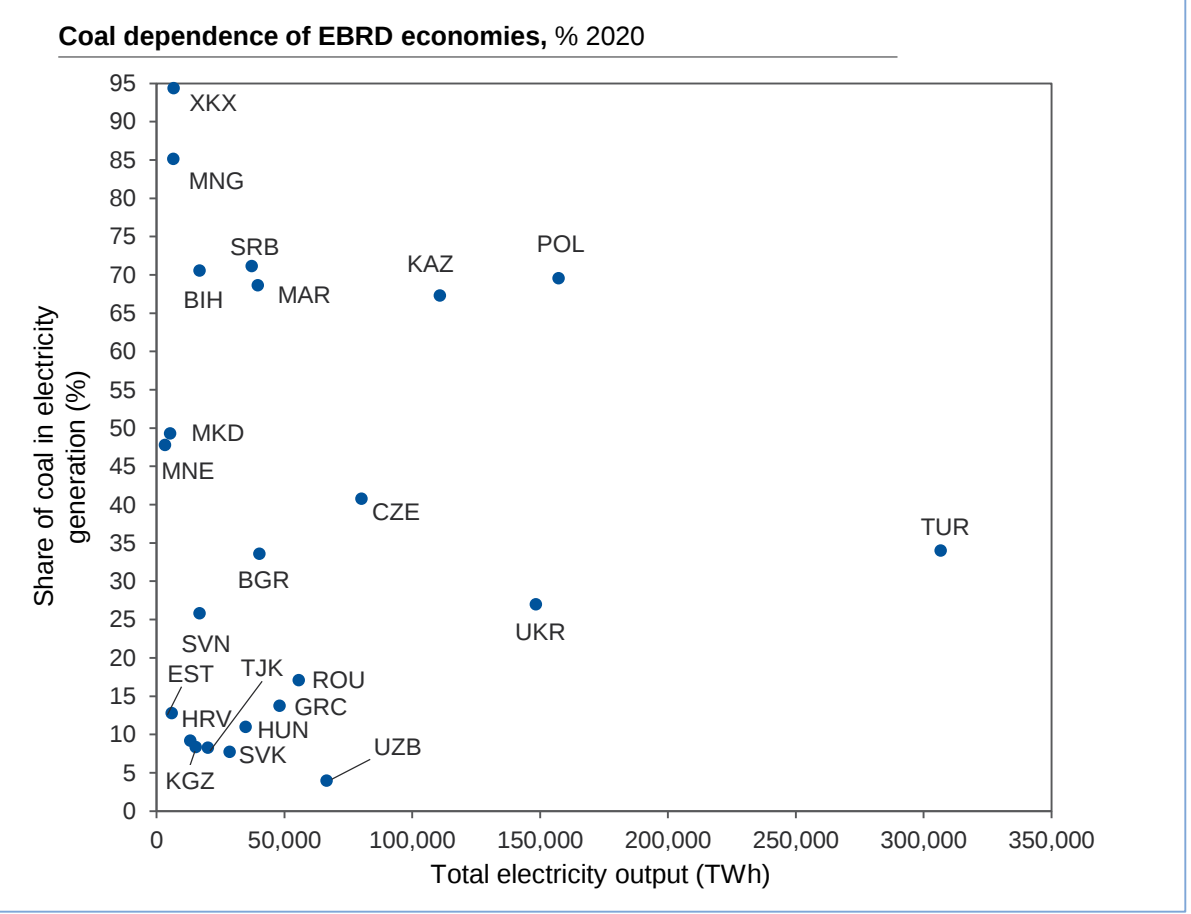
The energy sector must undergo a transformation and shift away from its overwhelming reliance on unabated fossil fuels



A changing role for fossil fuels – supporting the early peaking of emissions while ensuring energy security

- Potential areas for engagement with fossil fuels to accelerate the energy transition include:
- facilitating emissions peaking by switching away from more polluting sources
 - accelerating the decarbonisation of existing fossil-fuel infrastructure
 - providing flexibility and energy security in systems – for example, to address seasonal variations and/or prolonged shortfalls in increasingly growing wind and solar generation
 - providing infrastructure for zero-carbon solution to energy security and hard-to-abate sectors, for example zero-carbon fuels and carbon capture and storage (CCS).

Eight EBRD economies have significant (>20%) reliance on coal for electricity generation. This includes four of the six largest electricity producers (Türkiye, Poland, Ukraine and Kazakhstan).

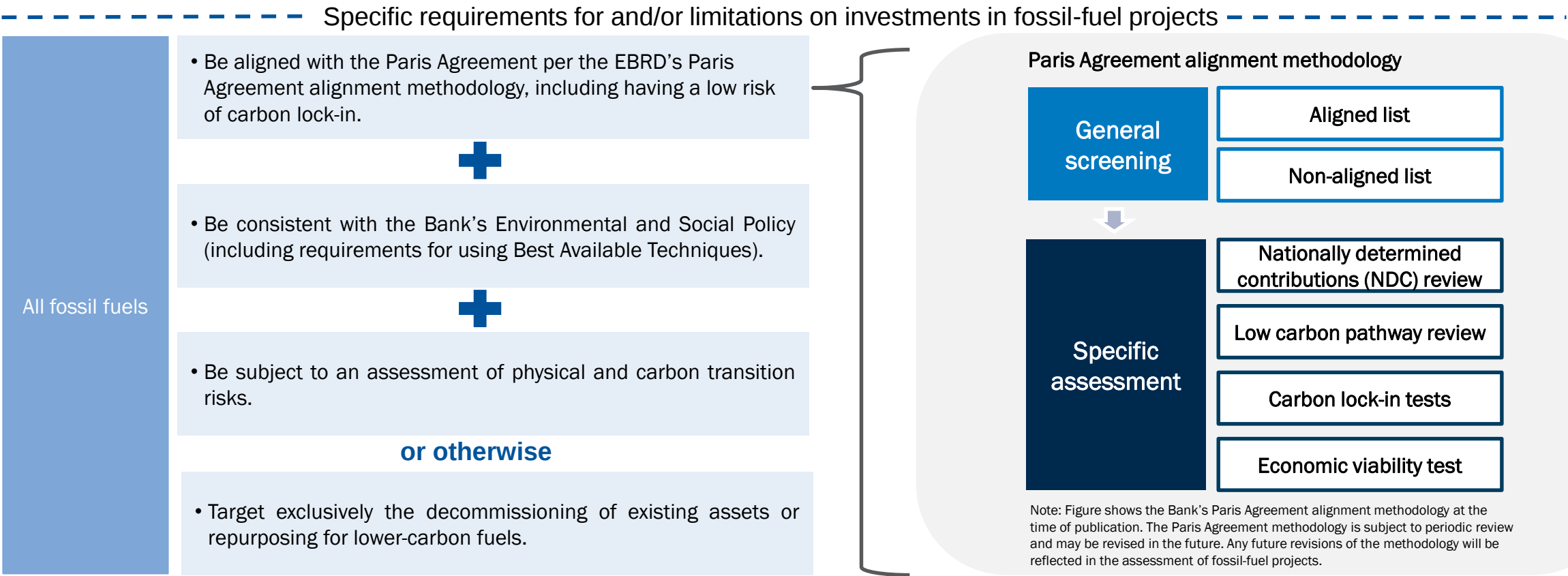


→ See Annex E for a discussion on actions for phasing out unabated fossil fuels.

→ See Annex F for a discussion on the outlook for generation in district heating.

The EBRD’s approach to fossil-fuel investments: selective and ambitious

The Bank will limit financing to fossil-fuel projects that meet a strong ambition to accelerate the low carbon transition in specific country contexts and are aligned with the goals of the Paris Agreement. The approach goes beyond a condition that the project is simply compatible with the goals of the Paris Agreement but also ensures that it actively contributes to them.



See Annex D for further details of the criteria that apply to fossil fuels investments (including additional criteria applying to different parts of the fossil-fuel value chain)

3.5 Energy assets to adapt to impacts of climate change

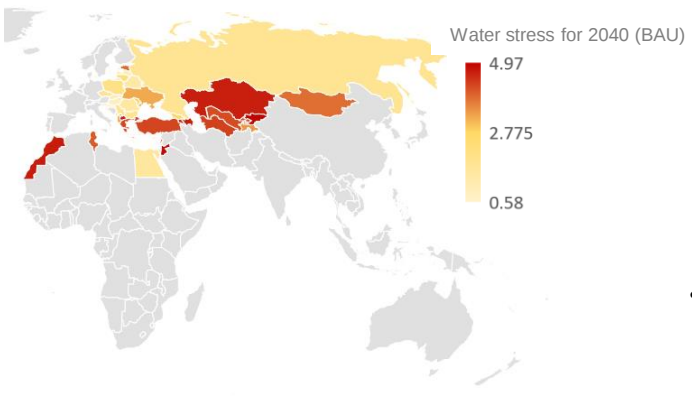
Climate change directly affects every segment of the electricity system, altering generation potential, transmission and distribution networks, and changing demand patterns

Impacts of climate change on the energy system			
Climate impact	Generation	Transmission and distribution	Demand
Rising global temperatures	- Cooling efficiency - Need for additional generation - Generation potential	Efficiency	Cooling and heating
Changing precipitation patterns	- Output and potential - Peak and variability - Technology application	Physical risks	- Cooling - Water supply
Sea-level rise	- Output - Physical risks - New asset development	- Physical risks - New asset development	Water supply
Extreme weather events	- Physical risks - Efficiency	- Physical risks - Efficiency	- Cooling - Heating

Resilient energy systems will generate more benefits than costs

A climate-resilient energy system that can anticipate, absorb and recover from climate hazards could prevent negative effects spreading across the energy value chain. For example, the IEA estimates that the net benefits of investing in resilience against floods could reach almost US\$ 1 trillion to 2050.

Hydropower, a major source of renewable energy globally, is under threat from water stress and ageing infrastructure



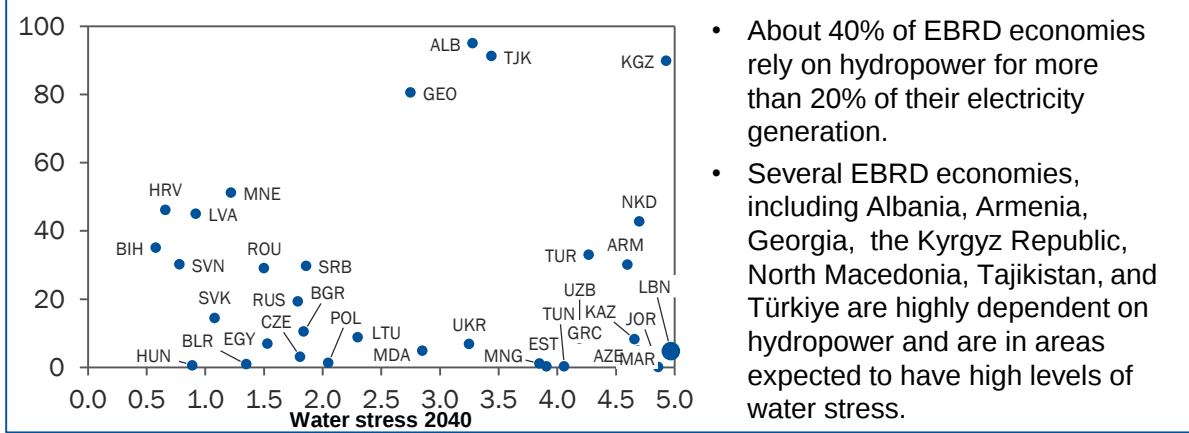
Water stress for 2040 (BAU)

4.97
2.775
0.58

Climate change is expected to make some areas drier and others wetter. Some regions, including EBRD economies, are already experiencing a decrease in hydropower generation.

- Almost 40% (476 GW) of the global fleet is at least 40 years old (the average age is 32).

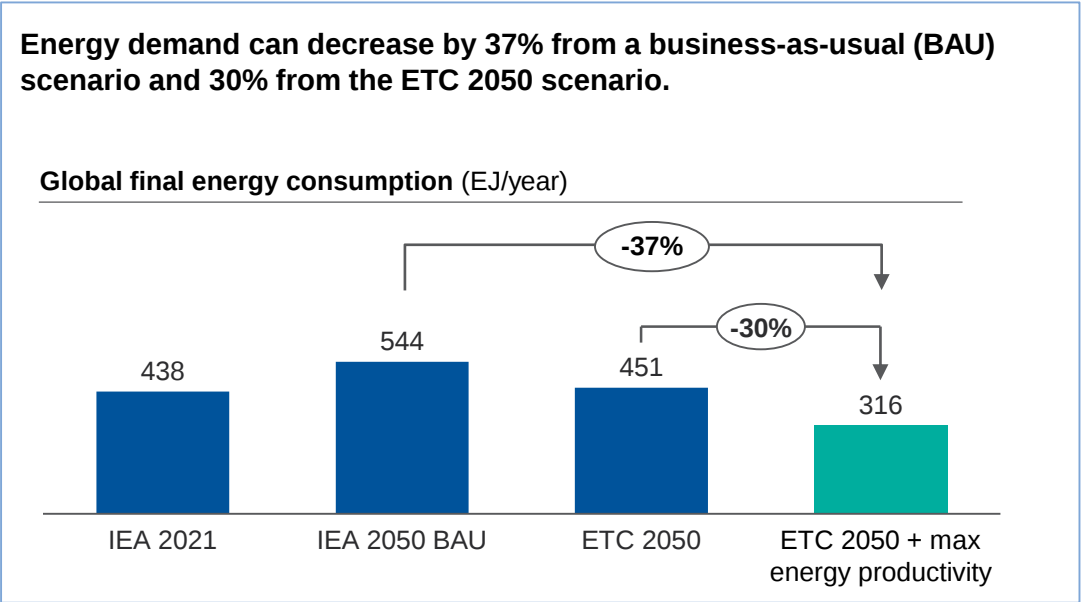
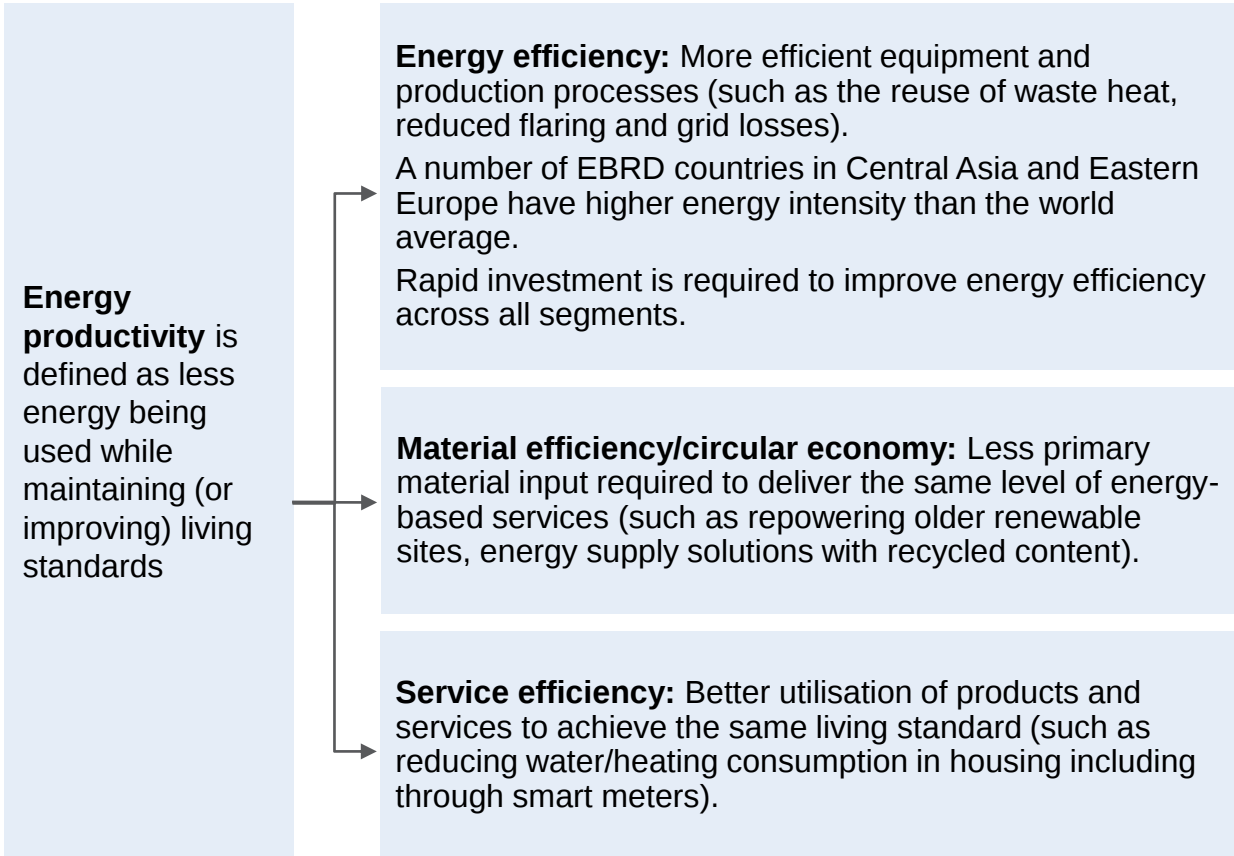
Hydropower is an important source of electricity in some economies where the EBRD operates, some of which are highly exposed to water stress



Source: WRI, World's Most water-stressed countries in 2040; BP Statistical Review of World Energy 2021, Systemiq.

3.6 Increase energy efficiency and productivity to reduce energy demand by about 30% by 2050

Improving energy efficiency and productivity offers multiple, attainable benefits and could cut final energy consumption by 30% globally



3.7 Manage an inclusive energy transition

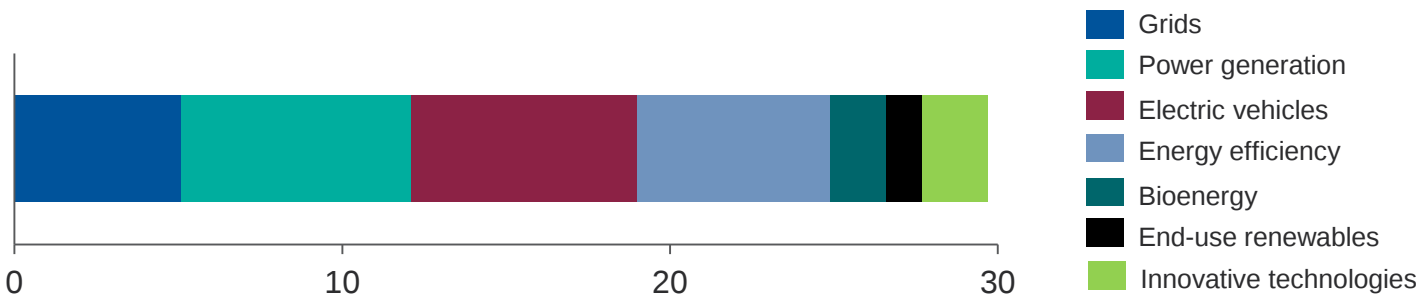
Accelerating the energy transition requires new skills and an employment shift from fossil-based jobs to clean energy jobs

- **An estimated 1.1 million jobs are directly or indirectly linked to activities** in coal-fired power plants and coal mines in the EBRD regions.
- Employment impacts on the energy transition also extend to the oil and gas sectors.
- **Just transition funds and initiatives** are key to supporting coal, oil and gas sector workers' early retirement, retraining and redeployment, thereby enabling a faster energy transition.

The scale-up of renewables and other energy transition-related technologies will unleash economic opportunities

- Fostering green skills development for local workers will be key to unlocking the jobs potential of renewables and other clean energy solutions.
- Globally, the net zero transition will create an estimated 30 million new jobs by 2030, including 14 million jobs in renewables and grids.

Net zero emission jobs by sector (2030), millions



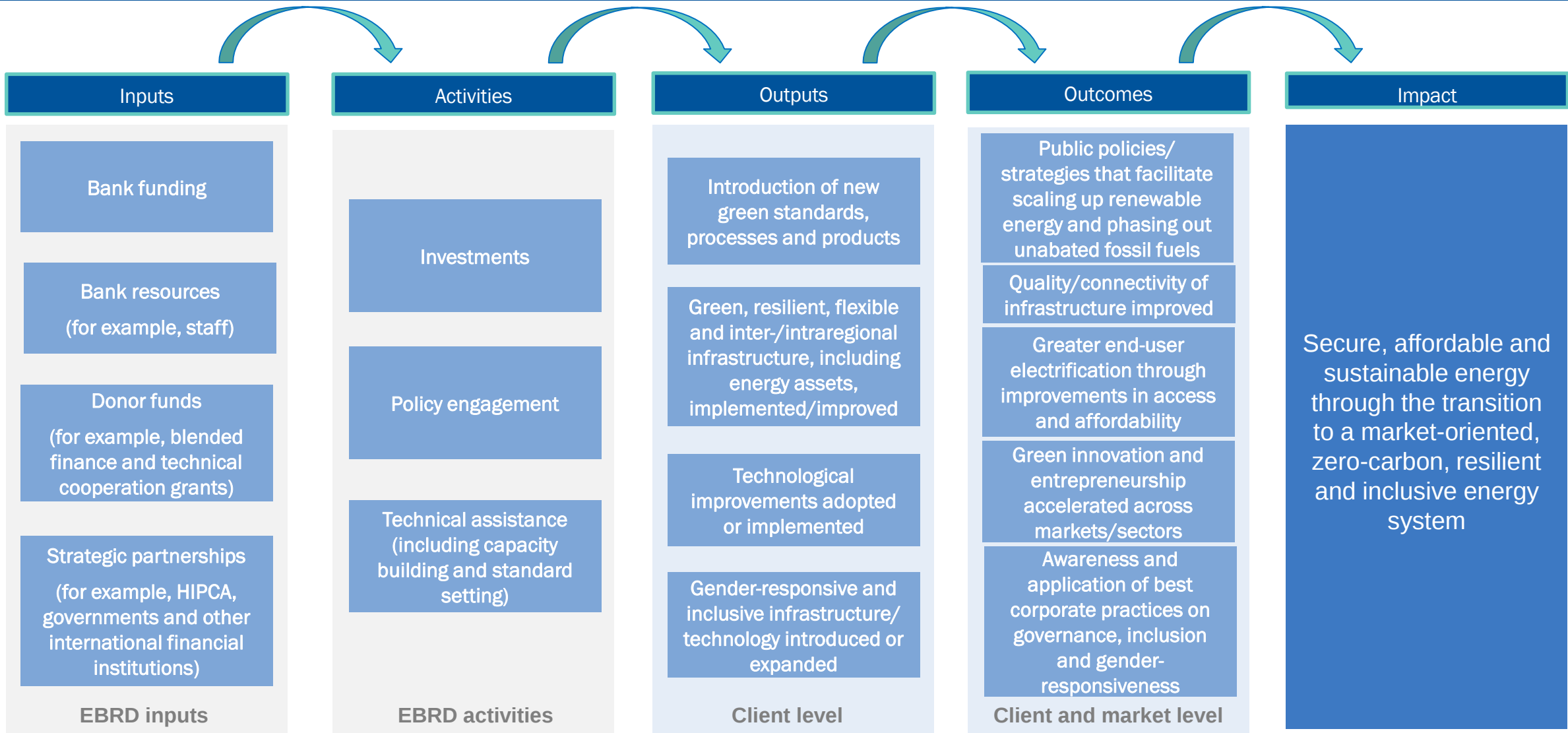
Action areas for promoting equality of opportunity

- Access:** Energy provision is crucial to enabling economic participation.
- Human capital development:** Skills for energy professionals should reflect the demand for delivering and operating cleaner and smarter energy systems.
- Workforce management:** Forward-looking workforce management can support the intergenerational transfer of skills alongside system updates.
- Workforce diversity:** Improvements in human resources policies and practices can both develop talent pools and close gender gaps.
- Local renewable energy ecosystems:** Local growth and social acceptance can be fostered by engaging communities and stimulating participation.
- Just transition and regional development:** The green energy transition should leave no one behind and increase economic diversification opportunities.



Section 4: Measuring results

4.1 Results monitoring: Theory of change



4.2 Performance monitoring framework

Specific strategic objectives	Tracking indicators		Context indicators
	Outputs	Outcomes (for relevant countries tracked in country strategies)	Impact
1. Accelerate the decarbonisation of energy	- Volume of investments supporting new/improved renewable energy infrastructure - Volume of investments supporting resource-efficient infrastructure (for example, the use of cleaner power generation, such as network expansion, charging infrastructure, flexible sources and supporting supply-side energy efficiency) - Number of clients with improved environmental or energy management standards - Number of policy dialogues to promote an enabling environment for renewable energy investments (for example, private-sector participation, market-based solutions, sector unbundling) - Number of recommended strategies or regulatory standards agreed by stakeholders for the use of cleaner fuels	- CO₂e emissions avoided from renewable energy - CO₂e emissions reduced from cleaner power generation - Number of legal/regulatory/institutional frameworks improved in the area of renewable energy, including competitive procurement schemes and network integration - Renewable energy capacity installed (MW) - Renewable energy – electricity produced (MWh/year)	- Share of coal in electricity generation - Share of intermittent solar and wind in electricity generation - Share of renewables in electricity generation
2. Deliver resilient, efficient and inclusive energy systems	- Number of clients approving climate corporate governance development plans, corporate governance action plans and corporate climate governance action plans - Number of clients with improved practices in the area of climate change adaptation - Number of clients introducing new/updated digital technologies or products for renewable energy generation or energy efficiency - Number of operations expanding access of infrastructure across regions/borders - Number of clients engaging in dialogue or capacity-building activities to foster the development of energy markets and integration into regional markets (electricity and gas infrastructure, private-sector participation) or supporting supply-side energy efficiency (including strategies for cleaner fuels) - Number of operations expanding access to infrastructure for underserved groups - Number of private sector clients participating in the competitive markets - Number of clients approving gender action plans - Number of women receiving training or mentoring services	- Number of clients with improved climate corporate governance - Number of clients with improved operational performance - Number of legal/regulatory/institutional frameworks improved for the development of well-functioning energy markets, including carbon markets (third-party access, unbundling, cost-reflective pricing, market reforms) - Number of SOE commercialisations/restructurings - Competitive and resilient markets, low barriers for entry and level playing field - Net increase in regional/cross-border energy infrastructure capacity - Number of individuals (local population) with improved access to electricity - Number of clients implementing gender action plans - Number of women enhancing their skills as a result of training	- Energy intensity of economy in energy/GDP at purchasing power parity - Emissions intensity of energy production in CO₂/total energy supply (TES) - Energy CO₂ emissions per unit of GDP - Energy CO₂ emissions per capita



Section 5: Annexes

Annex A: Acronyms and abbreviations

Annex B: Implementation of the previous strategy

- I. Snapshot of energy activities from the previous strategy period (2019-22)
- II. Landmark transactions, policy engagement and capacity-building initiatives
- III. Lessons informing the 2024-28 strategy

Annex C: Sector context

Annex D: Approach to climate goals

- I. Climate ambition and related assessments at the EBRD
- II. Climate assessments to promote the EBRD's climate ambition
- III. The EBRD's approach to fossil-fuel investments

Annex E: Phasing out unabated fossil fuels

Annex F: Fossil fuel-based district heating generation

Annex G: Energy networks

Annex H: Energy storage solutions

Annex I: Digitalisation in the energy sector

Annex J: Gender and economic inclusion in the energy sector

Annex K: United Nations Sustainable Development Goals

Annex L: The Environmental and Social Policy and the Energy Sector Strategy

Annex M: Links to EBRD country strategies

Annex N: Context indicators

Annex O: Collaboration with development partners in the energy sector

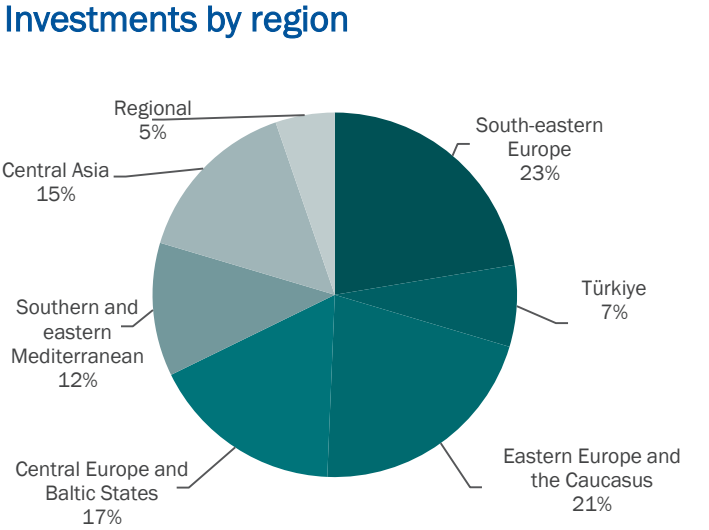
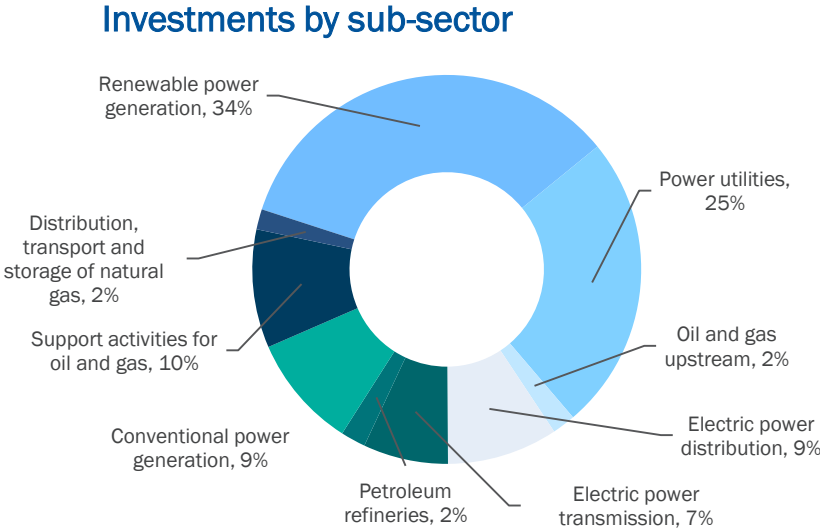
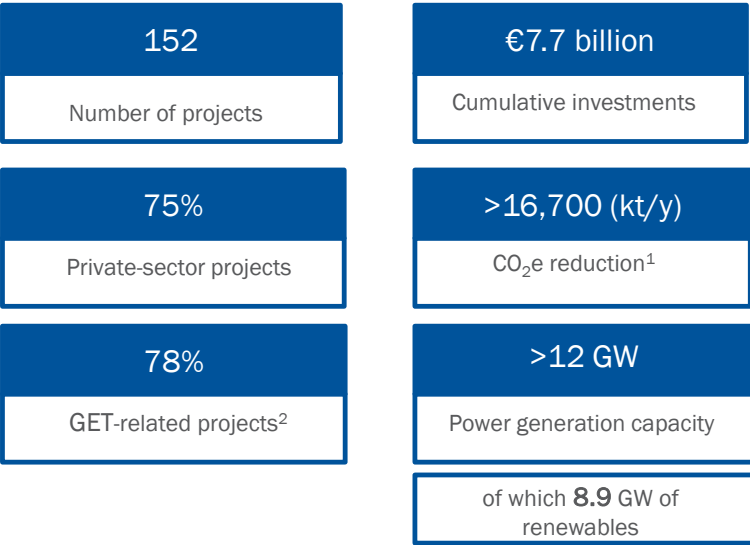
Annex A: Acronyms and abbreviations



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ABI – Annual Bank Investment	GW – gigawatt	TCFD - Task Force on Climate-related Financial Disclosures
BAU – business as usual	H ₂ – hydrogen	TES – total energy supply
CCS – carbon capture and storage	Hydro – hydropower/hydroelectric power	TI – Transition Impact
CCUS – carbon capture, utilisation and storage	HIPCA – High-Impact Partnership on Climate Action	TJ – terajoule
CO ₂ – carbon dioxide	Hydro – hydropower/hydroelectric power	TWh – terawatt-hour
CO ₂ e – carbon dioxide equivalent	IEA – International Energy Agency	V2G – vehicle to grid
EBRD – European Bank for Reconstruction and Development	MDB – multilateral development bank	
EJ – exajoule	MJ - megajoule	
ESG – environmental, social and governance	MW – megawatt	
ESP – Environmental and Social Policy	NDCs – nationally determined contributions	
ETC – Energy Transitions Commission	NZE – net zero emissions by 2050 scenario	
EU – European Union	PPA – power purchase agreement	
EV – electric vehicle	PPP – purchasing power parity	
GDP – gross domestic product	PV – photovoltaic	
GEFF – Green Economy Financing Facility	RE – renewable energy	
GET – Green Economy Transition	RES – renewable energy sources	
GHG – greenhouse gas	SDG – Sustainable Development Goal	
	SOE – state-owned enterprise	

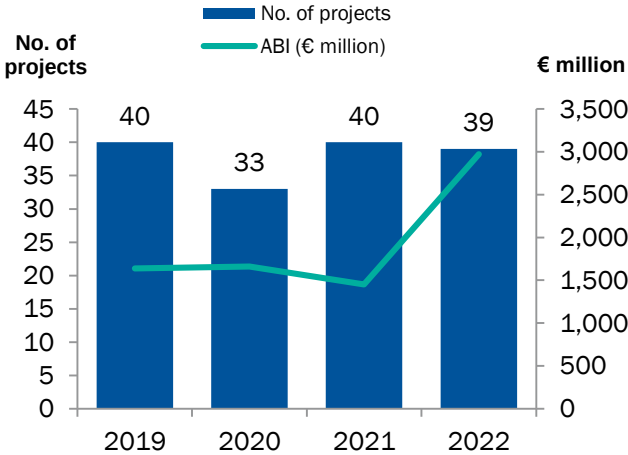
Annex B (I): Snapshot of energy activities from the previous strategy period (2019-22)



Operational highlights

- One hundred and one operations contributed to a cumulative expected annual emissions reduction of more than 16,700 kt CO₂e/year. The countries with projects expected to deliver the greatest reductions include Kazakhstan, Uzbekistan, Poland and Greece.
- Eighty-nine renewable energy projects delivered nearly 9 GW of capacity. Wind was the largest technology financed by capacity (led by investments in Uzbekistan, Poland, Egypt, Ukraine and Türkiye).
- One hundred and fourteen operations contributed to more widespread private ownership, notably multiple private-sector renewable energy projects (including in Poland, Ukraine, Uzbekistan, Egypt, Türkiye and Kazakhstan).
- Eighty six operations contributed to primary energy savings of over 89,684 TJ per year. Operations in Uzbekistan, Egypt, Türkiye, Poland and Greece were the major contributors.
- The Bank financed 109 GEFFs that will indirectly support the installation of a further 219 MW of renewable energy capacity.³

Investments and number of projects



Annex B (II): 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 Dzhanakeldy 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. With support from the EBRD, 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 5 GW of inefficient thermal capacity and strengthening the grid.
- The EBRD financed the development of the Szymankowo Windfarm in northern Poland, a 38 MW windfarm and 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 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 €2.5 billion 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 2 GW 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. Overall, the EBRD has financed 3.7GW of renewable energy in Central Asia to date.

Promoting the switch to cleaner generation sources – largest CO₂ 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 CO₂ emissions by nearly 3 million tonnes overall and, crucially, improve the city's air quality.

Annex B (II): 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 CO₂ 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 CO₂ emissions by more than 30,000 tonnes annually**. This upgrade introduces smart metering, 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 CO₂ equivalent a year**.



Annex B (III): Lessons informing the 2024-28 strategy



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2019-23 project-level experience

- Strong and competent regulatory authorities are critical to ensure broad and sustainable impact in the sector.
- Fundamental regulatory reforms take time and the wider context should be considered when setting implementation deadlines for reforms.
- Good-quality sponsors with sufficient liquidity, capable of supporting the project at least until full completion, are critical to project finance transactions in difficult investment environments.



Key findings of thematic evaluations

- Rapid growth in solar power requires support to expand the capacity of power systems. The timing of grid investment is critical to unlocking renewable energy growth.
- Provide greater clarity on operational priorities and the scope of the Bank's intended operations in the hydrocarbons sector. Identify an approach that takes into account the Bank's multiple transition objectives.
- Scaling up renewables in low income countries may be affected by higher cost of capital requirements and capex, particularly in markets where commercial banks are facing regulatory and/or capital constraints.
- Competitive procurement can deliver renewables at very low prices and provide more sustainable incentives to investors.

Lessons learned for the 2024-28 strategy

- Promote capacity building and provide technical assistance to regulators and policymakers.
 - Employ a gradual and phased approach when designing comprehensive regulatory initiatives to ensure a smooth transition from one regulatory regime to another.
 - Strong financial incentives and regulatory/tariff certainty are critical in order to attract good-quality sponsors.
-
- Deliver flexible, secure and resilient energy assets and expand networks, including investments in smart grids and demand side management.
 - Targeted support to fossil fuel investments when they play a role in accelerating decarbonisation.
 - There is a need for blended financing (loans plus grants or concessional¹ loans), particularly in early transition countries.
 - Promote support schemes and the design of competitive auctions.

Source: EBRD Evaluation Department's Reviews including Cluster Evaluations (Solar Power Operations (EvD ID: SS21-162) and Evaluation of Hydrocarbon Projects (EvD ID: SS20-159)) as well as project level assessments (OPS20-987, OPS19-864 and OPS19-866).

¹ Up to US\$100 billion of concessional finance will be needed annually by early 2030s to attract private investment for energy transition in emerging/developing economies outside China. (IEIEA-IFC Joint Report Calls for Ramping Up Clean Energy Investments in Emerging and Developing Economies, 21 June 2023).

Annex C: Sector context (1/3)



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

- Countries and regions accounting for more than 98% of anthropogenic emissions have ratified or acceded to the Paris Agreement.
- The Paris Agreement has widespread support among the EBRD's shareholders and has been signed by all but one of the economies in which the Bank operates.
- The EBRD has committed to aligning all of its activities with the Paris Agreement from the start of 2023.

Industrial policy actions are already driving investments in the energy transition

- Recent national and regional policies include: the European Green Deal, REPowerEU, the Net Zero Industrial Plan, the European Union's (EU) Carbon Border Adjustment Mechanism, the US Inflation Reduction Act and the EU Hydrogen Strategy.
- These policies directly and indirectly affect a number of economies in which the EBRD invests.

ESG and other recent policy actions are already driving energy transition investments, cost-curve declines and accelerating the adoption of key technologies

Investors are prioritising ESG factors:

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

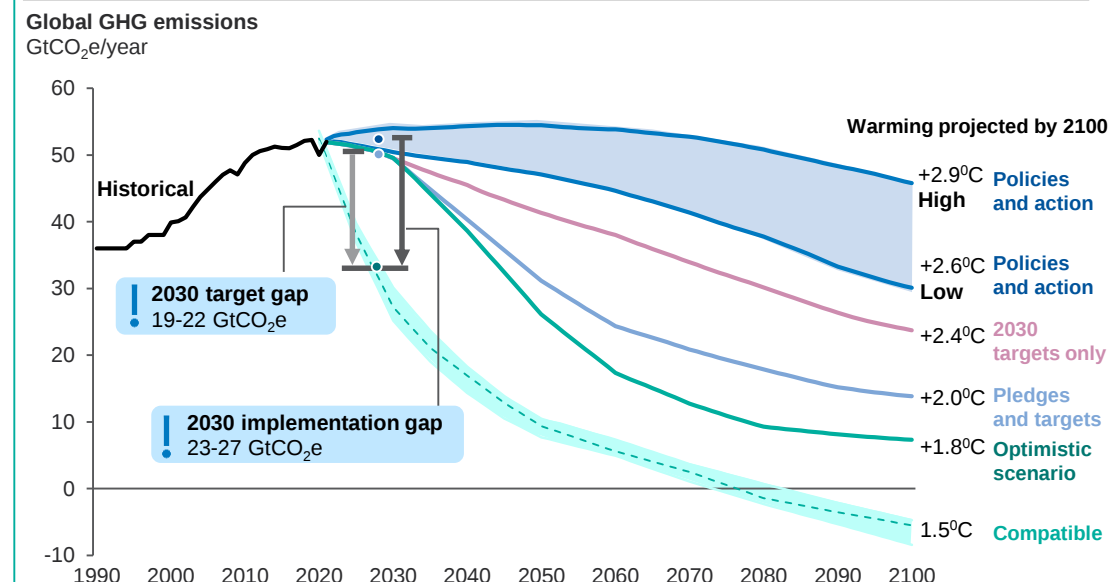
However, greater action is needed to remain within the 1.5°C target

Keeping the 1.5°C goal attainable requires major transformation:¹

- **Emissions must peak** to fall rapidly in the 2020s so that annual emissions are approximately halved by 2030.
- **Emissions need to reach net zero by mid-century** without exceeding the carbon budget.

In addition to urgently reducing emissions, the energy system needs to adapt to the effects of climate change.

Emissions and expected warming based on pledges and current policies²



* Kosovo is unable to be a signatory of the Paris Agreement due to its status at the United Nations. Sources: [1] ETC (2022), *Degree of Urgency*; [2] Climate Action Tracker (2022), *2100 Warming Projections: Emissions and expected warming based on pledges and current policies*, November 2022. Available at: <https://climateactiontracker.org/global/temperatures/>. Copyright ©2022 by Climate Analytics and NewClimate Institute; [3] Insights based on European Commission (2023), *The Green Deal Industrial Plan: putting Europe's net-zero industry in the lead*; European Commission (2020), *The European Green Deal Investment Plan and Just Transition Mechanism explained*; European Commission (2023), *Statement by President von der Leyen on the Green Deal Industrial Plan*. Accessed on 17 February 2023 at https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_23_521; European Commission (2022), *REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition**. Accessed on 17 February 2023 at https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3131; [4] Songwe, V., Stern, N. and Bhattacharya, A. (2022) *Finance for climate action: Scaling up investment for climate and development*. London: Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science.

Annex C: Sector context (2/3)

Several forces are shaping the sector ...

European energy crisis

War on Ukraine

Severe weather and natural hazards

Covid-19

Disruptions to the supply of key components and raw materials

... leading to volatility in energy prices and disruptions in the supply of renewable energy technologies, affecting energy security, affordability and the deployment of renewables



Price volatility, including high energy prices, puts affordability pressure on end users and creates liquidity struggles for many utilities. This is a large contributor to high inflation and has ripple effects throughout the economy. It impacts the investment climate and puts at risk green energy investments and/or has the potential to reverse energy sector reforms.



Energy security – The use of energy supply for geopolitical leverage has raised the risk of supply disruptions for many of the economies in the EBRD region. Countries that are net energy importers are exposed to high costs and need to find new energy supply sources and routes.



Severe supply disruptions have led to rises in the price for solar PV, wind and battery technologies after a long period of falling prices.

Greater momentum is needed to accelerate the energy transition, strengthen energy security and address affordability

- Increased investment in energy efficiency
- Impetus for investment in competitive solar and wind
- Investment in the upgrade and expansion of power grids and interregional linkages
- Accelerated investment in hydrogen production, delivery and storage

Investment to support the diversification of energy supplies

Significant policy response to address affordability, rethink market design and promote good governance and a sound investment climate

Policy focus on clean energy manufacturing and critical raw materials

Annex C: Sector context (3/3)

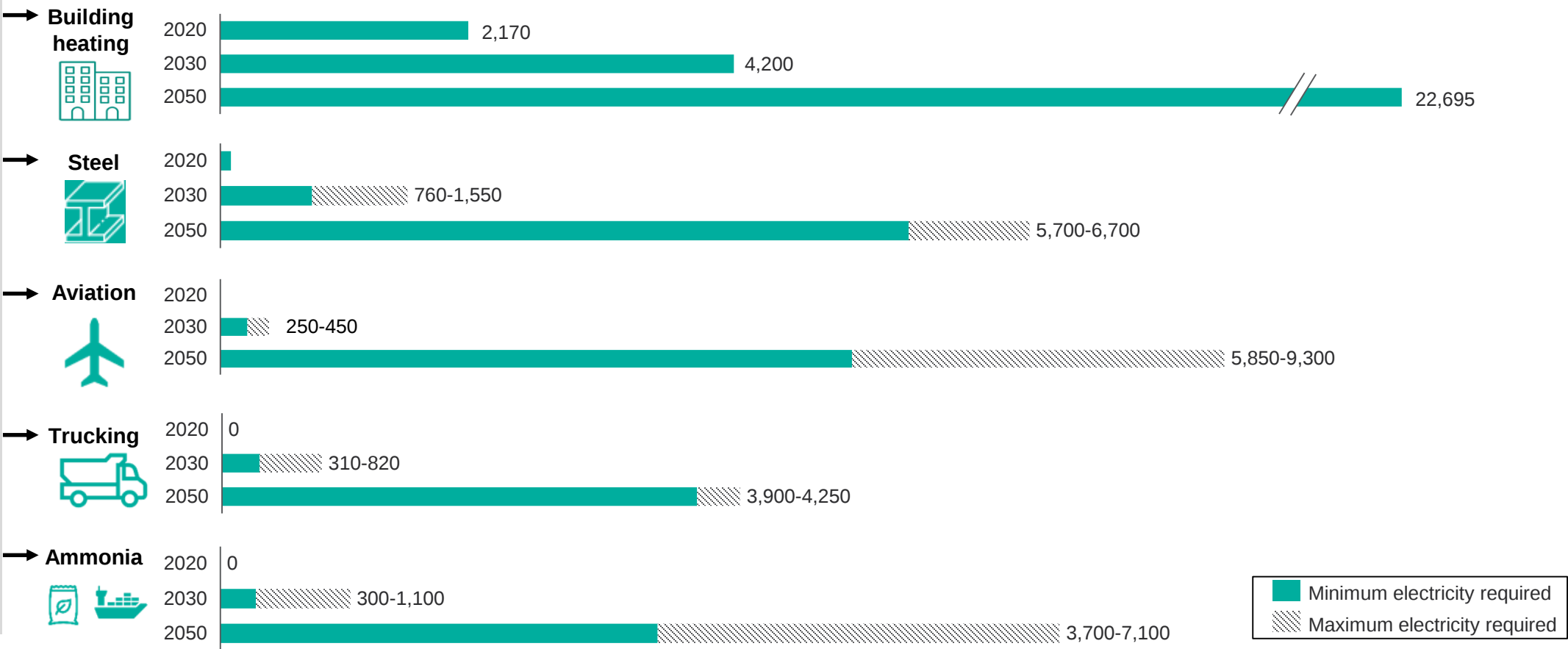
Greater access to cheap renewable energy ...

- In 2021, solar and wind were the cheapest sources of new power in countries accounting for 90% of electricity generation
- The clear cost competitiveness of renewables has led to a large ramp up in deployment, with solar and wind accounting for more than 75% of total new capacity additions globally last year

... is having a cascading effect on the deployment of other technologies:

The increase in availability of low-cost renewable energy sources (in combination with other enablers and innovations) has a positive effect on other techno-economic tipping points, unlocking other net-zero solutions and innovations.

Sectoral electricity demand across net zero-consistent scenario pathways for five illustrative sectors (TWh/year)⁴



Source: General insights in this slide are based on [1] Systemiq (2023), *The Breakthrough Effect*; [2] IEA (2020), *Global EV Outlook 2020*; [3] MPP (2022), *Making Net-Zero 1.5° C-Aligned Ammonia Possible*; [4] Illustration based on Exhibit 0.2 of ETC (2023), *Streamlining planning and permitting to accelerate wind and solar deployment*. The Mission Possible Partnership Sector Transition Strategies (STS) estimate the electricity required to achieve net-zero emissions under scenarios which differ according to each individual STS. The values here reflect the range of electricity required to meet each scenario. Key: 5–8%, 5–6%, approx. 3%. Minimum electricity required Source: Mission Possible Partnership (2022), Sector Transition Strategies. Building heating from "Illustration based on Exhibit 0.2 of ETC (2023), Streamlining planning and permitting to accelerate wind and solar deployment"

Annex D (I): Climate ambition and related assessments at the EBRD

The EBRD and climate action

- Climate change is the result of critical market failures. Addressing climate change, therefore, reflects the EBRD's mandate to promote the transition to market-based economies and its commitment "to promote in the full range of its activities environmentally sound and sustainable development".¹
- Climate action is reflected in a number of the Bank's institutional commitments, strategies, policies and approaches. Notable examples include:
 - The EBRD's SCF, which sets out the EBRD's strategic aspirations for the period from 2021 to 2025 and which identifies "supporting transition to a green, low-carbon economy" as one of three crosscutting strategic themes. The SCF also reaffirms the Bank's goal to reach an annual green finance ratio of at least 50% by 2025 - a commitment initially made in the Bank's Green Economy Transition (GET) approach.
 - Since the start of 2023, all of the Bank's activities have been aligned with the goals of the Paris Agreement, reflecting an institutional commitment made by the Bank's Board of Governors at the EBRD's 2021 Annual Meeting.

Climate assessments

- To reflect climate action in projects, the EBRD has introduced a number of climate assessments for individual projects.
 - Key assessments applied to all projects are:
 - environmental and social due diligence, reflecting the provisions of the Environmental and Social Policy
 - Paris Agreement alignment assessment
 - climate-related financial risk assessment.
 - In addition, the Bank has implemented an internal architecture that promotes the delivery of green financing. Key elements of this architecture are:
 - GET finance: the attribution of green financing, in line with a detailed methodology that has been developed over time
 - green transition impact assessment under the Bank's assessment of the transition of a project; green is one of the six transition qualities the Bank uses.
- A summary of these assessments is provided in Annex D (II).
- **As with all EBRD investments, all fossil-fuel projects are subject to these assessments. In addition, all fossil-fuel projects are subject to the additional criteria presented in Annex D (III).**

Annex D (II): Climate assessments to promote the EBRD’s climate ambition

Summary of different climate-related assessments used by the EBRD. As with all EBRD investments, all fossil-fuel projects are subject to these assessments. In addition, all fossil-fuel projects are subject to the additional criteria presented in Annex D (III).

	1 Applied to all projects			2 Promoting green transition through projects	
WHY	Environmental and social due diligence	Paris Agreement alignment	Climate-related financial risk	Green (GET) finance	Green transition impact
INSTITUTIONAL COMMITMENT	The EBRD is committed to promoting “environmentally sound and sustainable development” in the full range of its activities	The Paris Agreement is the international treaty on tackling climate change and is supported by all economies in which the Bank operates and by its shareholders	Information on the financial impacts of climate change support risk management, strategic planning and capital allocation	Reflecting the urgency to address climate and environmental issues, finance should be directed to investment projects that deliver green benefits	To understand how EBRD projects deliver green impact, including those that support systemic change
AIM	Environmental and Social Policy (updated 2019)	EBRD activities are to be fully aligned with the goals of the Paris Agreement by the start of 2023, per Governors’ resolution and the GET approach 2021-25	Supporter of the TCFD	GET approach 2021-25 targeting a green finance ratio of at least 50% by 2025 and 25-40 Mt net GHG reductions	Article 1 of the Agreement Establishing the EBRD states the “the purpose of the Bank shall be to foster the transition”
	To ensure the Bank appraises and monitors the E&S risks and impacts of its projects appropriately and that clients assess, mitigate and monitor these risks and impacts	To determine whether a project the Bank might finance is “aligned” or “not aligned” with the mitigation and adaptation goals of the Paris Agreement	Largely to support sound banking considerations and facilitate consistent climate-related financial risk disclosure	To assess whether a project meets the qualifying criteria for green finance	To assess whether a project credibly delivers green-related transition (which may also support other transition qualities)

Annex D (III): The EBRD's approach to fossil-fuel investments (1/2)



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	All fossil fuels	• Be aligned with the Paris Agreement per the Bank's Paris Agreement alignment methodology, including having a low risk of carbon lock-in. • Be consistent with the Bank's Environmental and Social Policy (including requirements for using Best Available Techniques). • Be clearly aligned with a credible low-carbon strategy, either at a national, sectoral or project level, consistent with the Paris Agreement goals. • Be subject to an assessment of physical and carbon transition risks. • Or otherwise target exclusively the decommissioning of existing assets or repurposing for lower-carbon fuels.
Downstream	Coal-fired power generation	• The Bank will not finance thermal coal mining or coal-fired electricity generation capacity (including upgrades to existing plants or the construction of new capacity). • Through policy dialogue, the Bank will engage with the economies in which it operates that have significant coal dependence to design a transition away from coal that addresses issues of air quality, retrenchment and energy security.
Upstream	Oil exploration, extraction and related services	• The Bank will not invest in the upstream oil sector.
Midstream	Oil transportation and storage	• The Bank will not invest in infrastructure dedicated to oil transportation and/or storage.
Downstream	Oil transformation (refineries), gasoline stations and oil-fired electricity generation	In addition to the requirements applicable to all fossil-fuel projects: • The Bank will invest in refineries only when they target high decarbonisation impact in existing assets through absolute GHG emission reductions or environmental impact remediation and pollution prevention measures; without increasing the crude intake capacity of the relevant asset, or when they aim exclusively to decommission or transition to low-carbon fuel feedstock or production. • The Bank will not finance oil-fired electricity generation. • The Bank will not invest in other downstream assets (for example, gasoline stations) unless they exclusively target the introduction and scaling up of non-fossil-fuel transport (biofuels, e-fuels, EV chargers and/or hydrogen filling technology).

Annex D (III): The EBRD's approach to fossil-fuel investments (2/2)



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Upstream	Gas exploration, extraction and related services	The EBRD will not invest in the upstream gas sector.
Midstream	Gas transportation, liquefaction, regasification, distribution and storage	In addition to the requirements applicable to all fossil-fuel projects, the Bank will only invest in projects that: - are located in countries that have credible commitments to moving towards decarbonisation, including to meet the Paris Agreement goals - are an essential part of such a strategy
Downstream	Gas-fired electricity generation	- have a low risk of carbon lock-in, taking into account readiness for low-carbon technologies, and - have a clear plan to control and/or reduce methane leakages from the relevant asset.
	Gas-fired heat generation projects (including combined heat and power projects) that supply heat to district energy networks	In addition to the requirements applicable to all fossil-fuel projects, the Bank will only invest in projects that have a clear plan to control and/or reduce methane leakages from the relevant asset.
	Non-capex-related operations	Where the Bank provides finance that is not related to specific capital expenditures to a company with significant fossil-fuel assets operating in the energy sector (for example, privatisations, working capital facilities, refinancing), it will only do so on condition that the company has in place, or is committed to adopting, high climate governance standards and operates in a regulatory or corporate context that embeds strong commitments to decarbonisation.
	Operations with financial intermediaries	For projects where the intended nature of the sub-transactions are known, the sub-transactions will exclude the financing of: thermal coal mining or coal-fired electricity generation capacity, and oil and gas production, processing (including refining), transport (transmission and distribution), storage and utilisation to generate electricity (other than for own consumption). For projects where the intended nature of the sub-transactions are not known, the financial intermediary will be required to not finance new investments in coal mining, coal-fired electricity generation capacity, or upstream oil and gas exploration and development.

Annex E: Phasing out unabated fossil fuels – urgent action is needed to exit from coal and cut upstream gas emissions in the next five years

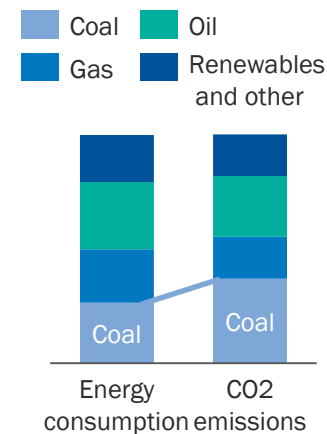


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Coal use needs to be ended as soon as possible

- **Climate impact:** Coal accounts for about 27% of total electricity production, but about 37% of the total emissions of the energy sector.
- **Environmental impact:** Cutting coal use can improve air quality and prevent premature deaths (around 19,000 premature deaths occurred from 2018 to 2020 due to coal-fired power plants in the Western Balkans), especially if district heating shifts away from coal.
- **Increasing regulatory and public pressures** to exit from coal (such as the impact of the EU Emissions Trading System on power imports into Europe).

Power sector by source in the EBRD regions



How can we exit from coal use as soon as possible?

An earlier exit from coal can be achieved through a combination of policy, technological and financial measures:

- **Setting clear and ambitious targets:** Governments can set targets for ending coal use, providing a strong signal to investors and energy companies to shift to cleaner sources.
- **Promoting and implementing carbon pricing mechanisms:** Carbon pricing, such as a carbon tax or cap-and-trade system, can make coal less competitive and encourage the shift to cleaner energy sources.
- **Supporting renewable energy development:** Provide support and financing for the development of renewable energy sources.
- **Investing in energy storage and grid infrastructure:** In the power sector, storage and grid infrastructure are critical to integrating renewable energy into the power system and ensuring a reliable and stable energy supply.
- **Supporting affected communities and workers:** Provide support for affected communities and workers, for instance, through retraining programmes, support for local economic diversification and other forms of assistance.

Gas use needs to be scaled down towards 2050

- **Climate impact:** Gas consumption causes around 18% of total global energy-related emissions, while about 2.5% of total energy-related emissions come from gas operations,¹ including venting, fugitive leakage and flaring.
- **Increasing regulatory and public pressures:** Greater certainty in mapping upstream gas emission levels leads to increased (regulatory) pressure to reduce these emissions and associated impacts.

Flare map 2020-21

Image from FlareIntel, a free and open-access digital tool to detect gas flares (ignition of gas)



What is needed to drive down gas use?

A changing role for gas: Gas is expected to cover a significant share of the energy mix to 2030, displacing more polluting fuels such as coal, or to serve as an enabler of low-carbon hydrogen production with carbon capture and storage.

The use of natural gas will vary significantly depending on location and will depend on:

- **Where the gas is coming from:** The source of the gas supply can increase or decrease energy security.
- **What the gas is used for:** Gas use in the power sector can be replaced more readily by alternatives, while gas used in specific industries or for heating is more difficult to replace.

Countries can reduce upstream gas emissions while usage scales down by:

- Upgrading equipment to reduce venting and fugitive leakage; advocating for regulation and certification; banning routine flaring (CO₂ and methane); and decommissioning depleted assets through finance incentives.

Annex F: Fossil fuel-based district heating generation – outlook and challenges for EBRD economies



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- **District energy systems are widespread in the EBRD regions:** District heating (DH) is the most common form of heating for urban buildings in central and eastern Europe and the former Soviet Union.
- **DH generation remains heavily reliant on fossil fuels:** Nearly 90% of DH supply globally is produced from fossil fuels (2021), predominantly coal (45%)¹. In the EU, around 66% of DH supply is fossil fuel-based (2018), with natural gas accounting for the largest share (around 30%).²
- **DH systems are valuable infrastructure assets, crucial to decarbonising and electrifying urban heat:** Although DH systems in EBRD economies currently rely on fossil fuel-based generation, they (including downstream transmission and distribution networks) offer the best opportunity to integrate low-carbon energy sources into urban heat supply.
- **Low- or zero-carbon heat sources for DH include:** Large electric heat pumps, centralised solar thermal, waste-to-energy, geothermal, power-to-heat technology, sustainable biomass or biogas, and urban waste heat (sewage, data centres, metro systems and industrial facilities).
- **Investment in DH generation must be Paris aligned:** Generation should not be considered in isolation, as decarbonising the sector will require a whole-system approach.
- **The forthcoming Municipal and Environmental Infrastructure Strategy will outline the Bank's approach to the wider heating sector, including the demand side.**

Trends in the EBRD regions and sector

Natural gas and coal are the dominant fuels for DH generation in EBRD economies:

- **Coal use is gradually declining**, replaced by natural gas and biomass.
- Annual heat generation is decreasing due to improved energy efficiency and reduced industrial demand, despite an increase in the number of customers and the spread/extension of downstream DH networks.
 - Exceptions are **Bulgaria, Romania and Ukraine**, where many customers have disconnected from DH, with supplies overwhelmingly replaced by individual fossil fuel-based systems.
- **Natural gas is the predominant fuel in Europe**, including the Western Balkans, central and eastern Europe and Ukraine (Poland notable exception).
- Biomass is the largest fuel source in the three Baltic states.

Trajectory in EU 27 + UK shows a steady fall in DH fossil fuel use:

- In 1990, 73% of total DH generation was based on coal and oil; by 2018, this share was 29%.³
- The share of renewable generation had risen from less than 5% in 1990 to more than 28% by 2018.⁴
- In 2020, Denmark installed about 350 MWth of DH heat pump capacity.⁵

Decarbonisation and electrification challenges

- **Scale of heating demand:** Heating and cooling accounts for half of global energy consumption⁶ and the share is even higher in EBRD economies due to low end-user efficiency and marked seasonal temperature variations.
- **Historic underinvestment:** Much of the generation fleet in the EBRD regions dates to the Soviet era, and infrastructure, including downstream networks, has seen limited investment over the past 30 years or so.
- **Fossil-fuel dependency:** The fuel mix in the region is dominated by fossil fuels, with renewables limited to biomass or waste-to-energy-based generation.
- **Unsupportive policy environment:** Limited policies, incentives, regulatory obligations or government support targeting decarbonisation of the sector.
- **Lack of carbon pricing:** No cap-and-trade or carbon tax schemes sufficient to influence investment decisions outside of EU Member States.
- **Capacity building and the skills gap:** Urgent need for demonstration projects and upskilling of the sectoral workforce to implement and operate new technologies (for example, large heat pumps, inter-seasonal storage).
- **Level of DH generation capacity:** In Poland alone, capacity is ca. 54 GWth.⁷
 - Selected system capacities in the EBRD regions: Almaty ca. 4.5 GWth; Kyiv ca. 9.3 GWth; Sofia ca. 3.6 GWth; Warsaw ca. 5 GWth

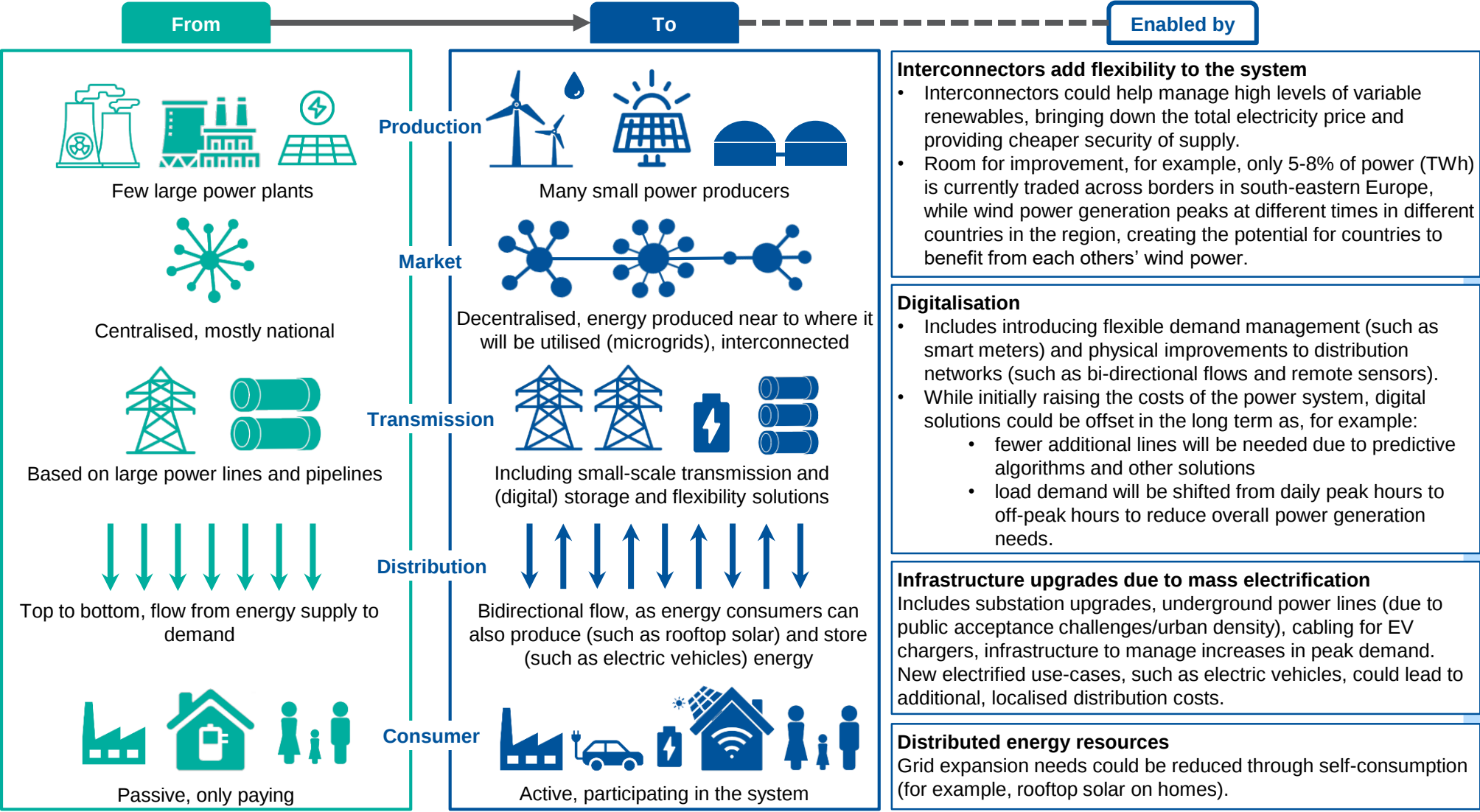
¹ <https://www.iea.org/reports/district-heating>; ² ³ ⁴ <https://op.europa.eu/en/publication-detail/-/publication/4e28b0c8-eac1-11ec-a534-01aa75ed71a1/language-en>;

⁵ <https://heatpumpingtechnologies.org/publications/denmark-strategic-market-outlook/>; ⁶ <https://www.iea.org/fuels-and-technologies/heating>; ⁷ <https://www.ure.gov.pl/pl/cieplo/energetyka-ciepna-w-l/10763,2021.html>

Annex G: Energy networks – massive electrification requires significant expansion and network upgrades; investing in digitalisation can cut total spending needs relative to power system size



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- Opportunities to strengthen the grid in the EBRD regions:
- 1) Support the shift from distribution “network” operators to distribution “system” operators as massive clean electrification will need operators that can procure and manage flexibly.
 - 2) Support further development of regional power systems, integrating both physical networks (for example, interconnectors and projects that have been identified as Projects of Common Interest (PCI), Projects of Mutual Interest (PMI) and Projects of Energy Community Interest (PECI)) and the associated power markets (for example, through market coupling), as well as regional cooperation initiatives like the Central and South Eastern Europe energy connectivity (CESEC) group in south-eastern Europe.
 - 3) Support the digitalisation of energy networks: Electricity grids in the EBRD regions are currently not ready for the increased amount of electrification. For example, smart meters require relatively large upfront capex, but lead to overall cost reductions in the power system.

Annex H: Energy storage solutions – storage investments will vary depending on climate patterns, availability of hydro power and existing power infrastructure flexibility

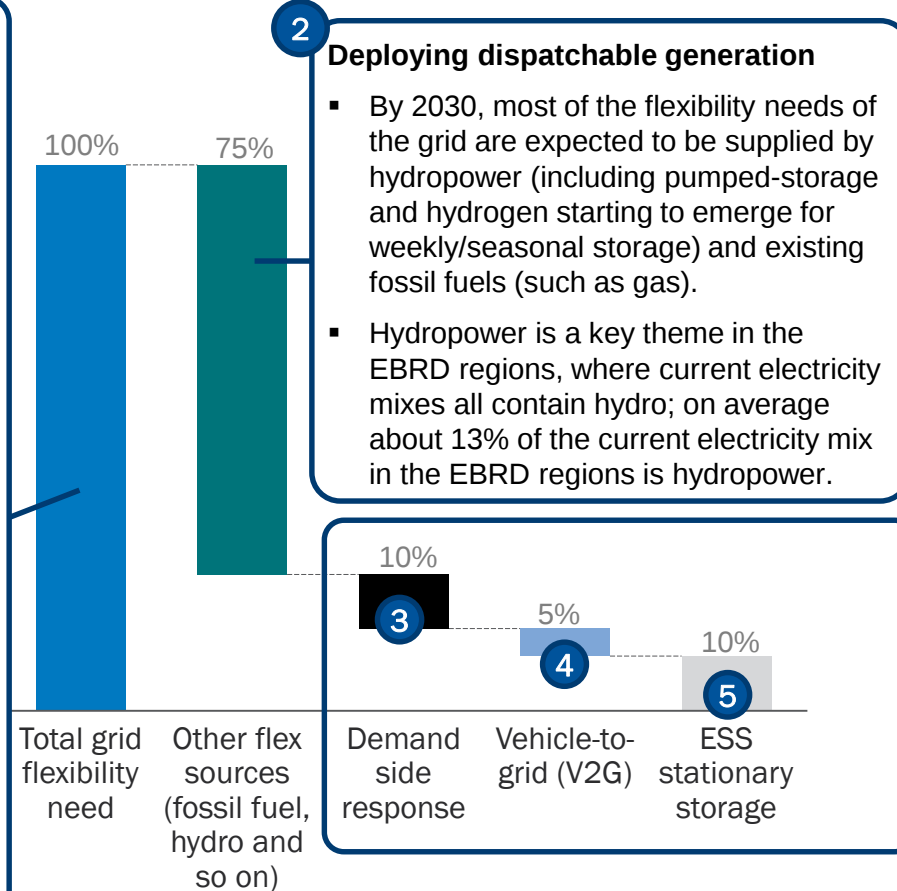


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Expected means to meet storage demand by 2030, total installed TWh capacity (and percentage of total flexibility need)

Percentages illustrated are global averages; splits will differ by region and depend on the energy mix (see panel 1)

- 1 **Choosing the optimal energy mix, interconnectivity and scale of renewable sources for a given geographical area.**
Grid flexibility requirements depend on:
 - o **energy mix**, for example:
 - **overall level of electrification:** relatively low level in the EBRD regions, averaging around 20%
 - **overall percentage of variable renewable energy (VRE):** 1-13% depending on EBRD region; once “threshold” of 15-30% VRE penetration is met, storage needs will grow exponentially
 - **percentage of solar versus wind (solar has more intra-day flexibility/storage needs):** wind is the dominant renewable source in all of the EBRD regions, apart from eastern Europe and the Caucasus, where the solar supply is twice that of wind
 - o **level of interconnectivity:** for example, the EU has set an interconnection target of at least 15% by 2030
 - o **oversizing solar/wind resources** so that even when producing below maximum capacity (for example, when cloudy for solar), the site will still meet required output.



- 2 **Deploying dispatchable generation**
 - By 2030, most of the flexibility needs of the grid are expected to be supplied by hydropower (including pumped-storage and hydrogen starting to emerge for weekly/seasonal storage) and existing fossil fuels (such as gas).
 - Hydropower is a key theme in the EBRD regions, where current electricity mixes all contain hydro; on average about 13% of the current electricity mix in the EBRD regions is hydropower.

Deploying demand-side flexibility mechanisms and stationary storage solutions

Remaining flexible focuses on intraday needs. There are three (competing) elements:

- 3 load shifting from **demand-side response** (EV smart charging (V1G), heat-pump control, industrial response, and so on); not widely available in the EBRD regions
- 4 using EV batteries as stationary storage (**V2G**); not widely available in the EBRD regions; 1% of new car sales in Cyprus, Poland, the Czech Republic and Slovak Republic are EVs
- 5 **ESS/stationary storage** battery systems (both utility-scale front-of-the-meter and commercial/residential behind-the-meter, possibly coupled with renewable sources); current small battery storage capability.

Opportunities to strengthen storage solutions in the EBRD regions:

- 1) Support investments in storage solutions as need increases in line with **variable renewable growth**, although the inclusion of hydropower is expected to reduce total system storage costs in most EBRD regions.
- 2) Support the development of **battery manufacturing and recycling projects and companies**: if clean energy systems are advanced, the EBRD regions could be an attractive location for the further development of battery supply chains.
- 3) Support appropriate **power-market design that provides signals for storage investments and system balancing capabilities**: this could be facilitated by increased digitalisation (for example, to support demand-side management).

Annex I: Digitalisation in the energy sector



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The EBRD Digital Approach

- Establishes digital transformation as a **means** to achieve the EBRD’s transition mandate across transition qualities.
- Presents **three areas of focus** for EBRD intervention, with cybersecurity as a cross-cutting theme:
 - establishing the foundation of a digital economy,
 - promoting digital adaptation among organisations
 - fostering innovation among digital-first entities.
- Identifies the **mainstreaming of digital considerations** across energy and infrastructure projects as a core priority under the **adaptation** area of focus.

Digitalisation in the energy sector

Bringing digital and physical infrastructure assets together creates cyber-physical systems known as “smart” infrastructure. These use computer-based systems and applications to connect disparate utility, infrastructure and public services to generate real-time data. These data help asset owners manage their infrastructure and services more effectively, reducing costs and downtime, improving the environment and allowing improvements in service quality, delivery and accessibility. The digital enhancement of infrastructure can lead to better social, environmental and economic outcomes and improved transparency and governance, making digitalisation a key component of sustainable infrastructure solutions.

The EBRD’s Energy Sector Strategy recognises digital as an enabler of the energy transition. For example, digitalisation supports the scaling up and integration of variable renewable energy sources by helping to bring down renewable energy costs, allowing for improvements in forecasting, enabling demand-side management and facilitating new approaches to manage system operations.

This in turn helps **deliver efficient, digital and electrified energy systems** through investments in the digitalisation of the energy sector.

Cybersecurity in the energy sector

Ensuring energy operators and infrastructure are cyber secured is essential to maximise their resilience. This is true for operators adopting smart and connected solutions, as well as for operators relying on traditional technologies and architecture. Furthermore, the move from a limited number of centralised energy providers to a large number of decentralised renewable providers increases the cybersecurity risks.

Supporting delivery through a new knowledge product: the Energy Infrastructure Digitalisation Toolkit

What is it? A forthcoming sector-specific digitalisation roadmap and compendium.

Who is it for? EBRD clients, Green Cities, asset owners and operators

What does it include?

- a **roadmap** to outline pathways for transition from “low” or “no” digitalisation maturity in client organisations to best-in-class or “transformative”, featuring key performance indicators, an action plan and an overview of public, private and user involvement to achieve maturity
- a **compendium** of specific individual current or near-future digital/smart technologies and applications that can be applied in each sector to achieve client digitalisation maturity objectives
- **case studies** to demonstrate how roadmaps might be achieved.

Annex J: Gender and economic inclusion in the energy sector

As set out in its Strategy for the Promotion of Gender Equality and Equality of Opportunity Strategy, the EBRD focuses on identifying win-win solutions for clients, often to address business challenges (such as skills shortages and low capacity), while enhancing equality of opportunity for end beneficiaries. This relies on a **holistic, human capital-centred approach**, whereby initiatives may target different and intersecting groups, depending on the economic inequalities that prevail in the energy sector of a given economy.



Developing green skills for all

The EBRD provided a loan to ACWA Power to fund the development of two wind power plants adding 1 GW to the renewable energy capacity of Uzbekistan, while promoting access to green skills and employment for the country's youth. With the EBRD's support, ACWA has been contributing to the activities of the Sectoral Skills Council for Energy and implementing a new three-year dual-learning programme to foster the skills of prospective wind energy specialists in collaboration with the local technical college.



Supporting a just transition away from the coal, oil and gas sectors

The EBRD financed ESM, North Macedonia's coal-legacy state-owned enterprise, to develop solar photovoltaic (PV) plants near its lignite mines, while leading the implementation of a package of just transition activities. This includes designing new workforce management measures and multiple re-skilling courses for workers at risk of redeployment, as well as supporting the delivery of a national skills strategy to further promote the human capital resilience of workers with stranded skills across the coal industry.



Promoting resilience and new skills standards

With a substantial investment in STEG, the leading player in Tunisia, the EBRD promoted not only the resilience of the energy system, but also the development of new skills standards and three nationally accredited master's-level programmes on green and digital skills for young energy engineers. This involves the introduction of five national occupational skills standards to define what new skills will be required in the sector, as well as to enhance the employability of labour-market entrants.



Expanding networks and opportunities for women

In Türkiye, the EBRD extended a loan to Enerjisa Enerji to support the upgrade of its existing network, the expansion of EV charging infrastructure and the enhancement of corporate climate governance practices. As part of the financing, Enerjisa also committed to applying a gender lens to all of its corporate climate governance activities and implementing an outreach programme for at least 600 young women who aspire to shape future climate action and become leaders in climate governance across the sector.

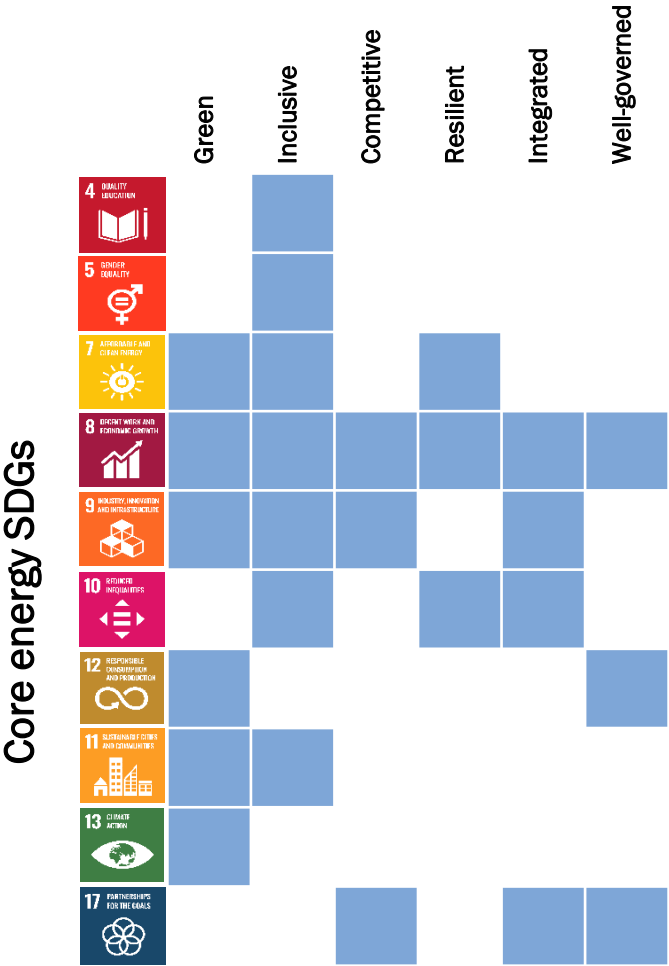


Improving energy-efficiency capabilities

By investing in Romania's Electrica Distribution, the EBRD not only helped the company to address its liquidity needs, which were severely impacted by the recent spike in electricity market costs, but also enabled it to update its human resource practices by introducing an internal reward scheme to incentivise staff to report unauthorised losses of electricity and strengthen the results of its existing professional development training programme on new operational procedures and technologies.

Annex K: The United Nations Sustainable Development Goals

Secure, affordable and sustainable energy is central to achieving the Sustainable Development Goals (SDGs). Through its activities in the energy sector, the EBRD directly contributes to 10 of the 17 SDGs, as shown below.



ENERGY – STRATEGIC DIRECTION

- 1 Accelerate the decarbonisation of energy
- 2 Deliver efficient, digital and inclusive energy systems

All EBRD energy projects contribute to **SDG 7 on affordable and clean energy**, which aims to ensure access to affordable, reliable, sustainable and modern energy for all.

“In some countries, the COVID-19 pandemic has weakened or reversed advances already made [in the energy sector]. Rising commodity, energy and shipping prices have increased the cost of producing and transporting solar photovoltaics modules, wind turbines and biofuels worldwide, adding uncertainty to a development trajectory that is already far below [SDG 7. Clean and Affordable Energy] ambitions. Achieving energy and climate goals will require continued policy support and a massive mobilization of public and private capital for clean and renewable energy, especially in developing countries.”

- United Nations Sustainable Development Goals Report 2022

Core SDGs for energy sector strategic direction



Annex L: The Environmental and Social Policy and the Energy Sector Strategy

The Bank's Environmental and Social Policy (ESP) and associated Performance Requirements (PRs) set out the criteria for any EBRD financing. The PRs set the minimum environmental and social requirements for financing and are applied pragmatically on a risk basis. The ESP is undergoing review in 2023, with a new ESP set to be approved in May 2024.

The issues typically faced on energy projects involve environmental and social management; labour and working conditions; pollution prevention and use of EU Best Available Techniques (BAT); emissions to air; water management; waste management; the health and safety of workers and communities; compensation for economic and/or physical displacement; impacts on biodiversity caused by land take and/or habitat fragmentation; the cumulative impacts of associated infrastructure; the preservation of cultural resources; and the provision of meaningful consultation with local communities to ensure that they are aware of site activities and operations and understand how to seek additional information and file a grievance. For the energy sector, the EBRD has a dedicated [Environmental and Social Guidance Note for Hydropower Projects](#) and uses best international industry practice where relevant.

A challenge for clients in the economies where the Bank operates in the energy sector is meeting EU environmental and social standards across a range of issues, for example:

- EU environmental standards, such as BAT, as required by the Industrial Emissions Directive
- addressing cumulative impacts associated with the project developed (including infrastructure, such as power lines, that may not be directly financed by the Bank)
- appropriate assessment of biodiversity and habitats and developing mitigation measures (often not required by national legislation and, thus, PPAs)
- social issues associated with land acquisition and impact on livelihoods.

The EBRD will work with clients to identify pollution impacts and ensure compliance with national and applicable EU standards and the Bank's ESP/PRs. It will support the development and implementation of projects with GET elements that lead to less energy intensity, less water usage and a reduction in greenhouse gas and air-polluting emissions to help address public health. The EU Taxonomy will be used in this process where appropriate. The Bank will work to improve the implementation of the circular economy, where possible, as well as sustainability reporting and disclosure, and institutional strengthening and policy engagement, as relevant, including through cumulative impact assessments (strategic environmental assessments) and training. Where supply-chain standards are concerned, the EBRD will undertake risk-based due diligence to ensure the traceability and verification of supply chains for all energy-sector investments, with zero tolerance of forced labour.

Details of the EBRD ESP can be found at: <http://www.ebrd.com/news/publications/policies/environmental-and-social-policy-esp.html>

Annex M: Links to EBRD country strategies

The strategic direction of the Energy Sector Strategy is tailored to specific aspects of country strategies (selected examples below):

Poland

- Improve energy and resource efficiency
- Promote a more diversified energy mix
- Increase private-sector participation in state-dominated sectors

Greece

- Increase resource efficiency and climate resilience
- Improve the quality and connectivity of transport and energy networks
- Deepen and diversify local debt and equity capital markets
- Increase private-sector ownership or participation

Uzbekistan

- Increase the use of renewable energy
- Improve the quality and connectivity of transport, energy and ICT networks
- Strengthen the capacity of private-sector companies to grow and add value
- Promote commercialisation and private participation in state-dominated sectors

Egypt

- Increase renewable energy capacity and a more diversified energy mix
- Support access to skills development, services and economic opportunities
- Promote a more expansive, competitive and resilient private sector post-Covid-19
- Deepen and diversify the financial sector and products

Türkiye

- Increase renewable energy capacity and diversify the energy mix
- Support energy and resource efficiency, climate resilience and environmental performance
- Enhance access to entrepreneurship and skills for inclusion target groups, especially youth and refugees
- Promote gender equality in access to economic opportunities

Albania

- Support more diversified energy with reduced vulnerability to climate change
- Reinforce networks for domestic and regional connectivity
- Increase access to infrastructure, unlocking economic opportunities for inclusion target groups
- Commercialisation and restructuring of key SOEs; strengthening the corporate governance of firms

Annex N: Context indicators (1/2)



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	Country	TES/GDP (MJ per 2015 US\$ PPP)	CO ₂ /TES (tCO ₂ per TJ)	CO ₂ emissions per capita (tCO ₂ per capita)	Share of coal in electricity generation (%)		Share of intermittent solar and wind in electricity generation (%)		Share of renewables in electricity generation (%)	
		2020	2020	2020	2017	2020	2017	2020	2017	2020
Central Europe and the Baltic states	Croatia	3.4	41.8	3.6	12%	9%	11%	14%	60%	65%
	Czech Republic	4.4	51.7	8.1	51%	41%	3%	4%	11%	13%
	Estonia	4.2	37.8	5.3	9%	13%	6%	16%	14%	48%
	Hungary	3.7	39.9	4.5	15%	11%	4%	9%	11%	16%
	Latvia	3.3	35.6	3.4	-	-	2%	3%	73%	64%
	Lithuania	3.2	35.7	4.0	-	-	40%	35%	70%	54%
	Poland	3.6	63.7	7.1	78%	70%	9%	11%	14%	18%
	Slovak Republic	4.0	39.8	5.1	13%	8%	2%	2%	24%	24%
	Slovenia	3.7	44.6	5.7	30%	26%	2%	2%	28%	33%
South-eastern Europe	Albania	2.5	37.5	1.2	-	-	-	1%	100%	100%
	Bosnia and Herzegovina	6.6	69.0	6.3	76%	71%	<1%	2%	24%	29%
	Bulgaria	5.1	45.2	4.8	47%	34%	6%	7%	14%	19%
	North Macedonia	5.9	78.1	4.9	97%	94%	0%	2%	3%	5%
	Kosovo	4.2	59.3	4.1	55%	48%	4%	9%	45%	52%
	Montenegro	3.6	62.8	3.3	60%	49%	2%	3%	23%	28%
	Romania	2.7	48.1	3.4	26%	17%	14%	16%	38%	44%
	Serbia	5.5	68.5	6.6	73%	71%	<1%	3%	25%	27%
	Türkiye	2.6	59.6	4.4	33%	34%	7%	12%	29%	42%
	Greece	3.0	58.3	4.5	34%	14%	17%	29%	25%	37%

Annex N: Context indicators (2/2)



European Bank
for Reconstruction and Development

Country		TES/GDP (MJ per 2015 US\$ PPP)	CO ₂ /TES (tCO ₂ per TJ)	CO ₂ emissions per capita (tCO ₂ per capita)	Share of coal in electricity generation (%)		Share of intermittent solar and wind in electricity generation (%)		Share of renewables in electricity generation (%)	
		2020	2020	2020	2017	2020	2017	2020	2017	2020
Eastern Europe and the Caucasus	Armenia	4.6	42.1	2.1	-	-	<1%	2%	29%	24%
	Azerbaijan	4.7	50.6	3.3	-	-	<1%	1%	8%	5%
	Belarus*	5.9	50.0	5.6	-	-	1%	1%	2%	3%
	Georgia	4.2	45.0	2.5	-	-	1%	1%	81%	75%
	Moldova	5.7	49.1	3.1	-	-	<1%	1%	6%	6%
	Ukraine	7.7	44.6	3.7	32%	27%	1%	6%	7%	12%
Central Asia	Kazakhstan	6.1	74.3	10.9	67%	67%	0%	2%	11%	11%
	Kyrgyzstan	5.8	51.8	1.2	7%	8%	0%	0%	92%	91%
	Mongolia	6.9	81.0	6.3	91%	85%	3%	8%	4%	10%
	Tajikistan	4.4	47.4	0.8	5%	8%	0%	-	95%	90%
	Turkmenistan	11.5	56.8	10.0	0%	0%	0%	-	-	-
	Uzbekistan	7.2	57.9	3.2	3%	4%	0%	-	13%	8%
Southern and eastern Mediterranean	Egypt	2.8	51.3	1.8	-	-	1%	5%	8%	12%
	Jordan	3.8	56.3	2.0	-	-	7%	20%	7%	20%
	Lebanon	4.1	70.1	3.0	-	-	-	1%	2%	7%
	Morocco	3.4	70.6	1.7	53%	69%	11%	15%	14%	18%
	Tunisia	3.8	56.0	2.1	-	-	3%	4%	3%	4%
	Russia*	8.6	48.9	10.8	16%	16%	-	-	17%	20%

Note: No data available for the West Bank and Gaza.

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

Source: IEA (2022), World Energy Balances 2022 and World CO₂ Indicators 2022.

Annex O: Collaboration with development partners in the energy sector

	Geography					
	Central Europe and the Baltic states	South-eastern Europe	Eastern Europe and the Caucasus	Central Asia	Southern and Eastern Mediterranean	Türkiye
ADB						
AIIB						
AfDB						
World Bank						
IFC						
EIB						
IsDB and ICD						
EU and bilaterals						
EBRD						

€	Area of significant investment		Focus mostly on the private sector
P	Area of significant policy dialogue		Focus mostly on the public sector

Central and South-eastern Europe and Greece

- In Greece, both the EBRD and the European Investment Bank (EIB) have provided financing for the construction of the Mytilineos combined cycle gas turbine (CCGT) plant, which is contributing to the accelerated phase-out of all Greece's coal-fired plants by 2028.

Eastern Europe and the Caucasus

- In Ukraine, the EBRD has been instrumental in kick-starting the renewables sector and in gradually mobilising other MDBs to scale up the financing available for the sector.
- In Moldova, the EBRD, together with the World Bank, the EU, the Energy Community, the EIB and bilateral donors, has been supporting energy sector reforms, renewable energy auctions and energy efficiency initiatives. The EBRD, alongside the EIB, financed important electricity distribution investments.
- In the Caucasus, the EBRD is developing renewable energy auctions in Armenia, Azerbaijan and Georgia. Together with other MDBs, the Bank financed the first utility scale solar PV projects in Armenia and Azerbaijan and continued to support small-scale hydropower plants and networks in Georgia and Armenia.

Central Asia

- The EBRD is supporting the implementation of the Low Carbon Pathway for the energy sector in Uzbekistan, the first in the EBRD regions, as well as the competitive procurement of 2 GW wind auctions. The Bank has invested in every renewable project in the country to date, co-financed with the International Finance Corporation (IFC), the Asian Development Bank (ADB), the German Investment Corporation (DEG), Proparco, the Organisation of the Petroleum Exporting Countries (OPEC), the Japan International Cooperation Agency (JICA), the Dutch Entrepreneurial Development Bank (FMO) and commercial banks including 2.5 GW of renewables financed in 2022-23.
- In Kazakhstan, together with the ADB and the Development Bank of Kazakhstan, the EBRD financed Almaty combined heat and power plant's coal to gas conversion, accompanied by comprehensive policy engagement at country, sector, city and company level. The EBRD continues to scale up renewables, such as the 100 MW Zhanatas Wind financed together with the Asian Infrastructure Investment Bank (AIIB), the Industrial and Commercial Bank of China and the Green Climate Fund, and provide support for renewable auctions.
- In the Kyrgyz Republic and Tajikistan, driving sector reform alongside the ADB and the EU Investment Facility for Central Asia, the EBRD has financed networks and helped to rehabilitate hydropower plants as part of its climate adaptation activities.

Türkiye

- The EBRD's focus in Türkiye is on supporting renewables and electricity distribution, including EV charging infrastructure and integrated energy solutions – co-financed with the AIIB, FMO and commercial banks.

Southern and eastern Mediterranean

- The EBRD is Egypt's lead partner on the Nexus on Water, Food and Energy (NWFE) energy pillar, developed together with donors, development partners and the authorities. Together with Japan Bank for International Cooperation, the EBRD co-financed the largest-capacity wind farm in Africa, Gulf of Suez 2 (the first wind project under the NWFE), and together with the African Development Bank, co-financed the first utility-scale solar project awarded under a competitive tender in Egypt, Kom Ombo, the first solar project under the NWEF.
- In Morocco, the EBRD financed together with the Clean Technology Fund the first wind repowering project in Africa, Koudia, and had extensive policy engagement in developing the regulatory framework for the commercial and industrial segment.
- In Tunisia, the first solar projects were tendered following detailed engagement with the authorities, alongside the IFC and Proparco.