European Bank
for Reconstruction and Development

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

REPORT 2020

Contents

Foreword

The European Bank for Reconstruction and Development (EBRD) has long recognised that it has a responsibility and a material role to play in addressing climate change and supporting the low-carbon transition of the economies in which it invests. The EBRD's commitment to sustainability and sound banking practices is enshrined in the 1991 Agreement Establishing the Bank, making it the first multilateral development bank (MDB) to have an explicit environmental mandate in its charter.

The EBRD was also the first MDB to sign up as a supporter of the Task Force on Climate-related Financial Disclosures (TCFD). This is the Bank's fourth year publishing TCFD-related updates and its second standalone disclosure. It demonstrates the strong progress the EBRD has made, providing further insight into its approach and methodologies, underpinned by improved metrics and targets.

This year, the Bank established a dedicated Climate Risk team to coordinate and drive its climate risk assessments and, more specifically, to further test and improve its climate risk methodologies and processes. It also conducted its first assessment using Network for Greening the Financial System (NGFS) scenarios and bottom-up modelling on a selection of the EBRD's oil and gas clients – an industry highly susceptible to carbon transition (CT) risks. The results of this pilot assessment are included in the "metrics and targets" section.

These activities are key steps in the Bank's efforts to forge a systematic approach to assessing, quantifying, managing and disclosing its climate risks. Further enhancements are planned over the next two years to address the evolving and iterative industry-wide definition of good practice.

During the year, the Bank also clarified its Energy Sector Strategy to further limit the scope of its engagement in fossil fuels. Having already ceased financing thermal coal mining and coal-fired electricity generation, the EBRD has now ceased all financing for upstream oil and gas exploration and production. The Bank will increase its focus and scale up its ambition for renewable energy projects, modernising grids and introducing innovative electricity storage.

Importantly, and in line with its leading position, the Bank has committed to a strategy that will ensure:

- the alignment of all of its processes and activities with the Paris Agreement by 2023
- that Green Economy Transition (GET) projects account for more than 50 per cent of Annual Bank Investment by 2025.

The United Nations Conference on Climate Change (COP26) in November 2021 is likely to place further demands on the financial services sector to help tackle climate change. The EBRD, with its expertise, financial resources and responsive approach, stands ready to address those demands in the economies where it invests.

The EBRD further welcomes the commitment by G7 finance ministers in June this year to making it mandatory for all companies to disclose climate-related financial risks and investment decisions in accordance with the TCFD guidelines.

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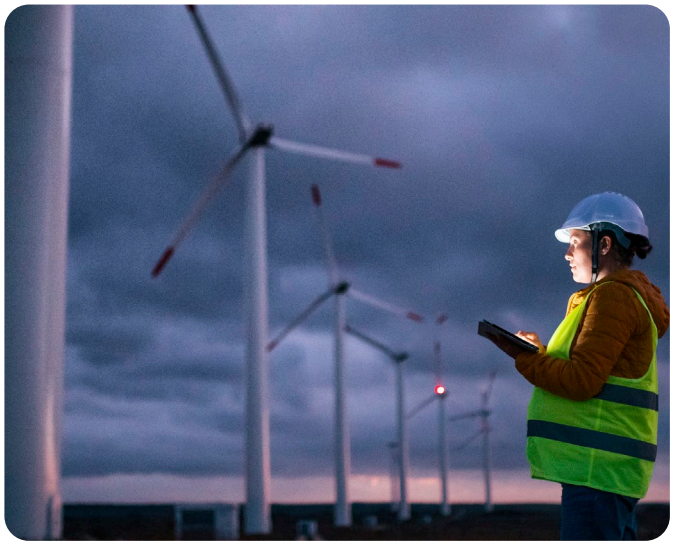
1. Introduction and overview

The Task Force on Climate-related Financial Disclosures (TFCD) was established in 2015 by the G20's Financial Stability Board to better understand and promote disclosure of climate-related financial risks and opportunities. In 2017, the TCFD published recommendations on the voluntary disclosure of such risks, to guide companies and financial institutions in providing information to investors, lenders, insurers and other stakeholders. The TCFD recommends grouping these disclosures into four pillars: (i) governance, (ii) strategy, (iii) risk management and (iv) metrics and targets.

The EBRD became a supporter of the TCFD in May 2018 and was the first multilateral development bank (MDB) to sign up to the initiative. It continues to recognise the relevance of the TCFD recommendations to its mission.

This report is the EBRD's second standalone disclosure using the TCFD framework. It outlines the Bank's heightened ambition in relation to climate policy, including its new Green Economy Transition (GET)[1] target and plans for alignment with the goals of the Paris Agreement. Further details are provided in section 3.

On climate risk management (section 4) and metrics and targets (section 5), the report presents the Bank's portfolio position as of 31 December 2020, but also sets out the actions taken and new processes put in place during the first half of 2021. The report considers the two categories of climate-related risk highlighted by the TCFD:



- **carbon transition (CT) risks**, which arise from the process of adjustment to a low-carbon economy and are influenced by a range of factors, including developments in policy and regulation, the emergence of disruptive technologies or business models, shifting sentiment and societal preferences, and evolving legal interpretations. These processes may prompt a reassessment of the value of assets and create credit exposure for banks and other lenders as costs become apparent.
- **physical climate (PC) risks** resulting from the impacts of a changing and variable climate, which may result in disruptions and increased costs to a wide range of economic activities. These risks can be acute (event-based PC hazards, such as storms or floods) or chronic (progressive shifts in weather patterns, such as increasing water stress).

In June 2021, the Bank introduced systematic climate risk screening for all new direct finance projects. Over time, the Bank will look to expand its climate assessment methodologies to include financial institutions, sovereign, equity and treasury exposures as it works to integrate climate risk into its annual *Financial Report*. Please see section 4 for further details.

This report offers greater financial disclosure on the EBRD's performance against various preliminary climate risk indicators and metrics. The climate financial disclosures covered in section 5 of the report include:

- Banking portfolio exposure by project industrial sector classification for 2018, 2019 and 2020
- an outline of the Bank's remaining exposure to coal, both direct (project proceeds that directly finance coal activities) and indirect (through our clients)
- exposure to CT risks using the Bank's internally developed CT scores for the 2020 Banking portfolio
- results of preliminary pilot modelling for a segment of the Bank's oil and gas portfolio using four NGFS scenarios

[1] The Green Economy Transition (GET) 2021-25 is the Bank's approach to helping economies where the EBRD invests to build green, low-carbon and resilient economies. Through the new GET approach, the EBRD will increase green financing to more than 50 per cent of its Annual Bank Investment by 2025.

- exposure to PC risks using the Bank's internally developed PC risk scores for the Sustainable Infrastructure Group (SIG) portfolio.

Based on the analysis included in this report, as well as the Bank's triple-A credit rating and high level of capitalisation, the EBRD's financial sustainability is expected to be resilient to a range of adverse climate scenarios. The Bank is looking at expanding its existing scenario testing and completing a comprehensive climate-risk stress test in future.

The TCFD also emphasises the identification of financially sound climate-related opportunities. To this end, the Bank has continued to work on project-level opportunities to promote the transition to low-carbon and climate-resilient economies and has increased its work with clients to support improvements to corporate climate governance and the use of climate-related information. More details on this work are provided in section 3.3.

Beyond its own internal activities, the Bank continues to help improve the wider practice of climate financial disclosure. In 2020 and 2021, the EBRD maintained its participation as an observer in the Network of Central Banks and Supervisors for Greening the Financial System (known as the Network for Greening the Financial System, or NGFS) and contributed to the Technical Expert Group on Sustainable Finance and the European Union's (EU) International Platform on Sustainable Finance, while cooperating with other MDBs[2] on climate action. The Bank has also continued to work with other MDBs on aligning their operations with the goals of the Paris Agreement and has formed a joint MDB technical working group on TCFD and climate risk. Lastly, the Bank has continued to work with the United Nations Environment Programme (UNEP) and commercial banks, participating in the UNEP Finance Initiative (FI) Pilot Phase II and III project on implementing TCFD recommendations for banks.

In sum, the report marks a significant step towards the identification of climate-related financial risks. It also advances the integration of TCFD disclosures into the Bank's annual *Financial Report* over the next few years, as outlined in Figure 1.

Figure 1: **The EBRD's TCFD journey**

2020 climate risk actions

- First standalone TCFD disclosure report published in October 2020
- Developed and completed an initial pilot of PC and TC risk methodologies
- Created initial climate risk heatmaps
- Developed a proprietary physical risk screening tool
- Ongoing focus on green finance (GET)

2021 climate risk actions

- Establishment of a dedicated Climate Risk team within the Risk Management Department and formalisation of governance and reporting
- Further pilots on both PC and CT risk methodologies
- Introduction of process to score all incoming direct finance corporate deals for PC and CT risk
- Integration of Paris alignment assessment process into Bank operations
- Initial scenario analysis using NGFS scenarios on a sample of oil and gas portfolio assets

Next steps and future plans

- Expand methodology and assessments of PC and CT risk to indirect finance and sovereigns
- Further develop scenario analysis for a larger part of the portfolio and define climate stress-testing approach
- Integrate comprehensive climate risk assessments into portfolio monitoring
- Apply explicit climate risk assessment to treasury portfolio and screening
- Continue engagement to define a joint standard for MDBs
- Define and implement internal training and communication on climate risk

[2] In the context of this report, the group of MDBs comprises the African Development Bank (AfDB), the Asian Development Bank (ADB), the EBRD, the European Investment Bank (EIB), the Inter-American Development Bank Group (IADB), the Islamic Development Bank (IsDB) and the World Bank Group.

2. Governance

2.1. Board oversight of climate-related risks and opportunities

The EBRD is owned by 70 countries, the EU and the European Investment Bank (EIB). Each shareholder has an individual representative on the EBRD's **Board of Governors**, which has overall authority over the Bank and is responsible for approving its strategic direction.

The Board of Governors delegates most powers to the **Board of Directors**, which comprises 23 Directors and is chaired by the President. The Board of Directors approves the EBRD's high-level policies, as well as its country, sectoral and thematic strategies. The Board is also responsible for approving all new project operations unless final approval has been delegated to Management. The documentation for every project submitted to the Board includes relevant information on climate change. The Board discusses these projects and provides its recommendation at its regular meeting (typically twice a month). The EBRD's Board of Directors has ultimate responsibility for the oversight of the EBRD's climate-related matters.

2.1.1 Board committees

The Board has established three committees to assist with its work:

- The **Audit Committee** focuses on all risk-related issues and reporting, including climate risk and the Bank's TCFD disclosure. The Audit Committee receives quarterly reports on the evolving risk profile of the Bank and conducts annual reviews of the risk management function. The quarterly reports cover the Bank's performance against its institutional objectives, including those linked to climate change-related activities. From Q2 2021, these quarterly reports also include information on the Bank's exposure to and management of climate-related risks.
- The **Financial and Operations Policies Committee (FOPC)** is responsible for reviewing and exercising oversight of the EBRD's financial and operational policies, including in relation to climate issues. In the last 12 months, the FOPC has endorsed proposals on a range of climate-related activities, Paris alignment and the EBRD's approach to fossil fuels.
- The **Budget and Administrative Affairs Committee** assists the Board of Directors in fulfilling its responsibilities in relation to approval and oversight of the Bank's budgetary, staff and administrative resources.

2.2. Management's role and management committees

The **President** is elected by the Board of Governors and is the legal representative and chief of staff of the Bank. Under the guidance of the Board of Directors, the President conducts the day-to-day business of the EBRD. Management's prioritisation and delivery of business activities is guided by the Bank's strategies and policies.

Listed in Table 1 are the committees that directly advised the President or a member of the Bank's Executive Committee on the management of climate-related risks and opportunities in 2020.

Table 1: **EBRD management committees relevant to climate-related risks and opportunities**

Management committee	Chair	Purpose	Meeting frequency
Executive Committee	President	Advises the President on all aspects of Bank-wide strategic significance, including issues related to climate risks and financially sound climate-related business opportunities (for example, the GET strategy)	Fortnightly
Operations Committee	First Vice President and Head of Client Services Group	Considers matters related to the Bank's investment operations, including climate risks and opportunities on an individual project basis	Weekly
Strategy and Policy Committee	Vice President, Policy and Partnerships	Considers matters that fall within the overall responsibility of the Vice President, Policy and Partnerships and certain matters falling within the responsibility of the Chief Economist; focuses primarily on transition, strategy and policy work, country, industry, sector and thematic strategies and policy-related research, including climate-related matters	Fortnightly
Risk Committee	Vice President, Risk and Compliance and Chief Risk Officer	Responsible for matters related to Bank-wide risks, including credit and operational risk, with associated follow-up actions; oversees risk aspects of the EBRD's portfolios, approves risk policies and risk reports and considers new products; reviews the Bank's climate-risk methodologies, approves the TCFD report and other pertinent climate-risk issues throughout the year	Fortnightly

2.2.1 "Three lines of defence" model for managing climate-related risks

In its day-to-day operations, the EBRD manages climate-related risks using its "three lines of defence" model (see Figure 2), which encompasses:

- the shared responsibility of all staff members, particularly the Client Services Group,[3] to identify and manage climate-related risks and opportunities incurred in the course of fulfilling their responsibilities (**first line of defence**).
- independent, empowered and appropriately resourced functions (**second line of defence**), led by **Risk Management** and the **Environment and Sustainability Department**, with control of and responsibility for matters falling within their areas of competence. This includes the determination of project alignment with the objectives of the Paris Agreement, the attribution of green finance and the final determination of climate-related risks.

[3] The Client Services Group oversees Banking operations and the Bank's Policy and Partnerships pillars. It includes the Banking Department and the Economics, Policy and Governance (EPG) Department.

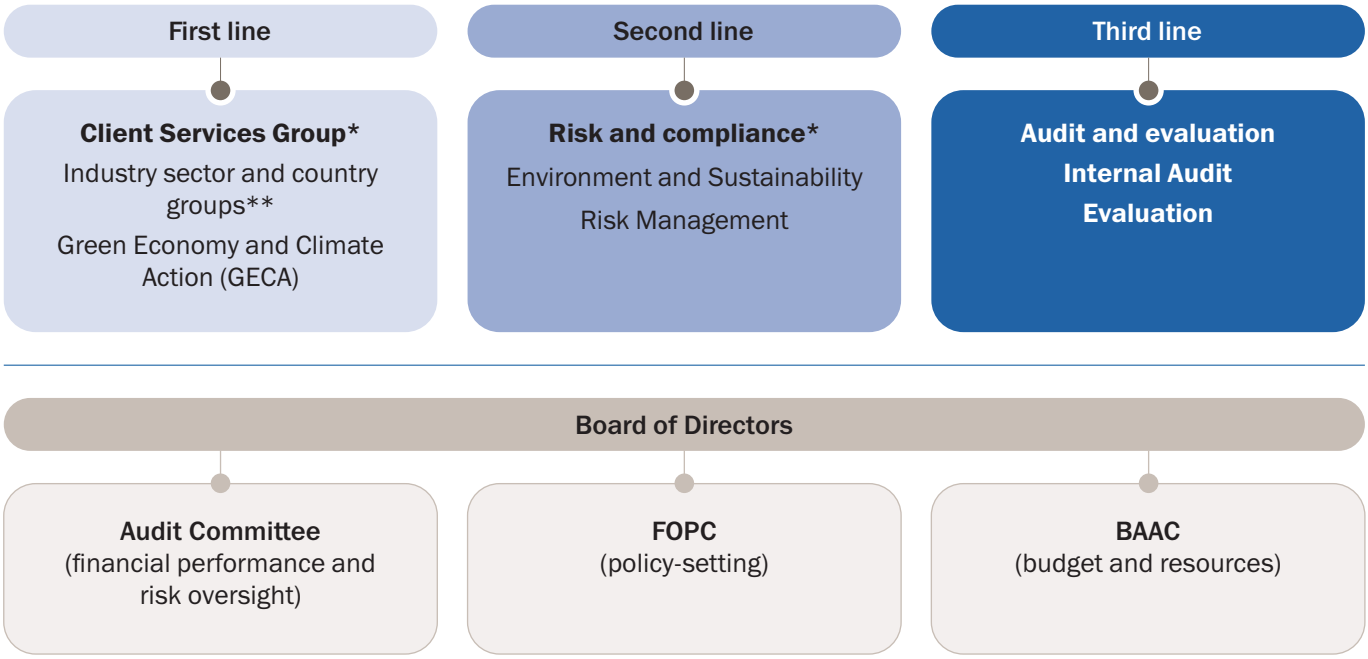
- the **Internal Audit Department**, which acts as a **third line of defence** and independently assesses the effectiveness of the processes within the first and second lines of defence. The work of the Internal Audit Department is complemented by that of the **Evaluation Department**, which independently evaluates the performance of the Bank against its mission and development objectives.

Within the first line of defence, the mandate of the **Green Economy and Climate Action (GECA)** team[4] is to work across Banking teams to support project origination, primary project assessment, structuring and execution, as well as associated technical assistance and policy dialogue, with respect to climate-related business operations under the Bank's GET approach. All Banking teams, including GECA, have specific objectives when it comes to fulfilling the Bank's GET financing target, which forms an integral part of their remuneration scorecard requirements.

The EBRD's first line of defence is supported by the **Economics, Policy and Governance (EPG) Department**, which is part of the Vice Presidency for Policy and Partnerships. EPG defines and maximises the Bank's work on transition impact through its operations and policy engagement, also with regard to green investment. It leads the Bank's economic assessment (focusing on the societal costs and benefits) of projects with significant greenhouse gas (GHG) emissions, thus also supporting the Bank's work on Paris alignment (see Box 1).

Within the second line of defence, the **Vice President, Risk and Compliance and Chief Risk Officer (CRO)** has overall responsibility for the formulation, communication and implementation of the EBRD's risk management strategy and polices, also in the area of climate risks. The Vice President/CRO reports to the President, is a member of several of the Bank's executive management committees, including the Executive Committee, and engages directly with the Board of Directors.

Figure 2. **"Three lines of defence" model**



*The Bank's first and second lines of defence are supported by the Economics, Policy and Governance Department (EPG).

** The first line of defence primarily consists of the EBRD's Banking Department. The EBRD's Banking sector groups include Financial Institutions, the Sustainable Infrastructure Group (SIG), and Industry, Commerce and Agribusiness (ICA).

[4] On 1 November 2020, the Energy Efficiency and Climate Change (EECC) team was renamed the Green Economy and Climate Action (GECA) team.

2.2.2 Coordinating the management of climate risk-related issues

To ensure adequate alignment and coordination of climate risk issues, the Vice President/CRO has combined responsibility for the EBRD's Environment and Sustainability and Risk Management Departments. This includes responsibility for both climate risk assessment and the verification of Paris alignment assessments for projects and clients (see Figure 3).

In particular, the Environment and Sustainability Department is responsible for:

- **Paris alignment verification** – final verification that projects are aligned with the goals of the 2016 Paris Agreement for both climate mitigation and adaptation
- **GET finance verification** – verification of GET finance attribution, based on the contribution a project makes to climate action and other environmental benefits
- **environmental and social impacts** – assessment and risk management of the broader environmental and social impacts of all investment projects.

Where climate change is concerned, the Risk Management Department is responsible for:

- **climate risk analysis** – independent assessment of climate risks associated with the EBRD's clients for CT and PC risk, based on the information provided by the Client Services Group teams and the work of the Environment and Sustainability Department
- **portfolio project reviews** – ongoing review of the portfolio to monitor the risks presented by investments from inception to repayment or exit
- **portfolio-wide reviews** – assessment and proposal of ways to manage risks arising from correlations and concentrations within the portfolio, along with complete climate scenario analyses and stress-testing exercises.

The Bank has put in place governance arrangements to create a functional separation between the teams that are developing projects and those responsible for confirming Paris alignment and assessing climate risk. Banking teams, supported by the GECA, are responsible for assessing projects against the Paris adaptation and mitigation goals. Ultimate accountability for confirming whether projects are Paris aligned, however, lies with the Environment and Sustainability Department, part of the second line of defence.

Figure 3. **Management coordination of Paris alignment and climate risk management**

In March 2021, Risk Management established a dedicated Climate Risk team to manage the systematic integration of climate risk across the Bank by acting as the coordinating function for EBRD's financial analysis of climate risks. This includes the development of climate risk methodologies, testing their application, recalibrating them based on back testing and implementing them across the Bank's projects. In addition, the Climate Risk team manages the requisite data collection and analysis, establishment of new procedures and project ratings. These are the early stages of a long process that will be revised periodically due to the evolving nature of climate risks and growing disclosure requirements. The **Head of the Climate Risk** team reports to the **Managing Director, Risk Management**.

To coordinate climate risk analysis, the **Climate Risk Group (CRG)** was formed in 2019. The CRG acts as an important cross-bank coordination group for the dissemination of information and debate of climate-related financial risks. The CRG is chaired by the **Managing Director, Risk Management** and brings together expertise from the following departments: Banking, GECA, Risk Management, Environment and Sustainability, EPG, Legal and Treasury. The CRG typically convenes quarterly.

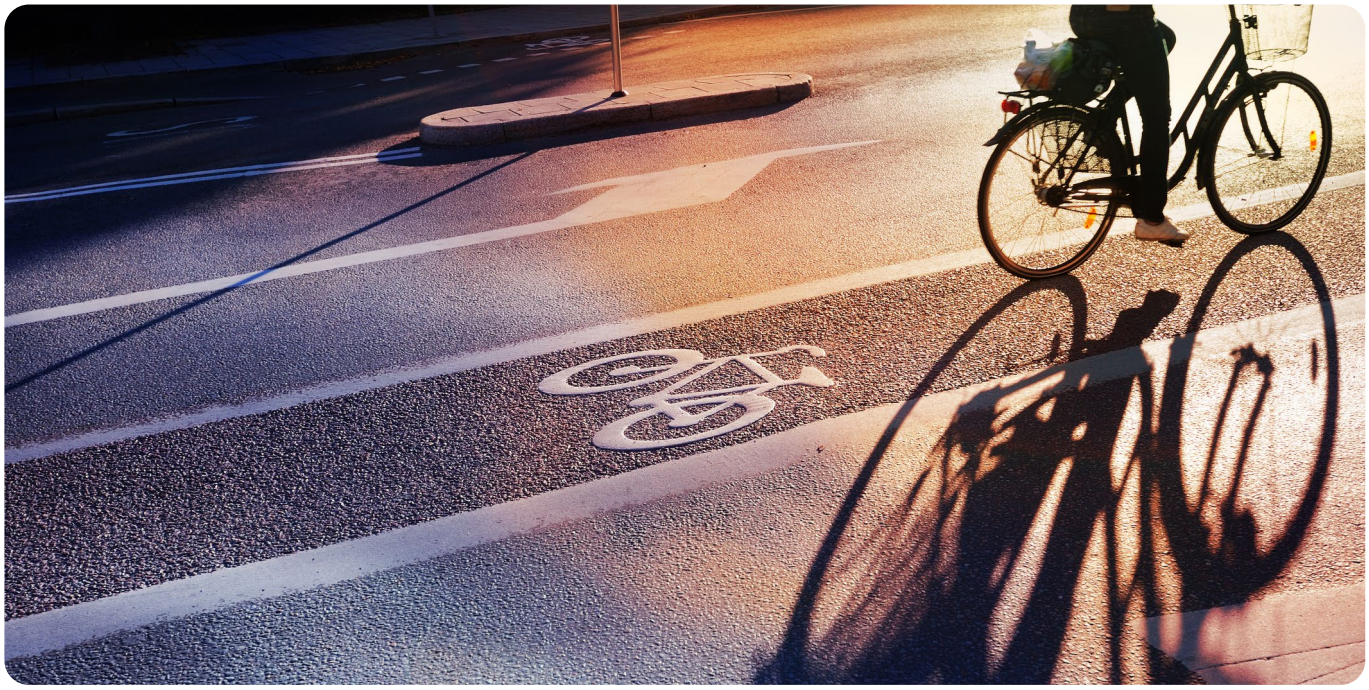
2.3 Climate-related remuneration and rewards policy

2.3.1 Board

Because of their roles as representatives of shareholder governments and organisations, the remuneration of EBRD Board Directors is fixed annually and not linked to the fulfilment of specific organisational objectives or corporate climate-related performance.

2.3.2 Management and staff

To ensure adequate incentives for EBRD staff, also in terms of meeting climate-related objectives, the remuneration of EBRD staff below Vice President level is based on the achievement of personal and team objectives. Ensuring that green finance accounts for at least 50 per cent of the Bank's annual investment forms part of the Bank's scorecard, which determines total compensation for core staff. Furthermore, senior Risk Management leaders have the specific objective of delivering TCFD reporting and redesigning processes to assess climate risk in a systemic way, and this forms part of their remuneration. This requirement cascades down through the Risk Management Department to ensure climate risk is at the forefront of considerations when critically assessing projects.



3. Strategy

3.1. Strategies related to climate change

The promotion of environmental sustainability has been at the core of the EBRD's mission since the Bank was created in 1991. Indeed, environmental sustainability is enshrined in the **Agreement Establishing the EBRD**, the document that lays the foundation of EBRD operations. Article 2.1 (vii) of the Agreement explicitly mandates the EBRD "to promote in the full range of its activities environmentally sound and sustainable development".[5]

In response to this mandate, the EBRD introduced an energy-efficiency practice in its early years, which progressively became more developed. Both energy efficiency and climate change now feature prominently among the Bank's strategic and operational priorities:

1. The Bank's **Strategic and Capital Framework (SCF)**, its main planning instrument, is approved every five years by the Board of Governors. At the EBRD's 2020 Annual Meeting, the EBRD's shareholders unanimously approved the SCF 2021-25, which includes **supporting the transition to a green, low-carbon economy** as one of its three strategic themes.
2. The **Green Economy Transition (GET)** approach, initially approved in 2015, was reapproved in July 2020 to cover 2021-25. The GET approach defines the EBRD's objectives, particularly in relation to climate and environmental opportunities. The main **target is for green finance to account for more than 50 per cent of the Bank's annual investment business** by 2025 and to achieve net annual aggregate GHG emission reductions of at least 25 million tonnes by the end of the five-year period.
3. To advance **Paris alignment**, at the EBRD's 2021 Annual Meeting, the EBRD Board of Governors resolved that **all EBRD activities** should be **fully aligned with the goals of the Paris Agreement by 2023**, thus accelerating the Bank's support for ambitious low-carbon and climate-resilient pathways in the countries where it invests.
4. The **Environmental and Social Policy** is reviewed every five years and was last approved in 2019. This policy **requires all EBRD projects to integrate considerations of potential environmental** and social challenge and opportunity associated with the envisaged activities.
5. **Country strategies** cover individual economies in which the EBRD invests and are revised every five years according to country-specific timetables. Country strategies are designed to identify areas where the EBRD can assess, **manage and deliver on its climate-related objectives**, taking into account the economic context, as well as the Bank's mandate and risk appetite.
6. **Industry sector strategies** are revised every five years. Of particular relevance is the Energy Sector Strategy 2019-23, which was clarified in 2021 to further limit the scope of the Bank's engagement in fossil fuels. Other relevant, Board-approved strategies include (i) the Agribusiness Sector Strategy 2019-23, approved in 2019; (ii) the Transport Sector Strategy 2019-24, approved in 2019; (iii) the Municipal and Environmental Infrastructure Sector Strategy, approved in 2019; and (iv) the Property and Tourism Sector Strategy 2020-24, approved in 2019.
7. In addition, the **Banking Credit Process** sets out the principles that define and govern the process of managing risks, including climate risks for Banking transactions, and is periodically reviewed and updated by the Board of Directors. The **Risk Appetite Statement** provides a summary of the Bank's risk appetite. This statement is updated at least annually and periodically reviewed by the Audit Committee.

[5] See EBRD (1990).

3.2. Implementation of strategies related to climate change

The EBRD's **GET** approach operationalises the financing of environmentally sustainable activities by adopting a systemic approach to supporting the transition to low-carbon and resilient economies. It does this by:

1. assessing projects in relation to the principles of international climate agreements, principally the Paris Agreement
2. enhancing policy engagement for the development of long-term low-carbon strategies and the greening of financial systems
3. scaling investments across a set of priority environmental, climate mitigation and resilience (adaptation) themes, including greening the financial sector, energy systems, industrial decarbonisation, cities and environmental infrastructure, sustainable food systems, green buildings and sustainable connectivity.

The GET approach uses the full range of the EBRD's financial instruments. The Bank works closely with a range of donors and climate-finance mechanisms, such as Climate Investment Funds, the EU, the Global Environment Facility, the Green Climate Fund and other bilateral donors, to mobilise climate finance for its clients.[6]

The EBRD's **Paris alignment** framework, based on an approach developed together with other MDBs, has been subject to voluntary public consultation. The approach comprises six building blocks, incorporating all aspects of the Paris Agreement relevant to MDB activities: climate mitigation, climate resilience (adaptation), climate finance, policy support for clients, reporting and institutional policies. The Bank's approach to Paris alignment entails demonstrating that each project meets the conditions on climate change mitigation and adaptation in Table 2.

Table 2: **Paris alignment mitigation and adaptation goals**

Climate change mitigation goals	Climate change adaptation (climate resilience) goals
• Consistency with long-term low-carbon development, in alignment with the Paris Agreement mitigation goals • Low likelihood of carbon lock-in, so that the project does not enable the continued operation of an emissions-intensive asset when economically preferable, lower-carbon options could replace it	• Physical climate risks have been identified and addressed • Client activities do not undermine climate resilience within the project's operational context

A project must meet each of these conditions to be deemed Paris aligned. For some projects, this assessment is straightforward (projects with a limited carbon footprint). Others (entailing significant GHG emissions or exposure to material PC risks) will require detailed analysis, drawing on complementary analytical tools and evidence, which will be further developed over time. These include a review against Nationally Determined Contributions and the application of carbon lock-in tests. For projects with significant GHG emissions, the Bank also conducts an economic viability test based on an economic assessment using a shadow carbon price (see Box 1).

From June 2021, all direct finance projects require a determination in relation to the climate mitigation and climate resilience goals of the Paris Agreement. Methodology for other types of finance will be developed in 2022. For more details on the Bank's Paris alignment methodology, please see the public consultation guidance note.[7]

[6] For more details about the Bank's Green Economy Transition approach see https://www.ebrd.com/what-we-do/get.html.

[7] The EBRD methodology for Paris alignment for directly financed EBRD investments is available here: www.ebrd.com/documents/comms-and-bis/ebrd-paris-alignment-methodology.pdf. It was published voluntarily for public consultation. The Bank's approach for other financing types will also undergo public consultation in 2022.

Box 1: Economic assessment of EBRD projects with high GHG emissions

Since January 2019, the Bank has been performing economic assessments on projects with high GHG emissions using a shadow carbon price. The Bank's current shadow carbon prices are based on the high and low values of the range of prices recommended by the High-Level Commission on Carbon Prices (see Carbon Pricing Leadership Coalition, 2017). These shadow carbon prices range from US$ 40-80 (approximately €37-74) per tonne of carbon dioxide equivalent (CO_2e) in 2020 to US$ 50-100 (about €46-92) per tonne of CO_2e by 2030. Beyond 2030, prices increase by 2.25 per cent per year, leading to a range of US$ 78-156 (around €72-144) per tonne of CO_2e by 2050. The shadow carbon prices applied to projects will evolve over time to reflect international best practice and the increasing external cost of carbon emissions. The EBRD is currently reviewing alignment of these prices with those proposed by the NGFS.

This economic assessment is applied to projects with annual GHG emissions that either increase net emissions by 25,000 tonnes or more per year after EBRD investment (compared with the pre-project scenario) or have gross emissions of 100,000 metric tonnes or more per year in absolute terms after EBRD investment. The assessment has provided useful information to EBRD Management in considering whether to invest.

A shadow carbon price seeks to put a monetary value on GHG emissions and corrects the market failure associated with the absence of carbon markets or equivalent tools (such as a carbon tax). This is particularly important in instances where carbon prices remain limited or non-existent, as is the case in many of the economies in which the EBRD invests. This methodology ensures that these projects are compared with viable low-carbon alternatives. The results are included in project documents and presented to the Board of Directors in a dedicated annex.

For more information on shadow carbon pricing, see EBRD (2019d).

3.3. Climate-related opportunities

Climate change may, in addition to posing risks, also present opportunities for some firms under certain conditions. The TCFD recommends the assessment and, where appropriate, disclosure of these financially sound climate-related opportunities together with climate-related risks. Identifying and delivering such opportunities is an important aspect of the EBRD's overall climate change operations, as detailed in its **GET** approach.

The EBRD explores two types of climate-related opportunity:

1. **project-level opportunities** to promote the transition to a low-carbon and climate-resilient economy that creates possibilities for financial and non-financial firms to respond to growing demand for low-carbon products and services, as well as to make their assets and operations climate resilient, giving them a comparative advantage over competitors
2. **client-level opportunities** to support improvements in the way that businesses, financial institutions and other market participants use climate-related information in internal business processes and decision-making, such as risk management, capital allocation and business strategy. These can help EBRD clients to adjust their business models and wider market behaviour to internalise climate change objectives and be more systematically oriented to achieving climate goals, both decarbonisation and building climate resilience.

The mainstreaming of the EBRD's green finance initiative throughout the Bank's business, strategy and financial planning has allowed the EBRD to significantly increase its share of climate finance. Since 2006, under the Bank's Sustainable Energy Initiative and, since 2016, under the GET approach, the EBRD has approved more than €37 billion in green investments through more than 2,100 green projects, which are expected to reduce 106 million tonnes of carbon emissions. This includes €18 billion invested under the GET approach in 2016-20 through more than 1,000 projects, €2.6 billion of which was invested in dedicated climate resilience projects.

The GET approach has been effective in delivering climate-related opportunities, from small-scale energy-efficiency investments in small and medium-sized enterprises, financed through local financial intermediaries, to large-scale renewable energy projects. These investments play a particularly important role in supporting the development of the EBRD regions, which include some of the least energy-efficient economies in the world and, at the same time, some of the best locations for solar and wind energy.

Many of the Bank's GET projects are funded through the issuance of green bonds. The EBRD issues three different types of green bond: Environmental Sustainability Bonds, Climate Resilience Bonds, and Green Transition Bonds. The total amount of green bonds issued by the Bank amounted to €7 billion as of end-2020. All these bonds are aligned with the Green Bond Principles and highlight the importance the Bank places on environmentally sound and sustainable development while fulfilling core elements of its mandate. More detail on the Bank's issuance of green bonds is presented in the Bank's *Sustainability Report 2020* and on its *Green Bond Issuance* webpage.[8]

The EBRD also actively invests in green bonds. In 2020, it invested in a record €172 million in green bonds issued by clients, while also supporting them with funding and technical assistance for green issuance. The EBRD has also actively participated in defining and setting standards for green bonds, including through the Green Bond Principles.

In addition, the Bank works with bilateral and multilateral donors to leverage its impact and facilitate project preparation and execution, including through the mitigation of climate-related risks.

Since 2019, the EBRD's traditional project-level finance has been complemented by specialised advisory services that help enhance the corporate climate governance (CCG) of EBRD clients and promote systemic climate action at company level. To date, the Bank has supported more than 20 clients on CCG improvements, from large firms, such as Louis Dreyfus Company and Kernel, in the agribusiness sector to major energy utilities, such as the Public Power Corporation in Greece and the Tunisian Company of Electricity and Gas (STEG). The Bank has also initiated early-stage CCG engagement with banks in the EBRD regions and supported the Warsaw Stock Exchange with the preparation of environmental, social and governance (ESG) guidelines, including climate reporting.[9] The Bank also has plans to substantially expand its CCG activities in the coming year.

[8] See EBRD (2021b) and EBRD (n.d.), respectively.

[9] See Warsaw Stock Exchange (2021).

4. Risk management

4.1. Current risk management framework and climate risk management

The EBRD identifies and manages climate-related risks through its existing risk management framework, which is underpinned by its independent "second line of defence" control, as explained in section 2.2. The core elements of the Bank's risk management framework include processes for assessing and managing credit risk, market risk, liquidity risk and operational risk, as detailed in the EBRD's *Financial Report 2020*.[10]

The Bank considers climate risk to be a cross-cutting risk that impacts credit risk, in particular, but also other risk categories, including market risk and operational risk. The links between these types of risk and climate risk are summarised in Table 3.

Table 3: **Impact of climate risk on the EBRD's existing risk management framework**

Risk type	Impact from climate risk	Response
Credit risk Potential loss to a portfolio that could result from either the default of a counterparty or the deterioration of its creditworthiness	• Counterparty or project assets could become stranded in the event of a disorderly transition • Counterparty financial performance could deteriorate as a result of changing demand for its products/services • Counterparty operations could be impacted by damages resulting from PC events or changing weather patterns	• The EBRD identifies, assesses and manages climate-related risks in the process of due diligence, preparation and structuring of individual transactions. • In particular, the GECA team considers how to mitigate climate risk through climate-resilient investments. • Risk Management is involved as part of standard due diligence to review and challenge where appropriate. • The Bank systematically screens the climate risk of its clients. • Exposure limits are defined and reviewed by the Treasury Credit Risk Management team, based on the probability of default of the counterparty. • Whenever specific counterparty credit analysis is conducted and/or exceptional limits are approved, the inherent impact of climate risks on the probability of counterparty default will have to be considered.
Market risk[11] Market risk is the potential loss resulting from adverse market movements, primarily driven by: (i) interest-rate risk (ii) foreign-exchange risk (iii) equity risk (iv) commodity price risk	• Sudden fluctuations in demand for and supply of financial instruments or changes in rates and/or indices as a result of PC events or disruptive transition	• The Bank seeks to maintain very low residual market risk on its Banking loan and guarantee transactions, as well as its Treasury assets and liabilities. This is achieved, among other things, by hedging foreign-exchange and interest-rate risks. The limits on the maximum amount of market risk accepted in this context are set out in the Bank's Treasury Authority and Liquidity Policy. In the event of climate-related market turbulence, the Bank can either further hedge its Treasury exposure or carry the increased risk temporarily, thanks to the moderate base level. • The Treasury portfolio is monitored using a value-at-risk (VaR) model. Risk-factor scenarios are calibrated on recent market data time series and any implicit climate risks affecting market observables are taken into account. • The Bank's equity portfolio is subject to equity and foreign-exchange risks. The methodology used is independent of that for climate risk, but any risks affecting equity index observables (including climate-related risks) are taken into account.
Operational risk All aspects of risk-related exposure other than those falling within the scope of credit, market and liquidity risk, including risk of loss (financially and/or to the Bank's reputation) resulting from inadequate or failed internal processes, people and systems or from external events	• Bank operations may be disrupted by PC events	• The assessment of risks under this framework considers external events and changes to the Bank's operational risk profile arising from climate change, including the impact on its facilities, infrastructure, vendors and business supply chains. For example, extreme weather may force office closures, disrupt resource distribution or damage crucial resources such as communication and data centres. • The Bank maintains a framework for the continuous identification, monitoring and control of its exposure to operational risks, as well as backup facilities for such eventualities.

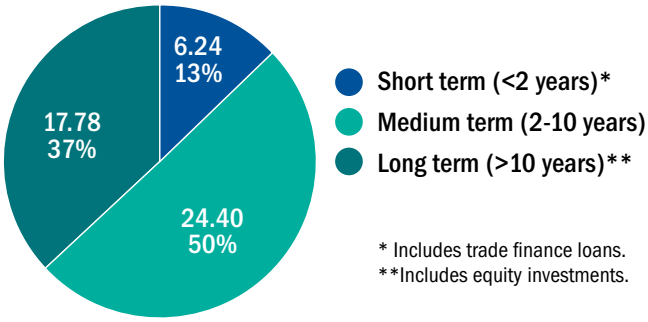
[10] See EBRD (2021c).

[11] While there are other market risks (such as currencies, commodity prices), the above are relevant to all transactions.

4.2. Characteristics of the EBRD's portfolio and climate risk

The Bank considers credit risk to be the type of risk most affected by climate change. While the EBRD's exposure to climate-related credit risk is likely to be driven by a range of different characteristics, three particularly relevant factors for assessing these risks are: (i) time horizons, (ii) industry sector and (iii) geography. An overview of the composition of the EBRD's investment portfolio in these three categories as of 31 December 2020 is presented in Figures 4, 5 and 6.[12]

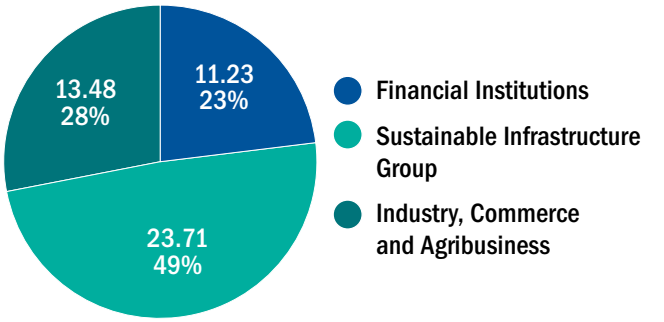
Figure 4: **Time horizons – portfolio assets by maturity (€ billion and per cent, year-end (YE) 2020)**



The time horizons used by the Bank for the purpose of assessing climate risk are based on the latest TCFD guidance on metrics and targets.[13] Accordingly, for climate-risk impacts, the Bank considers short-term investments to be less than 2 years (including trade-finance lending to financial institutions), medium-term investments to be between 2 and 10 years (including equity investments) and long-term investments to be 10 years or longer. Table 4 details the key climate-related issues potentially arising in each time horizon (short, medium and long term) that could have a material financial impact on the Bank.

As can be seen in Figure 4, a substantial portion of the Bank's assets are considered long term, which could increase the Bank's exposure to climate risk. However, 56 per cent of these long-term exposures are sovereign deals. In addition, 50 per cent of the medium-term exposures are to projects with less than a five-year tenor remaining.

Figure 5: **Industry sectors – portfolio assets by Banking sector group (€ billion and per cent, YE 2020)**



The Bank's portfolio can by classified by the exposure of its three core industry sector groups: (i) Industry, Commerce and Agribusiness (ICA), (ii) Sustainable Infrastructure Group (SIG) and (iii) Financial Institutions. A high-level consideration of the climate risks to which each of these groups is exposed is presented in Table 4.

The largest share of the EBRD's assets is held in the SIG, which already undergoes bespoke climate assessment reviews as part of current due diligence practices.

The Bank also classifies its projects and clients by more granular industry sector classifications and uses these industry sectors to assess climate risk more fully, as detailed in section 5.

[12] Portfolio assets include both disbursed and committed but undisbursed investments.

[13] See TCFD (2021), p. 42.

Geography: In 2020, the EBRD regions included 38 economies on three continents. These economies were grouped as follows: Central Asia; central Europe and the Baltic States; Cyprus; eastern Europe and the Caucasus; Greece; Russia; south-eastern Europe; southern and eastern Mediterranean; and Turkey.[14] Projects are classified as 'regional' when they cover more than one region.

Figure 7 provides a qualitative assessment of certain core climate-related risks in each of the EBRD's regions.

The Bank's assets are geographically diversified across its regions. Of note is its portfolio asset exposure to Turkey (14 per cent), where the Bank is currently exploring methods for further diversification.

To assess these risks further, the Bank has developed processes to systematically review each of its projects and clients using the climate risk methodologies detailed in section 4.3.

Figure 6: **Geography – portfolio assets by EBRD region (€ billion and per cent, YE 2020)**

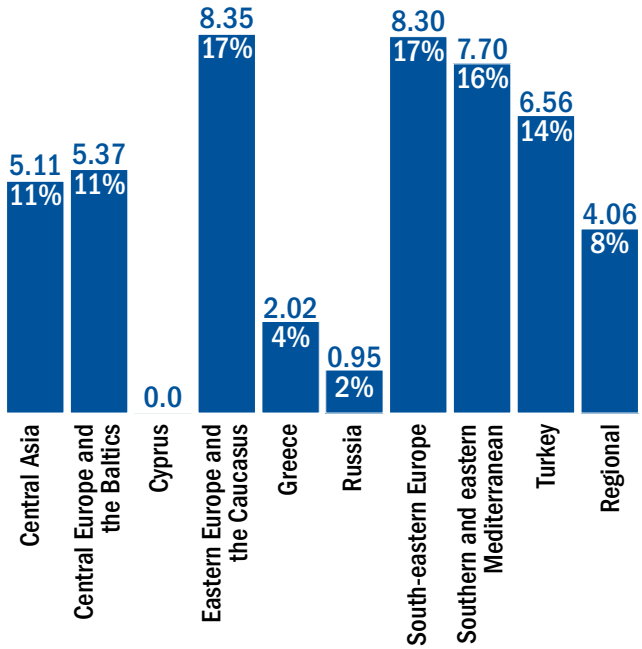
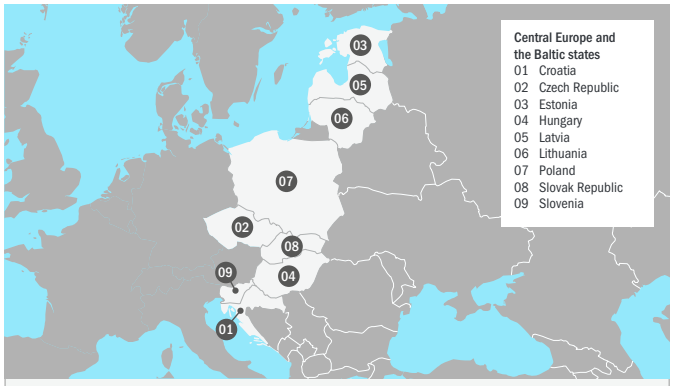


Table 4: **Climate risk impact on Banking industry sector groups**

Risk drivers	Impact on sector groups	Timeframe
CT risk		
Reputational risk	• ICA and the SIG are exposed in the medium term due to growing stakeholder concerns over inadequate climate action and ambition. • The Financial Institutions group is highly exposed to reputational risk because of the increasing focus on climate risk issues. The location of the financial institution affects whether this risk is short or medium term.	Short to medium term
Policy and legal risk	• ICA and SIG are affected by GHG pricing and carbon border adjustments in the EU, creating the potential for stranded assets. Both industry sectors may be impacted by legal risk due to regulatory changes or enhanced reporting requirements. SIG is vulnerable to litigation risk due to the increased number of cases brought against fossil-fuel companies. • The main impacts on the Financial Institutions group are in the medium term, arising from reporting requirements and investments in fossil fuels and energy-intensive sectors. In the long term, these face heightened credit and litigation risk.	Medium to long term
Technology risk	• ICA and SIG are exposed as a result of the potential introduction of low-emission or disruptive technologies.	Medium to long term
Market risk	• ICA and SIG are exposed to the increased cost of raw materials, changing consumer preferences and a potential drop in demand for fossil fuel-intensive products or uncertain market signals.	Medium to long term
PC risk		
Slight increase in severity and frequency of extreme weather	• More extreme heat events, droughts and floods compared with historical baselines will affect all industry sectors.	Short to medium term
Frequency and severity of extreme weather worsens	• All industry sectors with exposure to hard-to-adapt sectors, chronic hazards (increasing mean temperature, increasing water stress, sea-level rise) may start to impact assets and business operations.	Medium to long term

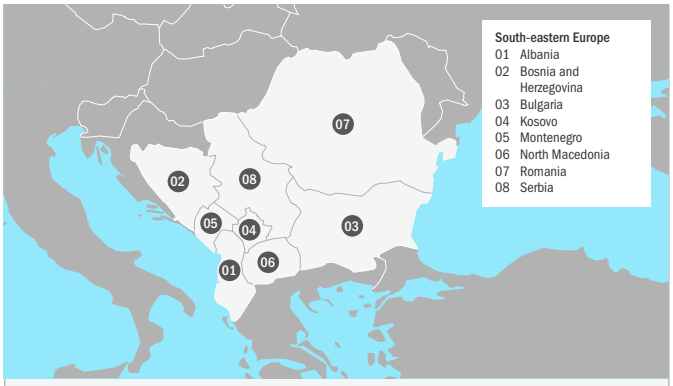
[14] The EBRD's mandate in Cyprus ended in December 2020. The Bank no longer makes new investments there.

Figure 7: **Overview of climate risks in the EBRD regions**



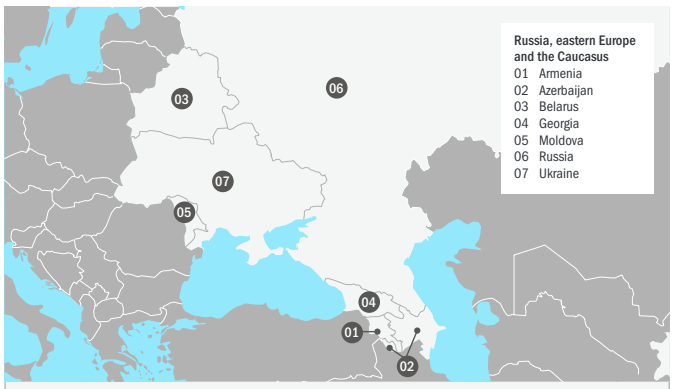
Central Europe and the Baltic States

- Less carbon intensive, prepared for EU regulation and already part of the emissions trading scheme
- Strong productive capability relevant to the green economy
- Medium and long term, the region will face more, longer-lasting droughts
- A significant rise in sea levels is predicted by the end of century, meaning greater risk of flooding and erosion



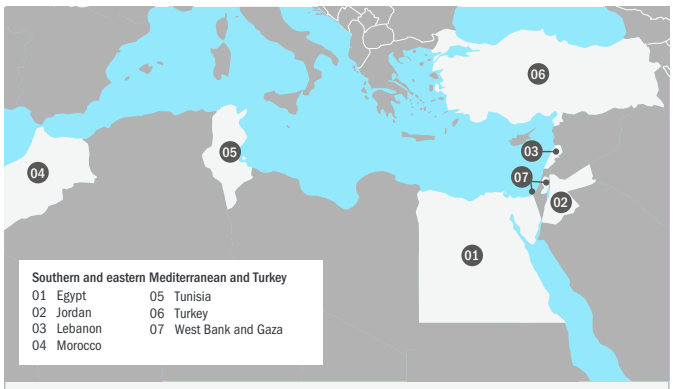
South-eastern Europe

- Slightly more carbon-intensive and fossil-fuel dependent
- Weaker on decarbonisation policies and productive green capacity
- Potential EU candidates more affected by EU green policy
- In the medium and long term, one of the planet's "warming hotspots", with more intense drought and wildfires, as well as sea-level rise in coastal areas



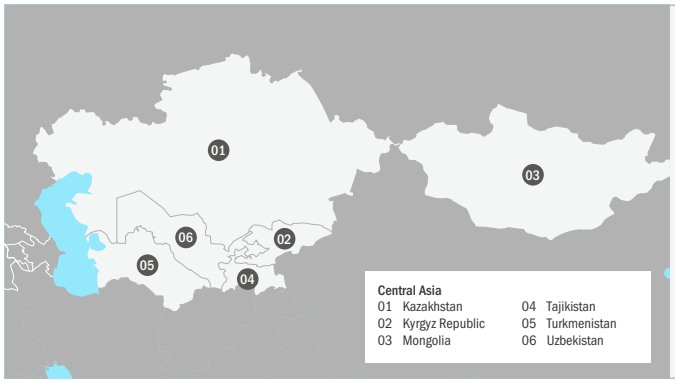
Russia, eastern Europe and the Caucasus

- Higher carbon intensity and weaker decarbonisation and productive green capacity outlook in the short term
- Lower potential for a regional response to the carbon transition
- Region already experiencing extreme weather (drought, wildfires, flooding), the severity and frequency of which will increase in the medium and long term
- Caucasus experiencing aridity due to decreased precipitation, high temperatures and reduced river run-off, posing risks to agricultural production



Southern and eastern Mediterranean and Turkey

- Less carbon intensive, but potential to respond to decarbonisation or to generate climate opportunities
- Some dependence on other highly fossil-fuel reliant countries
- Already highly water stressed, with periods of extreme heat and drought, as well as wildfires
- Over time, water stress will increase in the entire region



Central Asia

- Most carbon-intensive and fossil fuel-dependent EBRD region
- Weakest decarbonisation outlook; potential to respond similar to south-eastern Europe
- Already experiencing significant water stress and drought; mountain areas are susceptible to landslides and flooding
- These hazards are expected to increase in the medium and long term

Note: These maps are used for data visualisation purposes only and do not imply any position on the legal status of any territory.

4.3 Assessment of climate-related credit risks

The EBRD identifies, assesses and manages climate-related risks in the process of conducting due diligence, preparing and structuring individual transactions. Industry sector teams in **Banking** and, in particular, **the GECA** team consider how to mitigate climate risk by reducing carbon emissions and/or adapting to its effects through climate-resilient investments. These and other climate risks are assessed by **Risk Management** in the review stages and challenged further, as appropriate.

While the EBRD has a long history of considering and assessing climate risks at project level, these risks are now being reviewed as part of a more comprehensive climate risk-assessment process. This is to ensure that climate risk is assessed systematically across the Bank's portfolio using a standardised approach.

1) Carbon transition risk assessment

To facilitate the project-level assessment of climate-related risks, the Bank developed an internal screening approach to better analyse its exposure to CT risk through the application of a CT score. These scores comprise: (i) an industry-specific assessment of CT risks based on a heatmapping approach developed by Moody's Investor Service and adjusted by the Bank's specialists; (ii) the EBRD's internal assessment of a country's preparedness and the impact of climate risk policy and regulatory changes; (iii) the tenor of the exposure; and (iv) a modifier (currently being developed).[15]

The Bank's CT scores form a numerical heatmap of new projects, which is used to flag any potential high-risk exposures that require deeper, second-stage analysis. This second-stage analysis includes a combination of qualitative and quantitative assessments using select NGFS climate risk drivers. The CT scores are also used to indicatively assess the Bank's existing portfolio exposures. Section 5.2 provides details of the Bank's current and historical exposure to CT risk using CT scores.

2) Physical climate risk assessment

The Bank also developed a proprietary PC risk-screening tool. The PC risk-screening tool assesses each client against different PC hazards, listed in Table 5.

The Bank's PC scores comprise: (i) a combination of the client's industry sector sensitivity to PC hazards, (ii) the likelihood of those hazards occurring based on an analysis of the client's core location coordinates; (iii) a tenor adjustment; and (iv) a modifier (currently being developed).[16] The likelihood of these physical hazards occurring is based on a range of data, listed in Table 5. These data sources were chosen after a detailed review of the publicly available PC risk data.

These factors are combined to produce a score. High-risk exposures are subject to a deeper, second-stage assessment of the potential effects of PC risk. Here, the Bank's specialists will assess the impact and develop climate resilience plans, as required.

Table 5: **PC hazards and data sources**

Category	Chronic or acute	PC hazard	Data source
Temperature related	Chronic	Increasing mean temperatures	Swiss Re – CatNet
	Acute	Extreme heat event	World Bank – Climate Change Knowledge Portal (CCKP)
		Wildfires	Swiss Re – CatNet
Wind related	Acute	Extreme wind event	Swiss Re – CatNet
Water related	Chronic	Increasing water stress	WRI – Aqueduct
		Sea-level rise	Climate Central – Coastal Risk Screening Tool
	Acute	Drought	World Bank – Climate Change Knowledge Portal (CCKP)
		Flood	Swiss Re – CatNet
Solid mass related	Chronic	Erosion	Swiss Re – CatNet
	Acute	Extreme mass movement	Swiss Re – CatNet

[15] Industry-sector risk classifications are derived from the industry sectors classified by Moody's (2020) as having very high, high or moderate risk for carbon regulation. The country CT assessment scores are derived from HSBC (2019).

[16] At this stage, counterparties with numerous operational locations are assessed as diversified. The Bank's PC client risk screening is similar to the process the Bank uses to assess a project's alignment with the climate resilience goals of the Paris Agreement. The Bank plans to continue reviewing this approach, which may evolve further.

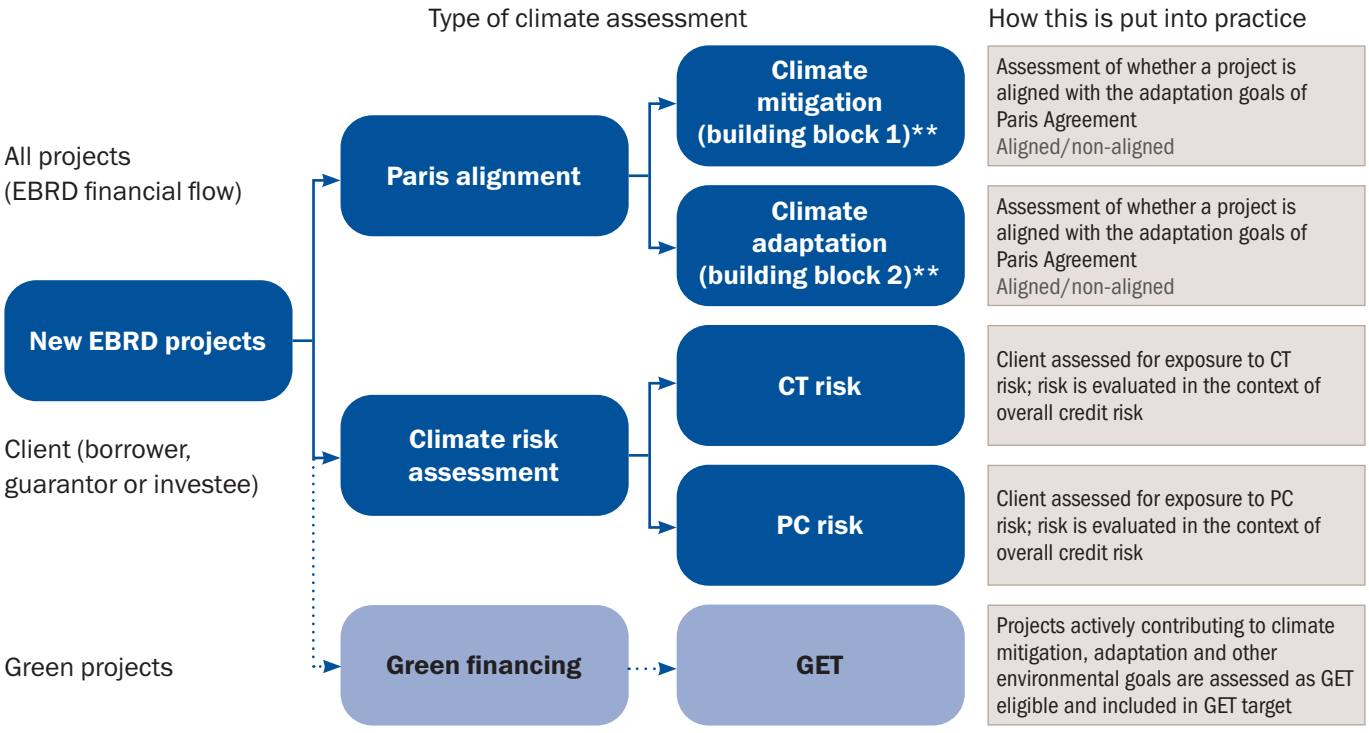
As well as screening new direct finance projects, the Bank is looking to establish a process to assess its existing portfolio using the same tool. Section 5.2 provides a high-level internal expert view of the industry sectors' vulnerability to physical risks. Ultimately, however, this assessment needs to be carried out based on the specific key asset locations of the Bank's clients. Due to gaps in locational data and the significant resourcing required, this portfolio assessment is being done gradually.

Both the CT and PC methodologies require further refinement and adjustment, and will evolve based on the findings and requirements of how best to assess credit-related financial risks. Today they act as a scalable and informative initial platform. A refinement currently under consideration is the addition of modifiers in both the CT and PC screening tools.

In 2021, the Bank undertook deeper analysis exercises into the exposure of the oil and gas clients in its Natural Resources portfolio to CT risks, plus the PC risks of its SIG portfolio. The results of these analyses are presented in section 5.2.

The Bank's assessment of client climate risk is complemented by its assessment of projects individually for their alignment with the Paris Agreement, as well as an assessment for GET target eligibility. These three climate assessment procedures are illustrated in Figure 8.

Figure 8. **Green finance, new Paris alignment and climate risk assessment process**



**The joint MDB approach to alignment with the objectives of the Paris Agreement was presented at COP24 in 2018 (EBRD, 2018b). The approach has six "building blocks" for Paris alignment: (BB1) alignment with mitigation goals; (BB2) adaptation and climate-resilient operations; (BB3) accelerated contribution to the transition through climate finance (in the EBRD's case, GET finance); (BB4) strategy, engagement and policy development; (BB5) reporting; and (BB6) alignment of internal activities (for example, administration, procurement and treasury). Therefore, Paris alignment has a project-screening element (BB1 and BB2), a climate-finance and policy element (BB3 and BB4) and a corporate element (BB5 and BB6).

4.4 Processes for managing exposure to climate-related risks

Because of its strong capitalisation, the EBRD accepts significant credit and market risk in pursuit of its development mandate, including climate-related risks. However, the Bank still makes considerable efforts to manage those risks, both at individual transaction and portfolio level.

At **individual transaction level**, any risks related to debt investments are normally mitigated by a combination of:

- **a conservative capital structure**, with sufficient equity or quasi-equity to absorb climate change-related shocks, both of a physical and regulatory nature
- **tenors** that take into account the expected useful lifetime of the underlying asset, including potential obsolescence due to technological or regulatory changes
- **collateral or guarantees** that could offer an alternative repayment route should cash flows generated by the project not be sufficient to repay the debt
- financial and operational **covenants**, as well as associated reporting obligations, including environmental and social action plans and climate-mitigation action plans where required
- assigning **key contracts** to facilitate lender-led restructurings in the event that cash flows are insufficient to repay scheduled borrowings.

In addition, the EBRD manages exposure to individual transactions and clients by mobilising private-sector co-financiers and/or by using concessional donor funding alongside its own loans for technical cooperation. The Bank also uses its network of resident offices to provide local oversight on transactions in those economies where the Bank invests.

In conjunction with the relevant Banking teams, Risk Management reviews all exposures within the Banking portfolio on at least an annual basis. The main objective of these reviews is to ascertain whether there have been changes to the risk profile and whether closer engagement with the client is required to support the project and protect the related repayment stream. For equity transactions, this process also involves revaluing the investment exposures. Risk Management reports to Senior Management and the Board of Directors on the development of the portfolio as a whole on a quarterly basis, as mentioned in section 2.1.

At the **portfolio level**, the Bank also mitigates and manages these risks by:

- abstaining from financing **industry sectors that are particularly vulnerable to CT risk**, including coal mining, coal-fired electricity generation, upstream oil exploration and upstream oil development projects, as guided by the EBRD's Energy Sector Strategy 2019-23 and clarified in in 2021
- adopting **portfolio limits**, including country and industry sector-specific limits, to reduce the impact of adverse external events on its capital
- conducting regular stress-testing exercises to identify emerging risk and to enable appropriate risk-mitigating actions.

The EBRD also conducts an annual review of progress on green transition in all economies where it invests. The indicators and the associated assessment of remaining gaps then inform country and industry sector strategies, as well as planned Bank-wide stress tests and ad hoc sub-portfolio stress tests pursued in the course of regular risk management activities and as part of the annual business and financial planning cycle. The Bank recognises that any resulting risk mitigation is constrained by the geographical limitations of the EBRD's operations.

In addition, the Bank engages in **policy dialogue** with the authorities in economies where it invests to promote the stability of the regulatory environment and the progressive adoption of solutions aimed at climate risk mitigation and adaptation.

4.5 Planned enhancements to climate-related risk management

Over the coming years, the EBRD will continue to work on implementing a more comprehensive climate risk-assessment framework for the analysis of all new and existing projects and clients. Although the EBRD is not a regulated institution, the Bank is required by the Agreement Establishing the Bank to apply "sound banking practices". In line with its approach to other emerging regulations, the Bank will continue to engage with regulated banks to monitor developments and implement emerging best practices in assessing climate financial risk. In this spirit, the Bank intends to:

- assess all transactions within its Paris alignment framework by 2023, including assessments for CT and PC risk. Currently, the Bank's screening for Paris alignment and climate risks does not apply to indirect finance (through financial institutions and funds), equity or treasury exposure, and this will be addressed.
- refine its CT and PC risk methodologies while monitoring regulatory developments for the design of stress tests and other disclosure requirements.
- experiment further on how to apply a climate stress test using the NGFS scenarios to larger sections of its existing portfolio.
- establish over time processes for identifying the relative significance of climate-related risks in relation to other risks. While this is likely to take a number of years, it may lead the Bank to establish additional risk management limits for industry sectors that are highly exposed to climate risk.

The Bank also intends to scale up its support for clients to improve their capacity to recognise and manage climate-related risks and opportunities. The Bank is launching a dedicated corporate climate governance Client Advisory Facility, which will help clients to boost their business-relevant climate governance and assessment capacity, substantially in line with the recommendations of the TCFD. This speaks directly to the urgent and compelling need to advance climate action by the real economy and financial system across the EBRD regions. It is also in line with prominent international commitments and market developments on low-carbon and climate-resilient economic development and the wholesale shift towards greening the financial system. The new facility will also disseminate good practices on climate risk management among the EBRD's clients and across the regions in which it invests, thereby helping the Bank to understand and manage its exposure to climate financial risks.

The EBRD will also continue to:

- collaborate with external organisations, MDBs and private-sector banks to refine the methodologies for this analysis. The Bank also helped establish a joint MDB group on climate risk and TCFD reporting to share and align where possible the approach MDBs are taking on TCFD reporting.
- participate as an observer in the NGFS alongside other multilateral development organisations and contribute to the EU Platform on Sustainable Finance and the EU International Platform on Sustainable Finance. It will further share its experience and learning from other banks and development institutions and will adapt its approach as industry best practice develops. Since January 2020, the EBRD has also been participating in the UNEP FI TCFD Pilot Phase III, along with around 50 commercial banks.

5. Metrics and targets

5.1. Metrics on the Bank's internal operations

The Bank calculates and reports on the carbon footprint (Scope 1, 2 and 3) and GHG emissions-intensity ratio of its own operations. These disclosures are included in the EBRD's *Sustainability reporting disclosures for 2020 in accordance with the GRI Standards*, which also includes the energy consumption, waste and biodiversity impacts of the Bank's activities.[17] A summary of the Bank's consumption is shown in Table 6.

Table 6. **The EBRD's energy consumption**

Type	2018	2019	2020*
Electricity (MWh)	16,100	15,300	14,500
Gas (MWh)	4,800	4,500	4,500
Air travel (million km)	43.5	45.5	7.2
Rail travel (thousand km)	541	593	102
Printer paper consumption** (tonnes)	39.0	32.0	6.5
Water consumption** (thousand m^3)	48.1	48.6	35.6

Note: Electricity for the EBRD's London office (14.0 MWh in 2019) is purchased from renewable energy suppliers.

*Due to the Covid-19 pandemic, the overwhelming majority of EBRD staff have been working remotely since the middle of March 2020. These figures do not include energy consumption associated with home working.

** Figures are for the EBRD's London Headquarters.

The Bank has sought to reduce the use of single-use plastics in its catering and has a "zero to landfill" approach to waste management. Since 2017, the EBRD has been carbon neutral in its own activities, through a combination of efforts to reduce emissions related to business travel and energy use in the EBRD's offices, as well as through the purchase of Gold Standard carbon credits to offset the emissions generated by its activities.

5.2. Established project and portfolio metrics for measuring and disclosing climate-related risks and opportunities

The EBRD has a number of well-established metrics for assessing climate-related risks and opportunities at project level. These include:

- **climate-finance attribution**, using a component-based approach developed jointly by the MDBs and applied since 2006. The MDBs, including the EBRD, disclose their individual and aggregate climate-finance volumes for both climate mitigation and adaptation in a dedicated report.[18]
- **GHG emissions** (in tonnes of CO_2e) are screened for all projects and assessed in detail for those that are expected to result in significant increases or decreases of Scope 1 and 2 emissions. These are *ex ante* estimates of how projects will perform once fully implemented. Scope 3 emissions are also assessed where they are material to the motivation for the EBRD's investment in the project, for example, in financing the production of batteries for electric vehicles. The methodologies are based on the *International Financial Institution Framework for a Harmonised Approach to Greenhouse Gas Accounting*.[19] A summary of the results for each year's investments is published in the EBRD's *Sustainability Report*.[20]
- **economic assessment** from the application of shadow carbon pricing, which is applied to selected carbon-intensive projects, as explained in Box 1, section 2. The resulting metrics can include an expected rate of return, net present value and/or cost approach. Specific climate **resilience metrics** resulting from collaboration with other MDBs led to the development of a common framework, published in 2019.[21]

[17] See EBRD (2021b), pp. 26-29.

For more information on the methodology for the economic assessment of EBRD projects with high greenhouse gas emissions, see Box 1 or EBRD (2019d).

[18] See ADB, AfDB, EBRD, EIB, IADB, IsDB and World Bank Group (2018).

[19] See ADB, AFD, AfDB, EBRD, GEF, IDB, KfW, NEFCO, NIB and World Bank Group (2015).

[20] For more information, see EBRD (2021a).

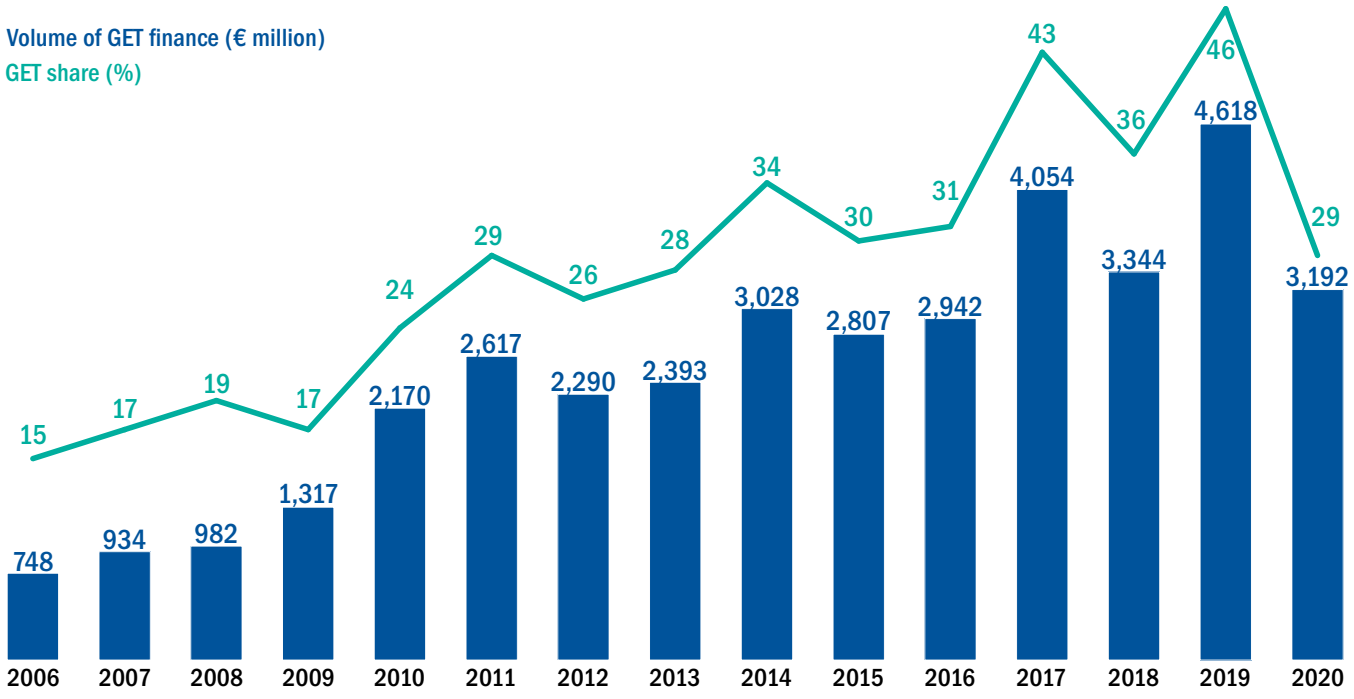
[21] See ADB, AfDB, EBRD, EIB, IADB, IsDB and World Bank Group (2019).

The Bank also uses other quantitative and qualitative indicators to appraise climate risks, for example, specific GHG emissions indicators in carbon-intensive industries and installations, which are compared with international best practice (for example, the GHG emissions-specific benchmarks of the EU Emissions Trading System).

At a portfolio level, the EBRD's key climate-related target is the share of its projects classified as contributing to the Bank's **GET initiative**. The Bank's GET target was set at 32 per cent of annual investment in 2016, increasing in a linear manner to reach 40 per cent by 2020, in line with the period covered by the EBRD's Strategic and Capital Framework 2016-20. As shown in Figure 9, the Bank's GET share reached a record level of 46 per cent in 2019, but dipped to 29 per cent in 2020 due to the Covid-19 pandemic and the need to provide short-term liquidity to clients during this time. This highlights the effort required to meet the Bank's new GET target: to ensure that green financing accounts for more than 50 per cent of the Bank's annual investment by 2025.

In 2020 alone, the EBRD invested €3.2 billon in climate mitigation, climate adaptation and other environmental activities that will help to reduce climate-related risk in the economies where the Bank invests. This includes the installation of around 1,500 MW of renewable energy capacity, leading to an overall emission reduction of 3,711 kilotonnes (kt) of CO_2e in the economies' average electricity generation mix. The case studies presented in Box 2 are just some examples of this impactful work. The Bank's 2020 investments are further detailed in the EBRD's *Sustainability Report 2020*.[22]

Figure 9: **EBRD annual green finance commitments, 2006-20**



[22] See EBRD (2021a).

Box 2. **Select EBRD GHG emission-reducing projects**

Equity investment in Taaleri SolarWind Fund II

Industry sector: Energy
Countries: Bulgaria, Croatia, Estonia, Greece, Hungary, Latvia, Lithuania, Montenegro, Poland, Romania and Serbia
Main features: The investment spans a number of economies in which the Bank invests, maximising its impact.
Relative CO_2 emission reductions: 329,000 tonnes of CO_2e per year that would otherwise be emitted in producing this electricity, mostly from fossil fuels

The EBRD made its first investment in a purely renewable energy private equity fund. With an investment of €40 million in the Taaleri SolarWind Fund II, the EBRD will diversify the funding sources for the economies in which the Bank invests. The fund targets investments in solar and wind energy, including in 11 EBRD investee economies. The fund's investments are likely to total €105 million, leading to substantial CO_2 emission reductions.

Zhanatas Wind Farm (Kazakhstan)

Industry sector: Energy
Country: Kazakhstan
Main features: It is the first project-financed wind farm in Kazakhstan.
Relative CO_2 emission reductions: 262,000 tonnes of CO_2 annually that would otherwise be emitted in producing this electricity, mostly from fossil fuels

The EBRD has continued its impressive track record of supporting the development of renewable energy in Kazakhstan by providing a US$ 24.8 million loan to support the construction of the Zhanatas 100 MW wind farm. This project delivers climate mitigation benefits by increasing the share of renewable energy generation in the system. This project will help Kazakhstan to shift from a traditionally fossil fuel-heavy state to a regional leader in renewable energy.

Cyprus floating storage and regasification unit

Industry sector: Energy
Country: Cyprus
Main features: The investment helps promote the energy independence of Cyprus. While the project relies on natural gas, it demonstrates how natural gas can be a means of effectively reducing CO_2 emissions and providing a cleaner backup fuel source alternative.

Relative CO_2 emission reductions: The project is expected to reduce the country's CO_2 emissions by 10 per cent (595,000 tonnes annually).

The EBRD has committed to providing a €80 million loan to the Natural Gas Infrastructure Company of Cyprus (ETYFA) for the acquisition of a floating storage and regasification unit and the development of related infrastructure. Close to 90 per cent of the island's electricity supply relies on the importation of petroleum products and its energy system is isolated, without interconnections for electricity or gas. The new infrastructure will allow Cyprus to replace expensive and polluting heavy fuel oil with cleaner natural gas. In addition to reducing the country's CO_2 emissions by 10 per cent, the project is also expected to deliver a 6,000-tonne reduction in SO_2 emissions and a 175-tonne reduction in dust emissions annually. Longer term, natural gas will play an important backup role as Cyprus moves to wind and solar power as part of an accelerating green transition in the EU.

5.3. New metrics for measuring and disclosing climate-related risks

The EBRD has begun to incorporate the assessment of CT and PC risks into its client risk analysis to minimise the Bank's exposure to climate-related risks. It has also begun to examine its portfolio exposure for climate risk at this stage via a high-level heatmap. The results of this analysis are outlined below.

Portfolio project heatmap and exposure to carbon-related assets

Extensive investment in climate mitigation and adaptation projects has had a clear impact on the Bank's balance-sheet and climate risk profile. The Bank's exposure to fossil fuels and, in particular, coal continues to fall, while its exposure to renewable energy has grown. However, the EBRD's continued support for its clients and the economies in which it invests in their low-carbon and climate-resilient transition means that the Bank continues to hold exposure to industry sectors that could be vulnerable to CT and PC risk.

Table 7 provides a portfolio-wide summary of the EBRD's project-level exposures by industry sector in 2018, 2019 and 2020. It also includes a high-level heatmap identifying those industries with potential sensitivity to CT and PC risk, based on four potential levels of sensitivity: low, moderate, high and very high. These sensitivities are based on Moody's environmental risks heatmap and internal expert analysis.[23]

While the heatmap outlines which parts of the Bank's portfolio could hold the greatest exposure to climate risk, it is only an indicative assessment, as there are likely to be significant differences in climate risk exposure between projects in the same industry sector due to their geographic location or other characteristics (particularly when it comes to PC risk).

As can be seen from Table 7, the EBRD's exposure to the renewable energy sector grew by more than €500 million over the past couple of years and is expected to grow further, in line with the Bank's GET strategy. Exposure to carbon-intensive industry sectors, such as oil and gas and coal-related industries, has continued to decline, albeit moderately, as the EBRD continues to support the transition of client investments away from fossil fuels. Notably, the Bank's exposure to directly funded coal projects, including coal-fired power stations and coal mining, had fallen to €92 million as of end 2020; these projects will have matured in full by 2025. This excludes exposure to coal-related clients for projects unrelated to coal (see Box 3 for additional details).

Table 7 also shows the Bank making significant investments in climate-resilient infrastructure, both in public transport and municipal waste management. These industry sectors comprise nearly 10 per cent of the Bank's overall portfolio, with two-thirds of its investments in these industry sectors considered green. Thus, the Bank's investments help clients improve their resilience to the physical effects of climate change and are, therefore, often classified as part of the Bank's GET investments.

Despite the EBRD's mandate to support the transition to low-carbon and climate-resilient economies, it needs to remain mindful of the climate risks to which it may be exposed through its clients. Moreover, exposure to specific industry sectors, as shown in Table 7, may not be an optimal way to understand a financial institution's alignment with climate goals, nor the financial risks it faces from climate change. Rather, a granular, bottom-up analysis of the Bank's clients is needed to assess those risks. The following sections analyse the Bank's portfolio using its internal CT and PC risk-scoring methodology to undertake a deeper level of analysis.

[22] See Moody's (2020).

Table 7. **EBRD portfolio based on North American Industry Classification System (NAICS) codes**

	Total	Share of total portfolio	Total	Share of total portfolio	Total	Share of total portfolio	Share classified as GET	Indicative industry climate sensitivity	
	2018	2018	2019	2019	2020	2020	2020	CT	PC
Project industry sector	€ million	%	€ million	%	€ million	%	%		
Power and heating	**6,694**	**15.5%**	**7,657**	**16.6%**	**7,991**	**16.5%**	**62.6%**		
Renewable energy	2,983	6.9%	3,481	7.6%	3,515	7.3%	70.4%	Low	Moderate
Solar electric power generation	*802*	*1.9%*	*1,023*	*2.2%*	*1,052*	*2.2%*	*76.7%*	Low	Moderate
Wind electric power generation	*889*	*2.1%*	*1,058*	*2.3%*	*1,060*	*2.2%*	*78.0%*	Low	Moderate
Hydroelectric power generation	*844*	*2.0%*	*826*	*1.8%*	*741*	*1.5%*	*55.0%*	Low	High
*Geothermal, biomass, biogas and other renewable electric power generation**	*448*	*1.0%*	*575*	*1.2%*	*662*	*1.4%*	*65.4%*	Moderate	High
Electricity and heat generation	1,817	4.2%	1,892	4.1%	1,872	3.9%	42.6%	High	High
*Electric power companies and utilities***	*848*	*2.0%*	*832*	*1.8%*	*1,106*	*2.3%*	*32.6%*	High	High
Natural gas electric power generation	*555*	*1.3%*	*667*	*1.4%*	*560*	*1.2%*	*52.6%*	High	High
District heating	*307*	*0.7%*	*306*	*0.7%*	*140*	*0.3%*	*89.6%*	High	High
Coal electric power generation	*107*	*0.2%*	*87*	*0.2%*	*66*	*0.1%*	*25.0%*	Very high	High
Electricity distribution and transmission	1,895	4.4%	2,283	5.0%	2,603	5.4%	66.5%	Moderate	High
Energy and commodities	**2,931**	**6.8%**	**2,972**	**6.5%**	**2,782**	**5.7%**	**24.3%**	High	Moderate
Oil and gas	2,884	6.7%	2,935	6.4%	2,756	5.7%	24.3%	High	Moderate
Gas transportation and distribution	*1,652*	*3.8%*	*1,610*	*3.5%*	*1,622*	*3.3%*	*25.2%*	High	Moderate
Oil and gas extraction	*771*	*1.8%*	*863*	*1.9%*	*700*	*1.4%*	*6.6%*	High	Moderate
Petroleum refining and sales	*462*	*1.1%*	*462*	*1.0%*	*434*	*0.9%*	*49.2%*	High	Moderate
Coal mining	47	0.1%	36	0.1%	26	0.1%	25.0%	Very high	Moderate
Metals	**1,874**	**4.3%**	**1,879**	**4.1%**	**1,616**	**3.3%**	**29.2%**	High	Moderate
Metals mining	1,201	2.8%	1,267	2.8%	1,088	2.2%	14.2%	Moderate	High
Metals production	673	1.6%	612	1.3%	528	1.1%	60.1%	High	High
Transportation	**9,666**	**22.3%**	**10,399**	**22.6%**	**10,370**	**21.4%**	**37.1%**	High	Moderate
Highway, road and bridge construction	3,968	9.2%	4,129	9.0%	4,352	9.0%	12.3%	Moderate	High
Buses and other public transport infrastructure	2,105	4.9%	2,531	5.5%	2,494	5.2%	65.5%	Moderate	Moderate
Rail	1,966	4.5%	2,117	4.6%	1,838	3.8%	78.8%	High	High
Automotive	519	1.2%	483	1.0%	516	1.1%	20.5%	High	Moderate
Shipping	428	1.0%	408	0.9%	389	0.8%	21.2%	High	High
Aviation	680	1.6%	731	1.6%	781	1.6%	5.6%	High	Moderate

(Continued on page 27)

Table 7. **EBRD portfolio based on North American Industry Classification System (NAICS) codes (continued)**

Project industry sector	Total	Share of total portfolio	Total	Share of total portfolio	Total	Share of total portfolio	Share classified as GET	Indicative industry climate sensitivity	
	2018	2018	2019	2019	2020	2020	2020	CT	PC
Project industry sector	€ million	%	€ million	%	€ million	%	%		
Industrials	**2,890**	**6.7%**	**2,922**	**6.3%**	**3,155**	**6.5%**	**35.1%**	Moderate	Moderate
Chemicals and building materials	1,031	2.4%	954	2.1%	1,184	2.4%	50.6%	High	Moderate
Manufacturing (excl. automotive and food)	1,166	2.7%	1,387	3.0%	1,167	2.4%	24.1%	Moderate	Moderate
Broadcasting and communication	693	1.6%	581	1.3%	805	1.7%	28.1%	Low	Moderate
Agriculture	**438**	**1.0%**	**511**	**1.1%**	**556**	**1.1%**	**29.4%**	Moderate	High
Consumer retail	**2,422**	**5.6%**	**2,434**	**5.3%**	**2,650**	**5.5%**	**20.6%**	Moderate	Moderate
Food and beverage production	1,378	3.2%	1,438	3.1%	1,317	2.7%	7.6%	Moderate	Moderate
Retail and wholesale trade	1,044	2.4%	997	2.2%	1,333	2.8%	33.5%	Low	Moderate
Consumer and business services, healthcare and education	**546**	**1.3%**	**630**	**1.4%**	**480**	**1.0%**	**9.9%**	Low	Low
Municipal	**2,943**	**6.8%**	**3,338**	**7.2%**	**4,282**	**8.8%**	**59.1%**	Moderate	Moderate
Waste and water management	1,822	4.2%	2,143	4.7%	2,296	4.7%	76.7%	Moderate	High
Other municipal services	1,121	2.6%	1,195	2.6%	1,986	4.1%	38.8%	Low	Moderate
Real estate and building construction	**845**	**2.0%**	**1,092**	**2.4%**	**976**	**2.0%**	**38.4%**	Low	High
Equity funds* **	**2,351**	**5.4%**	**2,248**	**4.9%**	**2,332**	**4.8%**	**8.0%**	Moderate	High
Financial institutions, leasing and insurance	**9,666**	**22.3%**	**9,969**	**21.6%**	**11,231**	**23.2%**	**22.0%**	Insufficient information/ not yet assessed	
Total portfolio assets	**43,267**	**100%**	**46,051**	**100%**	**48,420**	**100%**	**36.0%**		

NB: Table includes EBRD Banking portfolio investments based on the industry sector of projects. It does not reflect exposure to the industry sector of clients, which could be different to the industry sector of the project. It does not include the treasury portfolio. Indicative exposure to CT and PC are included for high-level heatmapping purposes only. PC indicators are based on a high-level aggregation of the industry's sensitivity to 10 PC hazards without taking the location of those exposures into account. Comparisons with Table 1 in the EBRD's TCFD report for 2019 and its *Financial Report 2020* are not possible, as portfolio assets are used in this table, while adjustments are made for the effective interest rate associated with the amortised cost of assets used in the 2019 report. The equity portfolio is calculated based on historical cost.

* Other renewable energy includes projects investing in a combination of renewables, usually solar and wind power generation.

** Transactions with electric power generation companies with multiple sources of electricity generation, including nuclear safety activities.

*** Equity investments in a variety of industry sectors that have been deemed low to moderate risk for CT and PC risk, on average.

Box 3: **EBRD coal exposure as of end 2020**

Decarbonisation requires a transition away from coal. In line with the EBRD's Energy Sector Strategy 2019-23, the Bank no longer finances thermal coal mining or coal-fired electricity generation capacity. New financing from the EBRD to clients with coal business is, therefore, ring-fenced from such coal activities and considered indirect exposure.

The EBRD had coal-related exposure of €1.1.billion to 26 different clients as of 31 December 2020. This represented approximately 2 per cent of the EBRD's total Banking portfolio assets. For the purposes of this disclosure, the EBRD considers coal-related exposure from clients that generate more than 20 per cent of their revenue from activities derived from coal. The nature of the exposure is detailed below:

- **Legacy direct coal exposure (8 per cent, or €92 million)**, including projects where the proceeds directly financed coal-fired power generation or coal mining (per Table 7) and were signed 10 or more years ago. This exposure will mature in full by 2025.
- **Legacy indirect coal exposure (7 per cent, or €77 million)** involving two legacy projects, which required restructuring. While the project proceeds did not finance coal directly, the client is involved in coal mining or coal-fired power generation and does not have an environmental action plan.
- **Indirect coal exposure (85 per cent, or €928 million)** makes up the majority of the Bank's coal-related exposure. This exposure is to clients that may have coal activities, but is to support their transition away from coal to cleaner energy sources, including energy-efficiency improvements, renewables and CO_2 reductions. Many of these clients have credible decarbonisation plans in place, including coal exit strategies. In some cases, the EBRD facilitates policy dialogue to further support the rollout of renewables or the enhancement of energy-efficiency strategies.

Figure 10 presents these three categories, as well as their run-off periods to maturity, as of 31 December 2020.

As can be seen in Figure 11, the EBRD's coal exposure is concentrated in Kazakhstan, Bulgaria, Serbia and Greece (totalling €797 million). These countries are highly reliant on fossil fuels for power and heating, with other sources not yet scalable. The Bank's exposure

Figure 10: **EBRD portfolio assets exposed to coal and run-off period as of YE 2020 (€ million)**

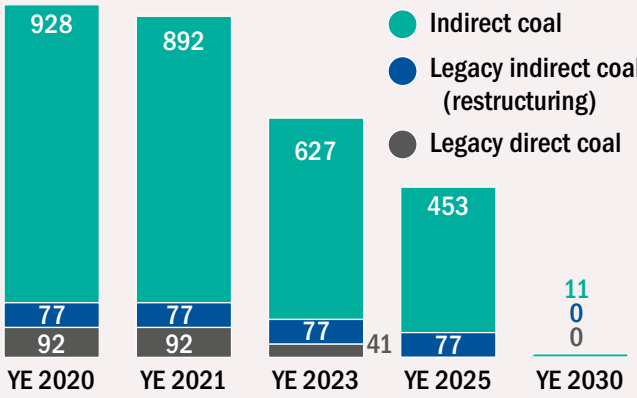
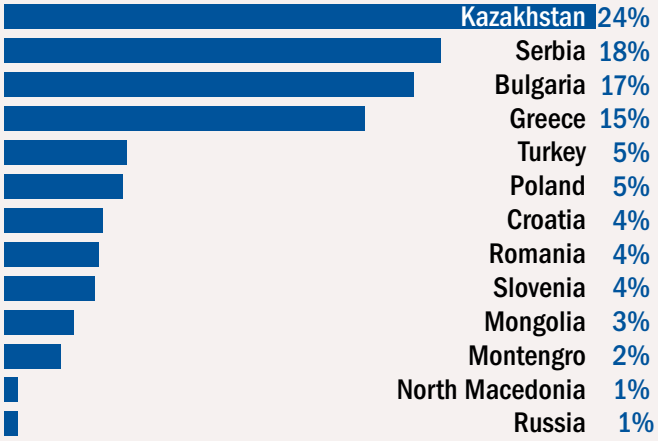


Figure 11: **Percentage of the EBRD's total coal portfolio by country**



is mostly to large energy or municipal district heating providers that are starting their transition to cleaner fuels or putting in place better controls to reduce their CO_2 emissions.

As part of this review, these projects were tested against the Bank's new mitigation policies on Paris alignment. These showed that 50 per cent would require further scrutiny if they were considered today. A further 10 per cent of the exposure would not be Paris aligned, meaning they would not be approved under current EBRD Paris alignment standards.

Overall, the EBRD's coal exposure is small, short dated and at a manageable level with regard to climate financial risk, while the majority does not involve direct financing of coal activities. In many cases, the clients have environmental action plans in place or the EBRD is supporting them in their transition to renewable energy.

Carbon transition risk

The Bank's internal CT scores can be used to identify its portfolio exposure to transition risk, as well as to indicate where more bespoke assessments of this exposure are needed. As shown in Figures 12 and 13, based on initial assessment, the Bank had exposure to 114 clients considered high CT risk as of year-end 2020. These high-risk exposures totalled €3.4 billion, or 7 per cent of the Bank's investment portfolio assets.

Figure 12: **CT scores, number of clients, YE 2020**

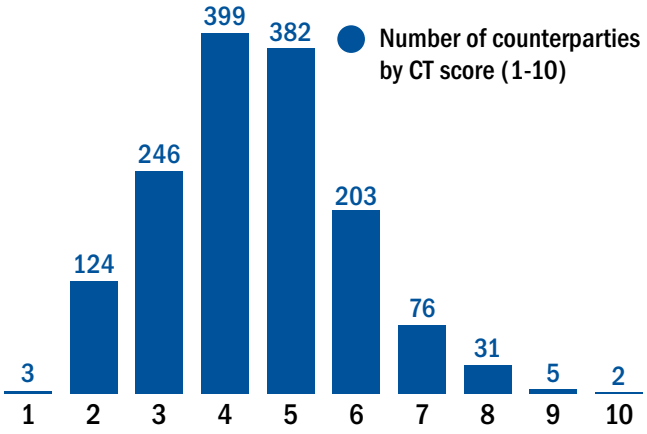
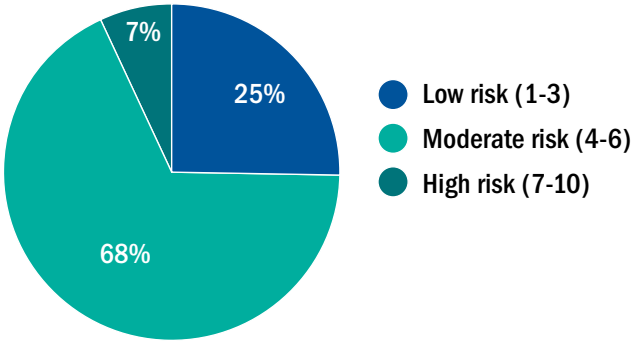


Figure 13: **CT scores, share of portfolio assets (per cent), YE 2020**



NB: Figures 12 and 13 include EBRD Banking portfolio investments only. Treasury portfolio not included.

The exposures with higher CT scores are spread across a range of industry sectors, although the majority are associated with electricity and heat production (€1.5 billion), oil and gas (€1.1 billion) and metals and mining (€0.6 billion), as shown in Figure 14. However, only 2.5 per cent, or €1.2 billion, of the Bank's portfolio assets classified as having a high CT score are long-term or equity investments (see Figure 16). This is a more-than-manageable exposure in light of the Bank's strong financial position. In addition, this portfolio is amortising

Figure 14: **Industry sector of portfolio assets with a high CT score (per cent), YE 2020**

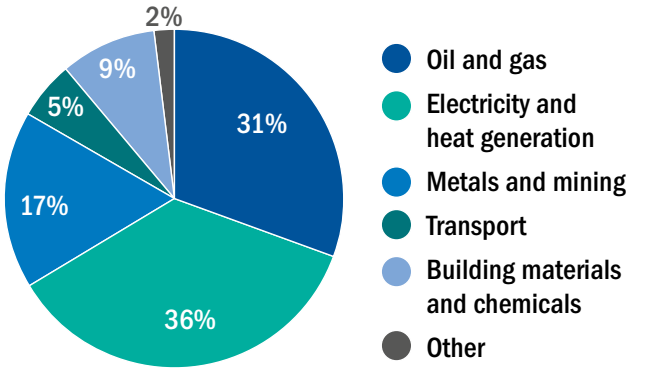
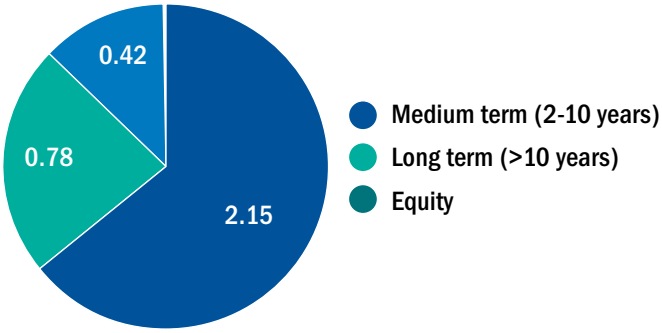


Figure 15: **Remaining maturity of portfolio assets with high CT score (€ billion), YE 2020**

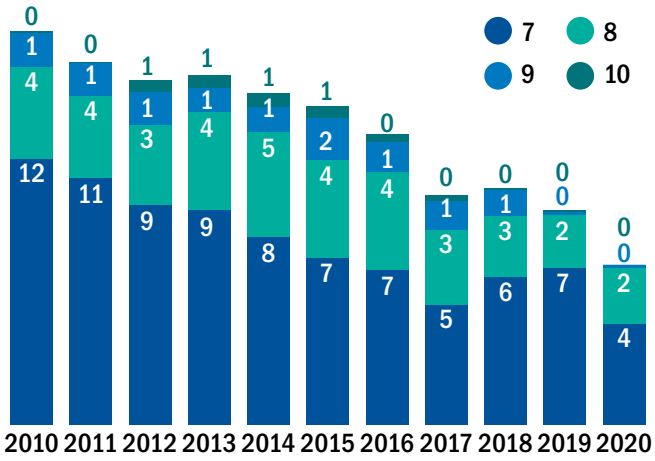


and structured with other credit enhancements that further reduce the financial risk. These exposures have not yet been analysed or tested for any potential links between CT and credit risk, however, such as an analysis of the counterparty's performance under NGFS scenarios or other metrics. The Bank will be working to complete such an analysis in the coming years and has already begun to examine this link for part of its oil and gas portfolio (see Box 4).

Meanwhile, 68 per cent of the Bank's portfolio assets are considered moderate CT risk. The risks associated with these exposures are mainly macroeconomic or country-wide CT risks, with many counterparties active in industry sectors considered low or moderate risk, including sovereigns and financial institutions (a classification that requires further assessment). A small portion of this moderate risk group is linked to industry sectors with a high CT risk, but which are relatively close to maturity or located in a country that is considered lower CT risk (such as countries within the EU where climate regulatory requirements are more advanced).

Figure 16 presents the results of a simulation of the CT scores that would have applied to the Bank's portfolio over the last 10 years were today's risk assessment criteria applied consistently over this period. The Bank's policies and actions to de-emphasise coal and other high GHG-emitting industries, together with the increasing focus on its GET strategy, have clearly reduced the high-risk component of the portfolio from 17 per cent to just 7 per cent.

Figure 16: **Share of EBRD portfolio assets with highest CT scores (per cent), 2011-20**



NB: Figures include EBRD Banking portfolio investments only. Treasury portfolio not included.

While the initial conclusion is that the Bank's exposure to CT risk is falling, these early assessments are provided for illustrative purposes and cannot yet be considered a full assessment of the EBRD's exposure. The underlying methodologies need to be further developed, tested and enhanced over time. Moreover, the exposures considered high risk must be subjected to a rigorous credit review process, which will be gradually enhanced with specific monitoring measures.

In 2021, the Bank undertook an initial modelling exercise on the oil and gas clients of its Natural Resources portfolio by creating long-term counterparty-specific financial models and applying the NGFS scenarios. The results of this analysis are presented in Box 4. This should be considered an early indication of more conclusive scenario analysis assessments and stress tests the Bank plans to complete.

Box 4: **Oil and gas NGFS pilot scenario modelling**

Climate scenarios

To evaluate future uncertainties associated with climate risk, the Bank explored the carbon transition variables associated with four of the six second-generation NGFS scenarios, published June 2021.[24] The selected scenarios cover all three NGFS scenario dimensions, including "Orderly", "Disorderly" and "Hot House World", as presented in Table 8.

For this pilot analysis, the Bank focused on a small, but potentially high-risk portfolio of oil and gas exposures, which were subjected to a climate-risk stress test for CT risk only. It included 14 clients, totalling €662 million in exposure, which form part of the Natural Resources team's sectoral portfolio. It covered the entire oil and gas exposure of this sectoral portfolio, apart from sovereign exposures and non-performing loans. It did not include other oil and gas exposures, such as projects related to gas pipelines and other gas infrastructure in the SIG portfolio.

The Bank carried out a quantitative assessment at client level to gauge the financial impact in each of the selected scenarios. While this bottom-up approach is computationally very demanding, it gives better insights into the relationships between climate risk drivers and financial impact than a portfolio-based, top-down assessment.

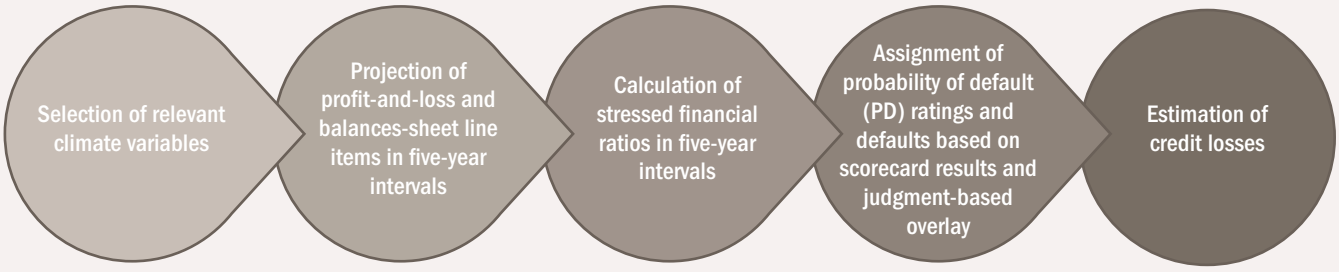
The Bank's approach with respect to modelling horizons, assessment intervals and balance-sheet dynamics broadly aligns with guidance set out by the Bank of England in its December 2019 Discussion Paper.[25] This includes the assessment of the YE 2020 static balance sheet at five-year intervals for a period of 30 years to 2050 and the assumption that any maturing or amortising exposure would be replaced by new business of the same climate risk profile.

The static balance-sheet view is complemented by a dynamic assessment, which factors in the amortisation and maturity profile of the sample portfolio, assuming any new business in this industry sector would be discontinued with immediate effect. In practice, the dynamic view is considered more realistic, as there are several projects in the upstream oil and gas business that are not aligned with the Paris Agreement, so would not form part of the Bank's future balance sheet.

Table 8: **Selected pilot NGFS scenarios**

Dimension	Scenario	Scenario description
Hot House World	Current policies	Existing climate policies remain in place and there is no strengthening of the ambition of these policies, leading to high physical risks and to 3°C-plus of global warming by 2100.
Disorderly	Delayed transition	The next 10 years (2021-30) see "fossil-fuel recovery" and emissions continuing to increase following the trajectory of the current policy scenario. Strong policy action is taken from 2030 to limit warming to less than 2°C.
Orderly	Below 2°C	The stringency of climate policies is increased gradually from 2020, giving a 67 per cent chance of limiting global warming to less than 2°C by 2100.
Orderly	Net zero 2050	Global warming is limited to 1.5°C by 2100 through stringent climate policies and innovation, reaching global net zero CO_2 emissions around 2050. Some jurisdictions, such as the United States of America, the EU and Japan, reach net zero for all GHGs.

Figure 17: **NGFS scenario translation in five steps**



[25] See NGFS (2020).

[26] See Bank of England (2020).

The Bank's quantitative assessment approach involves five basic steps to translate the climate scenarios into financial impact (see Figure 17).

The selection of relevant climate variables and modelling specifics depends on the business model, which is broadly subdivided into downstream (petrol stations), midstream (refining), upstream (oil and gas extraction) and integrated oil and gas companies.

The calculation approach takes client-specific financial statements and GHG emissions and combines them with the NGFS climate variables, such as shadow carbon prices and oil and gas demand volumes, as inputs to the financial models. The NGFS data for this assessment were taken from the REMIND-MAgPIE 2.1-4.2 model, in line with the Bank of England's biennial exploratory scenario approach. The changes in the NGFS climate variables were applied to each company's key profit-and-loss statement and balance-sheet line items, such as earnings before interest, tax, depreciation and amortisation (EBITDA). This allowed the Bank to reassess clients' credit profiles based on quantifiable credit losses.

Climate scenario analysis results

In the static balance-sheet view, 11 of the 14 clients modelled would default by 2050 under the "delayed transition" and "net zero 2050" scenarios. No obvious link was found between the types of client included in the analysis and whether they defaulted under the analysis. Rather, this depends on the client's current financial position, the country in which they are operating (which determines the speed at which oil and gas consumption declines) and the assumptions used in the model.

As Figure 18 shows, under a static balance-sheet approach, by 2050, the Bank accumulates credit losses that are two (in the "below 2°C" scenario) to three times higher (in the "net zero 2050" and "delayed transition" scenarios) than by continuing "current policies". Both orderly scenarios, the "below 2°C" and the "net zero 2050" scenario, lead to an earlier accumulation of credit losses than the disorderly "delayed transition" scenario.

Projected losses are significantly lower once the amortisation and maturity profiles of repayment schedules are taken into account (dynamic analysis). Only three of the 14 clients were flagged as potentially defaulting during the lifetime of their loans, all of which were upstream oil and gas production investments, with the default being due to the rapid decline in the price of and demand for oil and gas. However, it is important to note that the mitigation of CT risk via business-model adaptations is not factored into the results, leading to a potential overstatement of the impact. Moreover, the modelling assumes that declines in oil and gas demand in certain countries are applied equally across all companies in that industry sector, which may not be the case.

From this dynamic balance-sheet analysis, cumulative losses added up to €28 million (4 per cent of year-end 2020 exposure) in the most severe scenario ("net zero

Figure 18: **Static balance-sheet losses as a percentage of 2020 exposure**

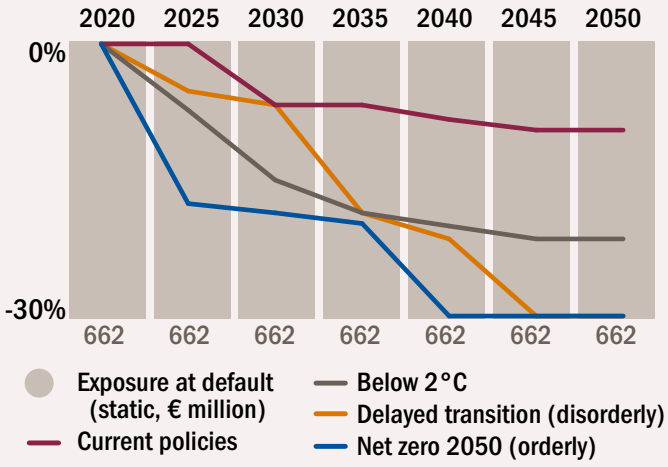
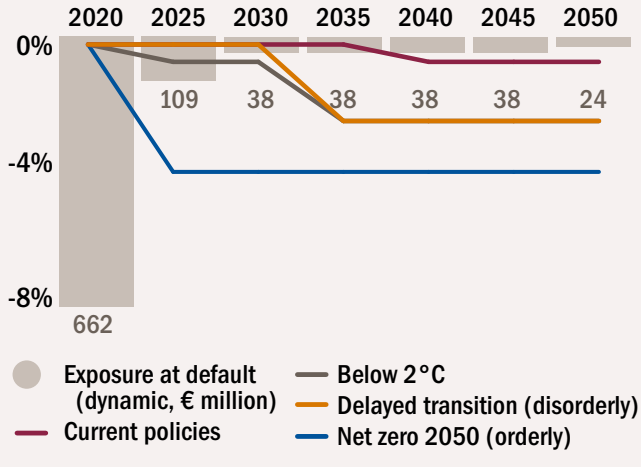


Figure 19: **Dynamic balance-sheet losses as a percentage of 2020 exposure**



2050"), as shown in Figure 19. This amount is deemed immaterial compared with the Bank-wide losses that could be expected over the projection period if the current financial performance were to continue. The significantly lower level of losses in the dynamic view is due in part, or even to a large degree, to the full amortisation of exposures before the clients are severely impacted by the climate scenarios.

Given the horizon over which losses are likely to materialise and the assumption that all scenarios are equally likely, expected credit losses due to potential climate events appear to remain within the overall expected losses set by the Bank's provisioning model for these exposures.

Lessons learned and limitations

The results of this mini-stress test show that for a small portfolio of clients exposed to transition risk, the introduction of stringent policy actions is likely to lead to a substantial increase in losses compared with a continuation of current policies. Were the Bank to maintain current proportions of lending to clients with high CT risk, this would gradually raise overall Bank losses above typical levels.

Considering the relatively rapid portfolio amortisation, excess losses due to climate risk can be materially contained by a gradual exit from lending to high-transition-risk sectors. In this case, overall loss levels, as well as the Bank's capital, are not expected to be materially impacted.

Table 7 shows that very high or high CT risk investments form only a small proportion of the Bank's overall portfolio. These are expected to be replaced gradually by new business aligned with the Paris Agreement. Consequently, it is expected that other types of projects will replace almost all of the oil and gas exposures included in the sample portfolio for this exercise.

Lastly, given the long-time horizon over which the climate risks are expected to materialise, as well as the lack of historical experience with regard to socioeconomic sensitivity to changes in climate, the uncertainties surrounding climate stress-test results are significantly higher than traditional, shorter-term stress tests. This is particularly true for the Bank's project finance investments, many of which will be completed long before 2050.

The Bank plans to further develop its climate scenario modelling capabilities, enabling it to scale up the scope of its sampling to a larger number of clients and to quantify the impact from physical risks as part of future stress-testing exercises. These advancements will ultimately provide more comprehensive and accurate loss estimates, taking into account business decisions with a view to a lower-carbon portfolio.

Physical climate risk

In 2021, the Bank began assessing its portfolio exposure to PC risk by applying the PC risk-screening tool to its SIG portfolio, which accounts for about 20 per cent of the operating assets in its overall Banking portfolio. For the purposes of this assessment, it assessed the 200 largest non-sovereign clients in the SIG portfolio. As shown in Figure 20, the results show that 23 of those 200 clients may be highly exposed to PC risk, requiring a deeper, second-stage assessment. This exposure represents assets worth €1.65 billion (17 per cent of €10 billion assessed; see Figure 21).

Figure 20: **PC risk scores for the 200 largest SIG clients by portfolio assets (excluding sovereign exposure)**

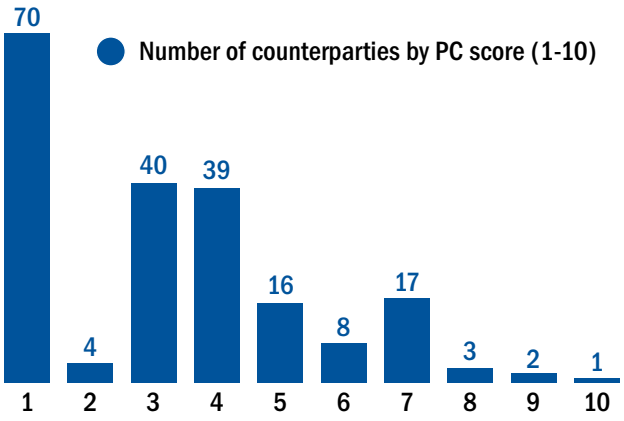
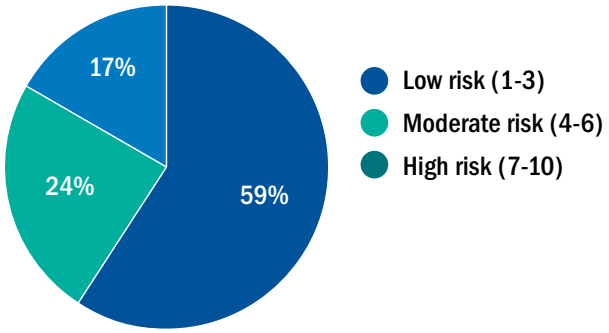


Figure 21: **PC risk scores for the 200 largest SIG clients, share of portfolio assets (excluding sovereign exposure)**

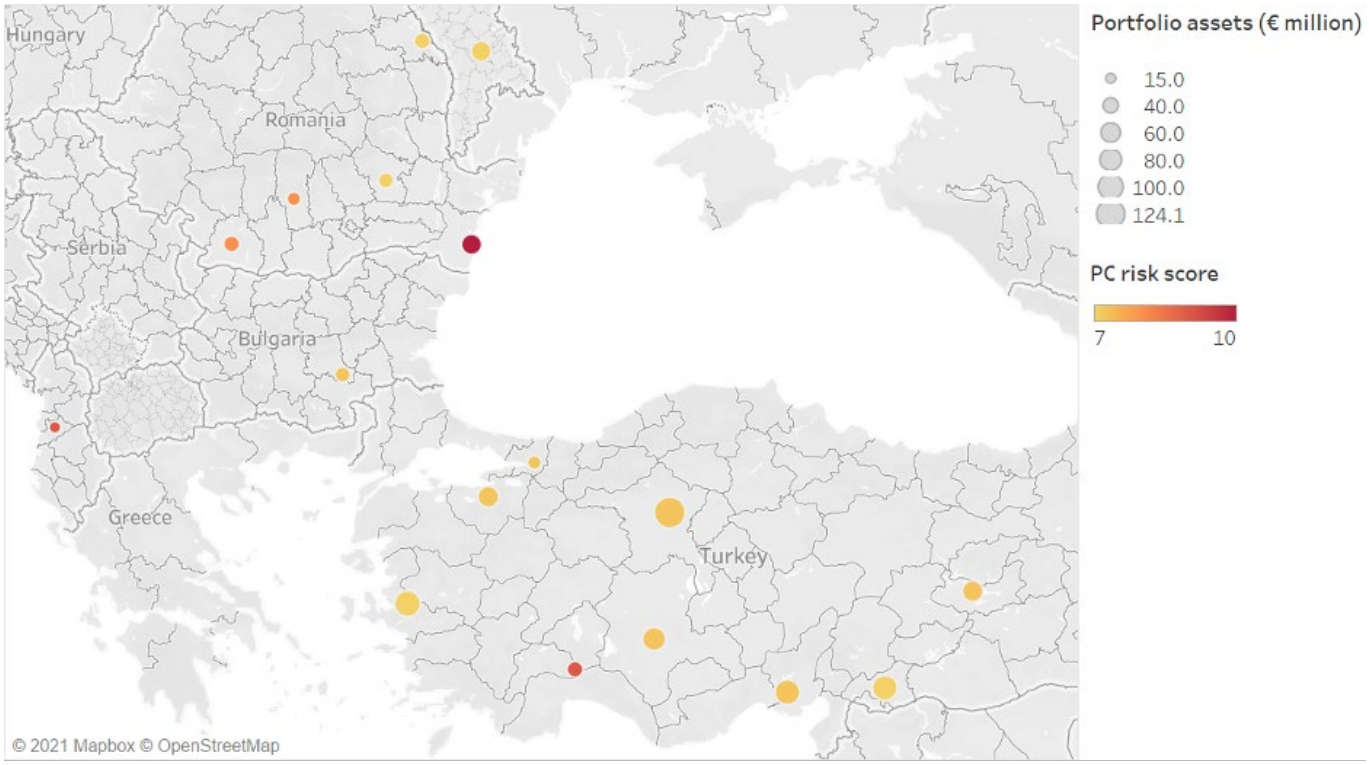


The projects assessed as high risk included nine hospital projects in Turkey, five municipal infrastructure projects (mainly water utilities) in the eastern Balkans, three highway projects and one of the Bank's largest gas pipeline projects (the Trans Adriatic pipeline). The most common hazards triggering a high-risk assessment were a high likelihood of extreme heat events, flood, drought and increasing water stress. The Bank will be examining these projects to understand in more detail the climate risks to which they are exposed and whether any follow-up actions are required.

Figure 22 shows the location of 17 of the clients deemed at higher risk from the physical climate. This assessment reflects the presence of physical climate hazards at the geographical locations of those investments and the investments' industry-sector sensitivity to those hazards. As can be seen, many of the higher-risk investments are located in Turkey or the southern European region. This is in part due to several projects in certain industry sectors being in the same geography. For example, the EBRD has a number of projects in the water sector in Romania and the healthcare sector in Turkey. Further assessment is needed to clarify whether these investments are actually at high risk from physical climate hazards. Moreover, many of these investments may already have climate mitigation or adaptation measures in place that reduce exposure to such physical climate risks and which have not been taken into account in this assessment. These adaptations will be better taken into account in future versions of this PC score methodology.

This assessment was based solely on the primary locations of the exposure in most cases, which may reduce or amplify the risks. Moreover, clients identified as having a large number of operational sites are considered "diversified" when it comes to PC risk and are, thereby, assigned a low score at this stage. The Bank is planning to address this by expanding the number of PC locations under analysis for future versions of the methodology, potentially by utilising third-party PC data providers. Currently, such third-party data do not exist for the vast majority of the EBRD's clients.

Figure 22: **Location of high-risk exposures included in the SIG portfolio review**



Note: This map is used for data visualisation purposes only and does not imply any position on the legal status of any territory.

Incorporating climate risk into risk management metrics

The Bank assigns internal credit ratings to all of its clients. These ratings reflect the financial strength of the client, which, where relevant, already incorporates considerations as to the projected financial impact of climate change. Sovereign ratings take into account external agency ratings, which also increasingly reflect the impact of climate change.

The climate risk methodologies the Bank is gradually implementing currently do not have direct implications for the EBRD's standard risk management metrics, in particular, its **probability of default** (PD) and **loss-given default** (LGD) ratings and capital ratios, as these metrics already incorporate various climate-related factors in their underlying analysis. While the Bank is not yet in a position to establish the link between its climate risk scores and PD and LGD ratings, it is working to collect these data over time and, eventually, plans to incorporate them more clearly into its credit ratings. The Bank is also working to ensure its climate risk data are appropriately stored, so they can be analysed once a significant amount of data are available.

Assessing climate risk remains challenging, due to its inherent uncertainty and a lack of historical data. Consequently, there are gaps and inconsistencies in the Bank's methodology that need to be remedied. The Bank is taking a balanced approach by developing transparent methodologies and conducting pilots based on the latest information available and is disclosing climate risk information based on the data and tools currently available.

At the same time, the Bank remains abreast of new developments by engaging with credit rating agencies, data providers, commercial banks and other MDBs. It is also participating in the UNEP FI TCFD pilot in order to engage and collaborate with different stakeholders and track developments in this evolving area. Through this process, the Bank continues to improve its assessments and the quality of its climate risk data, with the view that, over time, the data quality, indicators and methods of analysis will improve so that these methodologies can become more consistent and more fully integrated into the Bank's risk management processes.

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