ANALYSIS

National Development Banks and the Climate Crisis

Aligning German and Korean Export and Development Finance with 1.5°C

Germanwatch and Solutions for Our Climate

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Summary

Internationally active public finance institutions and development finance play a vital role in sustainable finance by financing ascending technological solutions and bearing the cost of de-risking less attractive yet much-needed investments. However, large volumes of public finance continue to flow towards the fossil fuel industry, while support for clean energy sources continues to lack a much-needed increase. Both Korean and German development finance institutions and export credit agencies – KFW Group and Euler Hermes in Germany, KDB, KEXIM and K-SURE in Korea – are in the position to push their counterparts to raise climate ambitions and encourage more countries to join the global momentum on exiting fossil fuel finance. Against this backdrop, this paper explores the alignment of German and Korean development finance institutions with the Paris Agreement, by analyzing their climate and sector strategies against the IEA's Net Zero by 2050 (NZE) scenario and pointing out space for improvement. Recommendations include aligning their strategies with a 1.5°C compatible pathway, providing more transparency on investment decisions, and including civil society and experts in the reviewing processes for their strategies. To truly ensure Paris-alignment, the NZE should be at the basis of their sector and climate strategies.

Imprint

Authors:
Magdalena Bachinger, David Ryfisch, Martin Voß, Dongjae Oh, Sohyeon Park

With contributions by:
Nina Müller, Eujin Kim

Editing:
Szice Group – Adam Goulston

Layout:
Jan Koch, www.jkjkjk.de

Publisher:
Germanwatch e.V.
Office Bonn
Dr. Werner-Schuster-Haus
Kaiserstr. 201
D-53113 Bonn
Phone +49 (0)228 / 60 492-0, Fax -19

Office Berlin
Stresemannstr. 72
D-10963 Berlin
Telefon +49 (0)30 / 28 88 356-0, Fax -1

Internet: www.germanwatch.org
E-Mail: info@germanwatch.org

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Abbreviations

AA – Federal Foreign Office

AKA – Ausfuhrkredit-Gesellschaft mbH

BMF – Federal Ministry of Finance

BMWK – Federal Ministry for Economic Affairs and Climate Action

BMZ – Federal Ministry for Economic Cooperation and Development

BOF – Basic oxygen furnace

CCUS – Carbon capture, utilisation, and storage

CCU – Carbon capture and utilisation

CDR – Carbon dioxide removal

CHP – Combined heat and power

COP26 – United Nations Climate Change Conference 2021

CSS – Carbon capture and storage

DEG – Deutsche Investitions- und Entwicklungsgesellschaft GmbH

DFI - Development finance institution

DRI – Direct reduced iron

EAF – Scrap-based electric arc furnace

ECA – Export credit agency

EDFI – European Development Institution

EEDI – Energy Efficiency Design Index

ESG – Environmental, social, and governance

E3F – Export Finance for Future coalition

GHG – Greenhouse gas

G7 – Group of 7IATA – International Air Transport Association

IEA – International Energy Association

IMA – Interministerial Committee for Export Credit Guarantee

IMO – International Maritime Organization

IPCC – Intergovernmental Panel on Climate Change

IPEX-Bank – International projects and export finance bank

KDB – Korea Development Bank

KEXIM – Export–Import Bank of Korea

KfW – Kreditanstalt für Wiederaufbau

K-SURE – Korea Trade Insurance Corporation

MDB – Multilateral development bank

NZE – Net Zero Emissions by 2050 Scenario

PFI – Public finance institution

SDG – Sustainable Development Goal

SDS – Sustainable Development Scenario

SF – Sustainable Finance

TCFD – Task Force on Climate-Related Financial Disclosures

1. Introduction

The Paris Agreement's main ambition of limiting global warming is today as relevant as ever. As the climate crisis intensifies and actions should follow ambitious words, the means of limiting the rise in average global temperature to 1.5°C have never been as evident and available as they are now.[1]

Repeated announcements, such as those at the One Earth Summit in December 2017 and in Glasgow in November 2021, should leave no doubt: large clubs of influential financial institutions and many industrialised nations' governments both realise the need for a profound change of course.[2, 3] They should heed the Paris Agreement's goals and fully align their strategies and activities with climate change considerations, and direct financial flows and investments in ways that benefit climate action.

'Paris alignment' is essential for internationally active public finance institutions (PFIs) and development finance institutions (DFIs), such as KfW. This is because they often assume a trailblazer role by financing ascending technological solutions and bearing the cost of de-risking less attractive yet much-needed investments. Around 10% of global financial flows are public finance, amounting to an annual US$2.2 trillion. Moreover, DFIs benefit from government-supported credit ratings, so they can offer longer grace periods and provide below-market rates.[4]

Despite the above, large volumes of public finance continue to flow towards the fossil fuel industry. At the same time, support for clean energy sources continues to lack a much-needed increase.[5] In 2018–2020, fossil gas alone received 51% of global public finance in energy. Among DFIs, export credit agencies (ECAs) are notably at the forefront of supporting fossil fuel finance. Compared with both DFIs and MDBs, ECAs provide '11 times more support for fossil fuels ($40 billion per year in 2018 to 2020) than clean energy ($3.5 billion per year).'[6]

The principal German ECA Euler Hermes, stepped in to guarantee transactions supporting fossil fuel projects worth a combined 1.31 billion euros in 2019. Meanwhile, renewable energy projects or low-carbon projects amounted to only 1.07 billion euros.[7,8]

In April 2021, France, Denmark, Germany, the Netherlands, Spain, Sweden, and the United Kingdom launched the Export Finance for Future (E3F) coalition. E3F's goal is to align public export finance with climate goals by ramping up its financial support for climate-friendly projects while restricting fossil fuel finance, such as ending export finance for coal power generation.[9]

While Germany is both a founder of the E3F coalition and a signatory of the Glasgow ambition statement on Clean Energy Transition, South Korea (hereinafter "Korea") is neither.[10] This makes the country one of the largest providers of public fossil fuel finance lacking the ambition of its industrialised peers, along with Japan and China.[11] Germany and Korea, along with their national DFIs, can play a large role in raising ambitions among their counterparts. They display certain similarities in their institutional DFIs and ECA setup: the KfW Group and Euler Hermes in Germany, as well as KDB, KEXIM, and K-SURE in Korea. Moreover, anecdotal evidence suggests that Korean institutions consider German institutions as relevant peers to compare with.

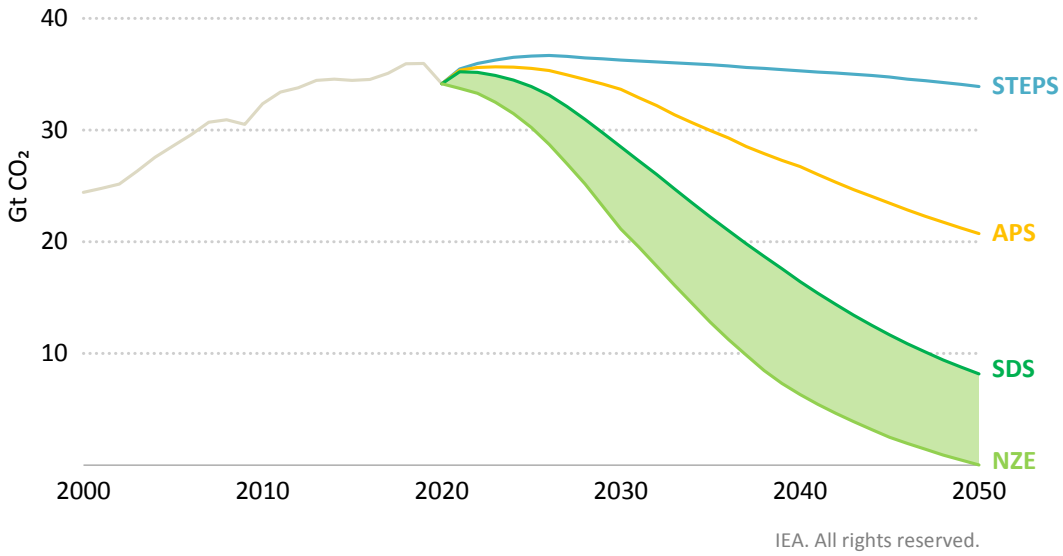
1 IPCC (2022) Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.
2 Agence française de développement (12/2017) Together Major Development Finance Institutions Align Financial Flows with the Paris Agreement.
3 UN Climate Change Conference UK 2021 (2021) Statement on International Public Support for the Clean Energy Transition
4 Oil Change International (2022) Using international public finance to unlock a just transition: key data and opportunities.
5 IPCC (2022) Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.
6 Oil Change International (2022) Using international public finance to unlock a just transition: key data and opportunities, p. 4.
7 Perspectives Climate Research (2021) Paris Alignment of Export Credit Agencies: Case Study #1: Germany (Euler Hermes).
8 Overall, the export volume covered by Germany export credit guarantees amounted to 16.7 billion euros in 2020.
9 Ministère de l'Europe et des Affaires Étrangères (04/2021) Export finance coalition launched to fight climate change.
10 UN Climate Change Conference UK 2021 (2021) Statement on International Public Support for the Clean Energy Transition.
11 Oil Change International (2022). Using international public finance to unlock a just transition: key data and opportunities.

This policy brief aims to portray both the importance and possibility of aligning with the Paris Agreement. An integral step towards this goal should be basing business and sector strategies on the latest and most rigorous scientific resources, such as the International Energy Agency (IEA) Net Zero Emissions by 2050 Scenario (NZE).[12]

To show the lack of ambition inherent in both Korean and German DFIs' current policies, comparison is made with the NZE where possible, followed by recommendations for all subject DFIs.

2. Net Zero Emissions by 2050 (NZE)

CO_2 emissions in the *WEO-2021* scenarios over time



The APS pushes emissions down, but not until after 2030; the SDS goes further and faster to be aligned with the Paris Agreement; the NZE delivers net zero emissions by 2050

Note: APS = Announced Pledges Scenario;
SDS = Sustainable Development Scenario;
NZE = Net Zero Emissions by 2050 Scenario.

Figure 1: Comparison of IEA decarbonisation scenarios; Source: World Energy Outlook 2021

Strengths

In 2021, the IEA published its study outlining a pathway to reach net-zero emissions by 2050 to limit the global rise in temperature to 1.5°C.[13] In its scope, this roadmap for achieving a clean energy transition has global dimensions and was designed to help guide the 2021 United Nations Climate Change Conference (COP26). The report did not provide specific regional or national pathways.[14]

This publication is noteworthy for the IEA's revision of some long-held positions, including on fossil

12 Greenpeace; IISD; Oil Change International (2022) Zeroing In: A guide for the finance sector on the IEA's Net Zero Emissions scenario and its implications for oil and gas finance.
13 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
14 IEA (05/2021) Pathway to critical and formidable goal of net-zero emissions by 2050 is narrow but brings huge benefits, according to IEA special report.

fuels, in stating: 'there are no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required.'[15] In a watershed moment, the IEA thus called for an outright halt on expanding fossil fuel extraction.

On energy questions, the IEA has high authority and influence in the political and economic sphere, as well as strong signalling power. The NZE thus became a 'benchmark' for measuring progress towards reaching the 1.5°C goal.[16]

To further underscore the NZE's importance, its findings have been officially recognised in the COP26 Statement on International Public Support for the Clean Energy Transition. It includes a pledge to end new international direct public support for unabated fossil fuel in the energy sector by the end of 2022.[17]

The less ambitious IEA Sustainable Development Scenario (SDS) aimed at keeping temperature increase to well below 2°C and stipulated a 50% probability of limiting it to 1.65°C. The NZE is thus the only scenario by the IEA that actually aligns with the Paris Agreement's ambitions; it should therefore be a basis for financial institutions' decision-making.[18]

The NZE satisfies the Intergovernmental Panel on Climate Change (IPCC) requirements for 1.5°C scenarios, especially regarding energy sector developments. A necessary rapid decline of coal power generation in industrialised countries by 2030, and globally by 2040, is acknowledged under the IEA's Net Zero pathway. It emphasises the importance of wind and solar energy as the main energy carriers to cover the ambitions of most IPCC 1.5°C pathways concerning energy supply, fossil fuel use, and renewable energy sources.[19],[20]

The NZE also offers additional greater benefits for social and economic issues compared with other scenarios, such as increasing living standards and significantly decreasing premature deaths due to air pollution.[21]

Shortcomings

For all its ambition, the NZE does fall short in some regards. Main points of criticism are the NZE's predictions of continued fossil fuel use, considered acceptable because of an optimistic perception of carbon dioxide capture and storage (CCS)/carbon dioxide capture, utilisation, and storage (CCUS) technologies and their potential.[22]

The IEA NZE is regarded as 'conservative' regarding its reliance on carbon dioxide (CO2) removal (CDR), perceived as a major risk towards reaching 1.5°C ambitions. Whereas its reliance on CDR is still lower than other models, the NZE's reliance on CCS technology is comparatively high.[23]

CCS application has been criticised in the past, especially regarding uncertain development and deployment. At scale, the technology seems to remain 'largely unproven and its potential to deliver significant emission reductions by mid-century is currently limited.'[24]

CCS is neither the most effective nor the cheapest solution for certain sectors. Especially for power generation, renewables, combined with energy storage and demand response to balance out

15 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector, p. 21.
16 Reclaim Finance (2021) The IEA's Net-Zero 2050: The new normal and what's left to be done.
17 UN Climate Change Conference UK 2021 (2021) Statement on International Public Support for the Clean Energy Transition.
18 Greenpeace; IISD; Oil Change International (2022) Zeroing In: A guide for the finance sector on the IEA's Net Zero Emissions scenario and its implications for oil and gas finance.
19 Carbon Brief (2021) IEA: Renewables should overtake coal "within five years" to secure 1.5C goal.
20 Ember Climate (2022) The science is clear, coal needs to go.
21 Reclaim Finance (2021. The IEA's Net-Zero 2050: The new normal and what's left to be done.
22 Reclaim Finance (2021) The IEA's Net-Zero 2050: The new normal and what's left to be done.
23 Greenpeace; IISD; Oil Change International (2022) Zeroing In: A guide for the finance sector on the IEA's Net Zero Emissions scenario and its implications for oil and gas finance.
24 Climate Action Network International (2021) Position: Carbon Capture Storage and Utilisation, p. 3.

grids, are by far the better option. Meanwhile, updating fossil fuel power stations with CCS costs 'significantly more' than renewables.[25] Instead, CCS application further sustains fossil fuel use.[26] Findings from the latest IPCC report in 2022 also confirmed the strong potential of ever-cheaper renewable energy sources.[27]

While the IEA predicts no need to develop new oil and gas fields under its scenario, it does not go as far as recommending the end of licensing such projects. This contrasts with a recent trend in policymaking, most notably the Beyond Oil and Gas Alliance formed at COP26.[28]

Another point in which the scenario remains lacking is the unclear distinction between 'public' and 'private' investments, as well as lack of identifying geographical distribution.[29] This makes it hard to identify which source of investments need to be capped or redirected.

One last point of criticism is the NZE's projected reliance on biomass and nuclear energy, whereas the potential of renewable energy sources remains modest.[30]

3. Organisation and Governance

3.1 KfW Group – Organisational Structure

The KfW Group has operated under a legal mandate for promoting and financing sustainable development since 1948 and is represented in 80 locations worldwide. The Federal Government of Germany owns 80% of the Group, while the federal states own the other 20%.

Promotion in Germany			Support of the German and the European economy	Promotion of development	
SME Bank & Private Clients Digital mass business	**Customised Finance & Public Clients** Individual financing solutions and municipal finance KFW	**KfW Capital** Venture capital fund investments KFW CAPITAL	**KfW IPEX-Bank** National / International export and project finance KFW IPEX-Bank	**KfW Entwicklungsbank** Promotion of developing countries and emerging economies KFW	**DEG** Promotion of developing countries and emerging economies KFW DEG

Figure 2: Organisational structure of KfW Group

Within the Group, KfW's main activities centre on domestic promotion, export, and project finance, as well as promotion of developing countries and emerging economies. KfW itself has several subsidiaries operating in development finance:

- KfW IPEX Bank GmbH, the full subsidiary, is responsible for export and project finance, financing, and supporting projects by German and European companies outside the European Union.

25 Climate Action Network International (2021) Position: Carbon Capture Storage and Utilisation, p. 10.
26 Greenpeace; IISD; Oil Change International (2022) Zeroing In: A guide for the finance sector on the IEA's Net Zero Emissions scenario and its implications for oil and gas finance.
27 IPCC (2022) Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.
28 Greenpeace; IISD; Oil Change International (2022) Zeroing In: A guide for the finance sector on the IEA's Net Zero Emissions scenario and its implications for oil and gas finance.
29 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector, p. 103.
30 Reclaim Finance (2021) The IEA's Net-Zero 2050: The new normal and what's left to be done.

- The full subsidiary Deutsche Investitions- und Entwicklungsgesellschaft GmbH (DEG) and the KfW Development Bank are the main actors in promoting developing countries and emerging economies.

While DEG acts as a development financier in the private sector, financing, advising, and supporting private business, KfW Development Bank mainly promotes public-sector investment, reform processes, and development projects.

KfW also owns capital shares in several other companies, such as Deutsche Energie-Agentur GmbH and AKA Ausfuhrkredit-Gesellschaft mbH.[31]

3.2 KfW Group – Governance Structure

Board of Supervisory Directors (Verwaltungsrat)
The Board of Supervisory Directors advises and monitors the Management Board regarding management of the company, granting approval of financial statements.[32]

It comprises seven Federal Ministers and several other members appointed by the Federal Council and Parliament, including representatives of the banking sector and trade unions.

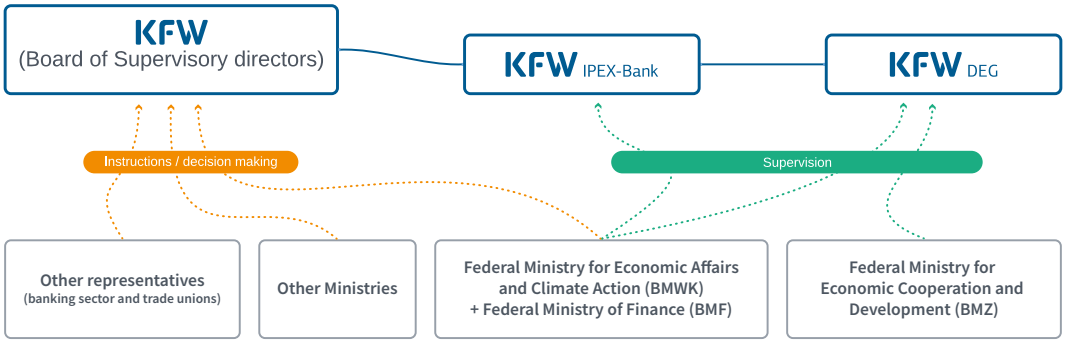


Figure 3: Governance structure of KfW Group

It is involved in fundamental decision-making processes regarding KfW's financing priorities and orientation, and may give the Executive Board general instructions. Notably, it may reserve the right to approve conclusion of certain transactions or transaction types.[33]

The Executive Board must implement decisions made by the Board of Supervisory Directors.[34]

3.3 Governance of Euler Hermes

Euler Hermes has acted as the official German Export Credit Agency (ECA) under a Federal Republic of Germany mandate since 1949, after already operating German export credit insurance from 1926 to 1945.[35] Euler Hermes oversees the federal export guarantee scheme and can therefore issue export credit guarantees, under the name Hermes Cover, on behalf of the Federal Government in cases where sufficient insurance cover cannot be received from private industry. When Hermes Cover is provided, bad debt losses are transferred to the government, which compensates in the covered claim's amount.[36]

31 KfW (2020) 2020 Sustainability Report.
32 KfW (n.d.) Board of Supervisory Directors and its Committees.
33 KfW (2020) Gesetze über die KfW (§7Verwaltungsrat).
34 KfW (2020) Gesetze über die KfW (§7Verwaltungsrat).
35 AGA-Portal (n.d.) Fragen und Antworten zum Thema Allgemeines (Exporte).
36 BMWI (n.d.) Finanzierung und Absicherung von Auslandsgeschäften.

Decisions on cover policies and the approval of export credit guarantees for export transactions lie with the Interministerial Committee for Export Credit Guarantees (IMA). The BMWK, BMF, Federal Foreign Office (AA), and BMZ are part of the IMA. All decisions on export credit guarantees are consensual, which ensures consistency among the different departments. Euler Hermes, and experts from the economy, such as from KfW IPEX or AKA, act as advisors to the IMA.[37]

3.3.1 Interaction between KfW and Euler Hermes

Euler Hermes associates with the KfW IPEX Bank in frequent collaboration on export credits. Through these, KfW IPEX provides export and project financing, while providing ECA cover for the export projects.

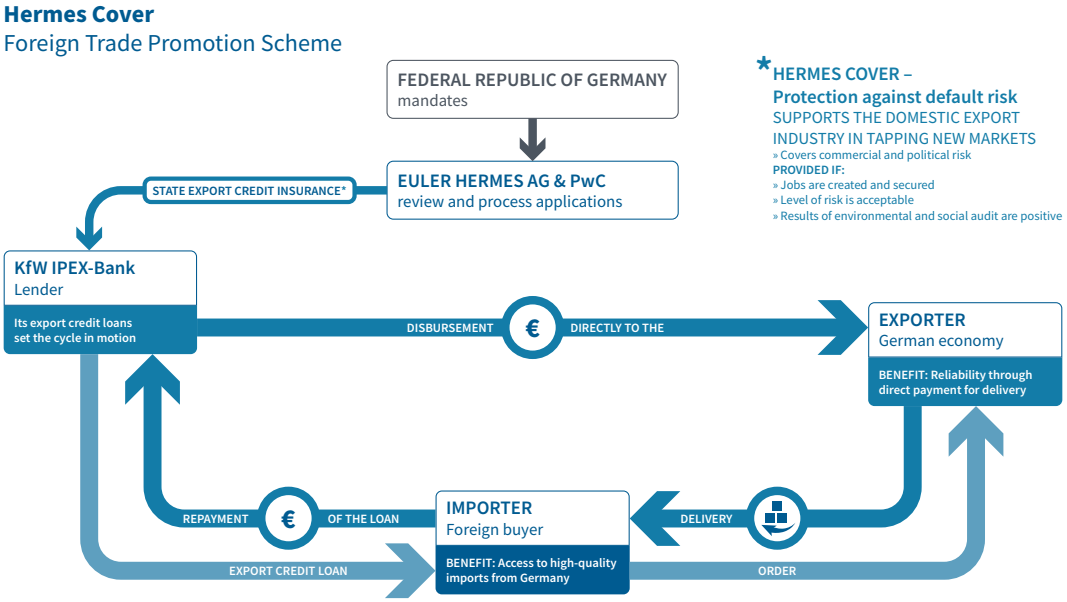


Figure 4: Interaction between Euler Hermes and KfW Group

In a first step, KfW IPEX evaluates the feasibility of financing certain export projects and analyses their possible environmental and social risks. Upon approval, KfW IPEX acts as a lender of export-related loans for the project and handles the application process for export credit insurance with Euler Hermes. The latter then provides EAC cover against commercial and political risks.

Further collaboration occurs similarly between KfW subsidiary DEG and AKA, of which KfW holds 0.2% of shares via KfW IPEX.[38]

3.4 Korea's DFI & ECAs – Organisational Structure

Three public financial institutions serve as the DFI and ECAs in Korea. The Korea Development Bank (KDB) operates as the official DFI, while the Korea Export–Import Bank (KEXIM) and Korea Trade Insurance Corporation (K-SURE) act as ECAs, supporting domestic companies and industries.

The KDB, founded in 1954, is under the Korean Government's full ownership supports industrial development, capital market stabilisation, and sustainable growth in the country, with 79 branches

37 Exportgarantien der Bundesrepublik Deutschland (2020) Annual Report 2020.
38 Perspectives Climate Research (2021) Paris Alignment of Export Credit Agencies.

worldwide. The KDB fulfils a broad range of roles, including supporting development of domestic industries, financing expansion of social infrastructure, and assisting with overseas energy/mineral development projects, while providing financing for companies and projects. It also issues industrial financial bonds to fund key Korean industries. Moreover, as a policy bank, the KDB conducts corporate restructuring when default risks arise. During the 1997 Asian financial crisis and 2008 financial crisis, the KDB took the helm of financially distressed companies by acquiring shares or providing loans, as well as supporting their restructuring and other long-term strategies. As COVID-19 spread, the KDB also aided struggling businesses by managing the government's Periodic Industry Stability Fund, amounting to 40 trillion Korean won (~US$31 billion). The KDB's corporate restructuring role has expanded over the last 20 years, with non-financial subsidiaries peaking at 132 in 2016.

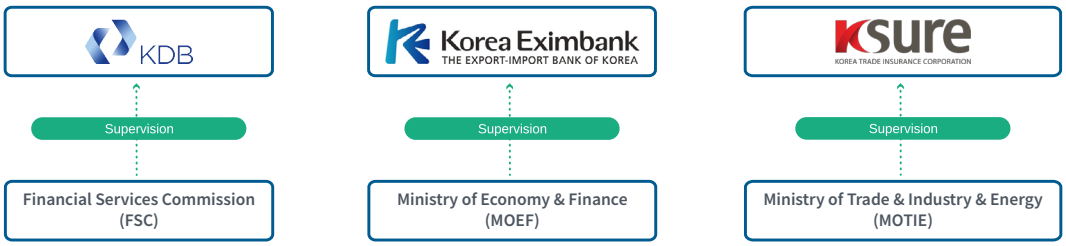


Figure 5: Organisational structure of KDB, KEXIM and K-SURE

Additionally, the KDB established special financial subsidiaries in specific fields. KDB Capital, for example, is a specialised credit finance company (with the KBD holding 99.92% of its shares) offering corporate finance services, including venture investment and leasing.

KEXIM, established in 1976, provides loans and guarantees to Korean export/import businesses and overseas resource development projects. KEXIM is responsible for managing the Economic Development Cooperation Fund, which supports developing countries' industrialisation and economic development, as well as the Inter-Korean Cooperation Fund. As an ECA, KEXIM's primary focus is on overseas projects. It offers credit at a low rate to domestic companies to both secure primary resources and increase industries' export competitiveness.

K-SURE was founded in 1992 via the transfer of export insurance-related work from KEXIM. K-SURE provides trade insurance products to cover risks in foreign transactions, including import and export of goods, overseas construction, and investment. K-SURE's financial services are divided into short-term and medium- to long-term insurance, depending on the exporter's payment period, and credit guarantees for financial institutions to support domestic companies' export businesses.

Public financial institutions' participation in overseas infrastructure construction or fossil fuel development projects varies by project scale. Only one of the three institutions provides financial services for small-scale projects. All three cooperate with loan and insurance provision for large-scale projects. In such a case, KEXIM provides loans and guarantees, K-SURE provides insurance, and the KDB mainly provides loans or sometimes guarantees.

3.5 Governance of Korean PFIs

Under Korean law, the government supervises operation of the KDB, KEXIM, and K-SURE. Each is supervised by a different governmental department. The KDB is under the Korean Financial Services Commission, KEXIM under the Ministry of Economy and Finance (MoEF), and K-SURE is managed by the Ministry of Trade, Industry and Energy. While the three institutions operate independently, controversial projects are reviewed at ministerial-level meetings, such as the Ministerial Meeting on International Economic Affairs, hosted by the MoEF.

For internal decision-making, all three institutions decide on key matters related to a company's management through decision-making bodies such as a board of directors. Investment approvals for projects, however, are discussed and approved within internal committees.

For the KDB, the Board of Directors handles critical agenda items such as management targets and internal business management standards. The governing body consists of a chairman, vice-chairman, and director, in addition to finance and economy experts serving as an independent group of directors. According to its Articles of Incorporation, important contract-related agenda items are delegated to the management council, comprising directors and division managers, excluding independent directors.

Figure 6: Governance structure of Korean PFIs

KEXIM, however, has a binary decision-making system. The operating committee decides on revision of its Articles of Incorporation and basic policies for bank business operation. The committee includes the president of KEXIM as the chair and public officials from related ministries and designated external experts as members. External experts act as non-executive directors. Other important elements of KEXIM's business are covered in its Board meetings. The Board consists of the president of KEXIM and directors appointed by the MoEF at the bank president's recommendation. External experts also serve as non-executive directors of the Board council. Unlike the managerial decision-making process, however, conclusion of major contracts is decided by the export credit committee, consisting of the president and executive director of KEXIM as well as the headquarters' directors.

K-SURE's decision-making system is like that of KEXIM. The operating committee decides on overall operating issues, such as a change of insurance rate in its Articles of Incorporation. The committee's chair is the president of K-SURE, and the committee further consists of public officials from related ministries such as the MoEF and Ministry of Foreign Affairs, as well as designated experts from major stakeholders such as KEXIM or the Korea International Trade Association. K-SURE's key matters, such as establishment of business goals, budgeting, and business operation plans, are decided in the Board meeting. The Board consists of the chairman, executive directors, and non-executive directors, who are external experts from the industry and finance sectors. Like in KEXIM, agenda items related to project approval are reviewed and approved in the managerial committee, comprising the chairman and executive directors. Auditors may sometimes be present and state their opinions.

4. Business and Sectoral Strategies

4.1 Sustainability Strategy

The KfW Group, in its Sustainability Mission Statement, provides a framework for five areas, taking sustainability measures: banking business, employee relations, bank operation, sustainability management, and sustainability communications. For banking, for instance, several strategies are provided. To guide financing processes, the Group introduced an exclusion list, as well as business sector strategies and sectoral guidelines. For the capital market, principles for green bonds and responsible investments were established, while methods and reporting standards were developed for credit risk.[39]

The KfW Sustainability Management System also establishes 'functions, responsibilities and procedures which ensure that the sustainability principles are achieved.'[40]

Figure 7: Sustainability strategies of KfW Group

These principles give further specifics on 'the sustainability mission statement regarding financing, human resource policy, bank operations, corporate citizenship and communication of KfW Bankengruppe with its stakeholders.' Financing for sustainable development focuses on climate change and the environment, globalisation and technical progress, and demographic development.[41]

4.2 Sustainable Finance Strategy

Project preparations for the KfW Group's Roadmap Sustainable Finance were completed by the end of 2020. The Roadmap included adoption of KfW's new sustainability mission statement, the first uniform group-wide exclusion list, KfW's first Sustainable Development Goals (SDGs) mapping, and its first Task Force on Climate-Related Financial Disclosures (TCFD) report.[42] The Roadmap's goal is to translate fundamental political decisions, such as the UN 2030 Development Goals, Paris Climate Agreement, EU action plan for financing, and German Climate Programme, into concrete action.[43]

39 KfW (2019) KfW Group sustainability mission statement and sustainability action areas.
40 KfW (2012) Sustainability Guidelines of KfW Bankengruppe.
41 KfW (2012) Sustainability Guidelines of KfW Bankengruppe.
42 KfW (2020) 2020 Sustainability Report.
43 KfW (2019) Interview on the KfW Roadmap Sustainable Finance.

Figure 8: Project tranSForm of KfW Group

SDG mapping, meant to align KfW's financing activities with the 17 SDGs, does fall short in some regards because of a lack of standardised procedures. The requirements based on this mechanism are low, as funding can be based on beneficial contribution to a single SDG (such as 'economic growth'), without considering adverse effects on other goals. Meaningful implementation of the SDGs would require revising KfW's 'no harm' methodology and reducing the margin for interpretation.[44]

The SDG mapping and group-wide impact management serve as a framework for the Group's SF Strategy (Theory of Change). Its key strategy is the tranSForm project, based on the Strategic Objectives Sustainability Goals. These include:

- SDG contribution in KfW financing: With over 47 impact indicators, an 'impact balance sheet' prototype was created, and group-wide guiding principles were established.
- Paris compatibility of KfW financing: Guidelines for greenhouse gas (GHG)-intensive sectors were published in 2021. Development of further guidelines, as well as a GHG accounting monitoring KfW's progress, will be the next milestones.
- Strengthening environmental, social, and governance (ESG) risk management: An ESG risk profile database and a first climate risk stress test were established.
- Report in accordance with EU Taxonomy: GAP analysis started.[45]

4.3 Climate Strategies of KfW Subsidiaries

KfW subsidiaries KfW IPEX, DEG, and KfW Entwicklungsbank also introduced additional sustainability and climate strategies, along with adhering to the Group's sector guidelines, exclusion list, and general sustainability strategy.

In 2020, KfW IPEX updated its Sustainability Guideline, which provides specifications on how its products' environmental and social compatibility are evaluated. Results and analysis based on the Guideline then directly influence financing decisions.[46]

Similarly, KfW Entwicklungsbank's Sustainability Guideline from February 2022 specifies its assessment of climate, environmental, and social risks for investment decisions.[47]

DEG also published its Impact and Climate Commitments in February 2022. The document outlines the subsidiaries' pathway to a GHG-neutral portfolio and to better contributions to the SDGs. In the document, DEG commits 'to achieving net-zero emissions on portfolio level by 2040, aligned with the Paris Agreement's 1.5°C goal.'[48]

44 Germanwatch (2020) Akute Green Washing Gefahr durch Bundesregierung: derzeitige Ausgestaltung der Konjunkturhilfen würde den Europäischen Green Deal torpedieren.
45 KfW (2022) KfW Group's Sustainable Finance Strategy. Project tranSForm.
46 KfW IPEX-Bank (2020) Sustainability Guideline.
47 KfW Entwicklungsbank (2022) Sustainability Guideline.
48 KfW DEG (2022) Impact/Climate Commitments.

4.4 Climate Strategy for Export Credit Guarantees

The Federal Government is also working on a climate strategy for export credit guarantees. In 2020, measures were taken to promote provision of Hermes Cover for renewable energies in order to gradually ensure the instrument's Paris alignment for export promotion. The decision was made to limit provision of cover for projects with high climate risks, especially fossil fuel-related projects, by optimising evaluation and approval processes.[49] However, lacking in this process thus far is a definition that makes transparent which projects are considered to be part of fossil fuel value chains.[50]

Further steps were taken in advancing a climate strategy with signing the statement of principles on sustainable and climate-oriented export finance developed during the conference in 2021.[51] A pilot phase was also initiated to review benchmarks for assessing exports' climate risks. The results will be included in the final strategy.[52]

Despite measures being taken to limit cover for some fossil fuel-related projects, a 2021 study by Perspectives Climate Research rated ECA Euler Hermes as unaligned with the Paris Agreement goals. A main point of criticism was the ongoing support for fossil fuel projects, in which single-transaction covers amounted to 1.31 billion euros in 2019, while support for renewable energy projects, or low-carbon projects, was only 1.07 billion euros. The continued importance of gas-related value chains in Germany's project and export finance was evaluated as being unaligned with the NZE.[53]

However, improvements have been made in this regard with further restricting of the granting export credit guarantees for coal and crude oil. In 2020, single transaction covers for renewables overtook covers for fossil fuels, with a volume of cover for renewable energy sources of 1.1 billion euros, while the volume for the gas sector amounted to 33 million euros, without further covers being granted to coal and oil.[54]

4.5 Sector Guidelines at KfW Group

The KfW Group introduced its sector guidelines in 2021. These guidelines 'serve to shape new commitments in accordance with the temperature target of the Paris Agreement.'[55]

The Group's commitments regarding its guidelines are mainly derived from the IEA SDS.[56] Unlike the NZE, the SDS does not achieve net-zero emissions by 2050, nor does it aim at the more ambitious and necessary climate goal of limiting global warming to 1.5°C. Instead, the SDS is only in line with the less ambitious objective of 'holding the increase in the global average temperature well below 2°C' by integrating key SDGs: 7 (ensuring universal access to sustainable modern energy services by 2030) and 3.9 (taking effective action to combat climate change). The SDS pathway reaches global net-zero emissions merely by 2070 with a median surface temperature peaking at 1.7°C. It provides a 50% probability of limiting global temperature rise to 1.65°C, and 1.5°C by 2100. Net negative emissions are necessary after 2070.

The sector guidelines will be subject to regular reviews, considering market developments and technological progress; this might lead to their adjustment. The first and current evaluation period

49 BMWK (2020) Bundesregierung beschließt Verbesserungen bei der Übernahme von Exportkreditgarantien mit "Sonderinitiative Erneuerbare Energien."
50 Perspectives Climate Research (2021) Paris Alignment of Export Credit Agencies: Case Study #1: Germany (Euler Hermes).
51 BMWK (2021) Altmaier unterzeichnet mit europäischen Partnern Grundsatzerklärung zur nachhaltigen und klimagerechten Ausgestaltung der Exportfinanzierung.
52 AGA-Portal (n.d.) Climate Strategy.
53 Perspectives Climate Research (2021) Paris Alignment of Export Credit Agencies: Case Study #1: Germany (Euler Hermes).
54 AGA-Portal (n.d.) Energy industry.
55 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group, p. 1.
56 KfW (2021) Hintergrundpapier Sektorleitlinien.

is until the end of 2029, after which updates will be made. However, it is still unclear how regularly these reviews will be conducted.[57] The guidelines focus on emissions-intensive sectors with significant financing volumes in new business. In the evaluation, further sectors might be added. The guidelines centre on six sectors:

- Power generation
- Iron and steel production
- Automotive sector
- Aviation
- Shipping
- Building sector

According to the KfW Group, the sector guidelines should not be considered merely as a guide but rather as 'sector-wide minimum requirements for financed investment,'[58] to ensure Paris alignment.

For each sector, the guidelines' approaches differ based on how technologically advanced the sector is. Overall, the sector guidelines show ambition for considering the climate impact of the entire operational lifetime of the investment, not merely the impact within the period of servicing the loan.

The guidelines aim to promote transformative technologies in research, development, all GHG-neutral technology, and business models with mature markets, such as renewable energy or green hydrogen.

The guidelines further account for a sector-specific transitional phase with transitional technologies playing an important role. They indicate the financing volume for these technologies is adapted to decarbonisation pathways in alignment with the Paris ambitions.

All GHG-intensive technology inconsistent with a long-term neutrality goal or not relevant for the transition phase will not receive further investments.

The sector guidelines do not actively manage funding outside of emissions-intensive sectors.

4.5.1 Power Sector

KfW's power sector guidelines support the financing of renewable energy sources, such as wind, solar or hydropower without limitations.[59] The annual quota for investment in transformative technologies comprises at least two-thirds of all new commitments in this sector until at least the end of 2029.[60]

Gas

New commitments are possible for natural gas power plants without further restrictions within the limited annual quota of one-third until the end of 2029. From 2030 until the end of 2039, investment in gas power plants will only be possible when certain requirements are met. Gas technologies with CCS can receive financing under consideration of 'respective political decisions.' Technology without CCS is only considered for investment in individual cases to avoid generating 'significant additional CO_2 emissions.'[61] Modernisation of gas technologies in preparation for peak load operation is an additional financing option.[62]

57 KfW (2021) Hintergrundpapier Sektorleitlinien.
58 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group, p. 1.
59 Some restrictions on hydropower projects apply based on KfW's exclusion list, according to which, recommendations provided by the World Commission on Dams are applied for larger hydropower and dam projects.
60 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
61 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group, p. 5.
62 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group, p. 1.

Oil

For oil and diesel power plants, financing until the end of 2029 is possible under certain conditions when Paris alignment is ensured. The sector guidelines provide no further specification on what these conditions entail. The investments are then included in the same quota as natural gas for new commitments.

Coal

Contrary to oil and gas, coal-fired and nuclear power plants are excluded from receiving any further financial support.[63]

NZE Findings on Oil and Gas

In the NZE, fossil fuel use does not completely disappear until 2050. Fossil fuels remain in use for oil and gas based products, in the context of power plants with CCUS, or for sectors that still lack low-emission options. Still, the scenario predicts a strong decline in oil and gas demand, and no need for further fossil fuel exploration.

The NZE indicates global oil production peaked in 2019, and from 2020 to 2050, global demand for oil was expected to decrease by about 75%. Production of fossil gas was predicted to rise until the mid-2020s, expected to peak before 2030.

For this reason, no new oil and natural gas fields are needed in the NZE, apart from existing or approved exploration sites. Owing to declining demand during the 2030s, many fields are in fact expected to be closed for some time or even permanently. The NZE states that 'the focus for oil and gas producers switches entirely to output – and emissions reductions – from the operation of existing assets.'[64] Decreased investment will also reflect this trend. The remaining upstream investment is expected to be restricted to the maintenance of production sites already in operation.

Moreover, the NZE predicts electricity generation by use of fossil gas without CCUS will rise in the short term to replace coal but will peak by 2030 and decline thereafter.[65] The use of unabated natural gas in generation is expected to be 10% of the 2020 level by 2040, while the share of natural gas in total electricity generation will fall to 0.4% of the 2020 level by 2050.[66]

Conclusion

Gas

The IEA NZE scenario predicts a peak for unabated natural gas before 2030, while the KFW sector guidelines permit new commitments for power plants until the end of 2029. No further restrictions besides the maximum one-third annual investment quota are given, and CCS technology deployment will only be a necessary requirement for investment starting from 2030. Looking at the operational lifetime for natural gas power plants, amounting to an average of 30 years,[67] a plant without CCS and built in 2029 would run until 2059. Investment, in this case, would thereby run counter to the NZE predictions, in which electricity generation using unabated natural gas would peak by 2030.

The allowed financing of gas technology without CCS in specific cases and under certain conditions even after 2030, also does not seem coherent with the NZE. The scenario predicts the use of unabated natural gas in electricity generation being 90% less than 2020 by 2040.[68] Further clarification

63 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
64 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector, p. 21.
65 It is unclear how the vast consequences that followed the Russian invasion of Ukraine, which the IEA NZA predates, will ultimately influence this assessment. Analyses thus far do not point towards a clear trajectory. Expedited transition or prolonged reliance on fossil fuels as energy security is valued much higher than before.
66 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
67 World Resource Institute (05/2021) What Is Carbon Lock-in and How Can We Avoid It?
68 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.

should be given on the exact conditions underpinning investment considerations.

Notably, predictions per the NZE goals account for natural gas technology with CCUS, not CCS alone. KfW sector guidelines, however, only list inclusion of CCS as a minimum requirement for gas technology. Additionally, a NewClimate Institute study on the Paris alignment of gas found that gas facilities with CCS technology are actually 'economically unfeasible compared to zero-carbon alternatives,' as the technology is not yet mature and the power plant efficiency is reduced during CCS application, 'thus significantly increasing costs.'[69]

The sector guidelines should therefore be cautious about promoting gas technology, even with CCS application and, to align with a 1.5°C pathway, should make sure 'that any investment in gas infrastructure that can be avoided is avoided,'[70] especially considering the high climate and lock-in risks in downstream uses.[71] Emissions from energy infrastructure that is currently being planned or is already operating no longer align with the remaining carbon budget calculated for a pathway with a 50–66% likelihood of consistency with the 1.5°C goal. Considering technological progress, renewable energy options' declining costs, as well as progress in energy storage and the electrification of end uses, continued investment in fossil gas technology becomes increasingly less compatible with Paris-aligned climate goals.[72] The guidelines should therefore implement stricter requirements for investment in gas technology in the commitment period before 2030, and ideally take more restrictive measures towards enabling investment in CCS technology. As a further point of improvement, the sector guidelines should be more transparent on investment in gas infrastructure. They should state more clearly which part of the infrastructure the term 'gas technology' refers to, as this remains a gap in the document.[73]

Oil

A need for investment in 'existing sources of oil production' continues in the NZE. However, according to the scenario, all large-scale oil-fired power plants should be phased out in the 2030s to avoid a supply loss.[74]

Considering the downward trend in oil demand and production, and the need to phase out major power plants by 2030, the sector guidelines seem to contradict this development by granting conditional new commitments in individual cases. As oil power plants' average operational lifetimes are around 20 years,[75] a new plant built in 2029 would run until 2049 in a technical operational best-case scenario; thus, by far exceeding the phase-out deadline in the NZE pathway.

While the guidelines state that financing of oil and diesel plants are to be 'checked strictly to ensure Paris-alignment,'[76] no clarification is given on which limitations and specific requirements would apply for such projects. Thus, alignment with a 1.5°C pathway is hard to verify, and more transparency is needed.

69 New Climate Institute (2021) Paris alignment of gas? A review of overall sectoral compatibility, lock-in, transition, and physical climate risks, p. 45.
70 New Climate Institute (2021) Paris alignment of gas? A review of overall sectoral compatibility, lock-in, transition, and physical climate risks, p. 5.
71 New Climate Institute (2021) Paris alignment of gas? A review of overall sectoral compatibility, lock-in, transition, and physical climate risks.
72 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
73 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector, p. 4f.
74 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
75 World Resource Institute (05/2021) What Is Carbon Lock-in and How Can We Avoid It?
76 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group, p. 5.

4.5.2 Transportation Sector

The NZE indicates emissions reduction remains the central challenge for both shipping and aviation in the transportation sector. Successfully implementing strict targets for reducing carbon emission intensity as soon as possible is, therefore, a key target in the scenario.[77]

Shipping

The KfW Group's sector guidelines for shipping are based on the Energy Efficiency Design Index (EEDI), which sets efficiency requirements for different vessel types and sizes. These requirements are in line with International Maritime Organization (IMO) emissions reduction targets, which aim at a 50% decrease in absolute CO_2 emissions by 2050.[78] Previously, however, EEDI standards have been criticised for not leading to substantial improvements and for lacking incentives, something the IMO itself admitted. Rather, market conditions drove ships' design efficiency.[79] Depending on the vessel type and size, the guidelines apply different reduction factors for emissions reduction, for which ambition is increased throughout five phases until the end of 2049.[80]

Aviation

The sector guidelines for aviation cover investments in aircraft for transport of people and goods, as well as aircraft lessors. Requirements for the aircraft CO_2 emissions are based on an IEA-proposed pathway. (However, it is unclear if they draw on the updated NZE for calculations or on the SDS pathway, which does not align with a 1.5°C climate goal.)

The annual CO_2 budget for new commitments is reduced by 2.06% per year, with 2019 as the starting point for which the guidelines determine a representative baseline. However, no further information on the baseline is given, making it difficult to verify alignment with the 1.5°C objective. If the one-year CO_2 budget is fully used up, leftover budget from up to two previous years can be used in addition.

Notably, KfW only finances part of an aircraft and does not account for the full purchase price. The KfW Group thus only counts CO_2 emissions that correspond to its financing share, and not all the aircraft's emissions, in its budget calculations. The calculation is further only estimated based on the value of the vessel, as the purchase price is not transparent.

Conclusion

Considering fleets' long lifetime as well as the current lack of technologies for sufficiently reducing CO_2 emissions, reaching zero emissions by 2050 is not viable for shipping and aviation per the NZE. Still, a 6% per-annum decrease in emissions is expected until 2050 for shipping. CO_2 emissions from aviation are expected to peak in 2025 and fall to 210 Mt in 2050.[81]

In October 2021, the International Air Transport Association (IATA), however, committed to reaching net-zero CO_2 emissions by 2050. As member airlines of IATA account for 83% of international air traffic, this will have a decisive effect on the aviation industry; industry stakeholders are called upon to produce 'radically' more efficient technologies, such as for airframes and propulsion.[82]

One day after the IATA's resolution, the Air Transport Action Group followed. Together with major manufacturers of aircraft and engines, it published a declaration with the goal of reaching net-zero emissions in civil aviation by 2050.[83]

77 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
78 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
79 Transport & Environment (n.d.) Greenhouse gases.
80 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
81 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
82 IATA (10/2021) Net-Zero Carbon Emissions by 2050.
83 ACI (10/2021) Aviation industry unites to adopt 2050 net zero carbon goal.

With this development in international aviation, the steering mechanism for CO_2 budgeting in the sector guidelines should be sure to follow this trend towards net-zero.

More transparency is needed in the calculation of CO_2 emissions in both sub-sectors and which numbers the guideline targets are based on, such as for the baseline CO_2 amount for aviation emissions. Measures should be taken to further align the sector guidelines with a 1.5°C scenario while considering the technological changes mentioned in the NZE.

For shipping, comparison solely based on the NZE is not feasible because the IEA does not provide specific requirements for certain ship types.

The KfW Group seems to lack in ambition by basing its guidelines on shipping on criticised EEDI standards.[84] Considering some shipping companies are much more progressive than EEDI, such as the large container shipping company Maersk, which introduced vessels operating with carbon-neutral methanol in 2021.[85] The sector guidelines should be updated on enhancing support for companies and technological innovations in the shipping sector that are on a clear decarbonisation pathway.

To further step up ambitions – especially regarding transparency – the Group could join the Poseidon Principles, which provide a framework for financial institutions to assess the climate alignment of their shipping portfolios with IMO climate and emissions-reduction goals.[86]

4.5.3 Industry Sector

KfW's guidelines for the industry sector cover the sub-sectors of iron and steel production. The focus is on the 'hot phase,' namely, the actual production process. The guidelines distinguish between transformative and transitional technology. While financing for the former should increase, it should decrease for the latter.

Technologies not mentioned in the guidelines can also receive investment if 'ambitious thresholds with regard to emissions'[87] are met, but this threshold is expected to reach near zero CO_2/t crude steel at the beginning of 2035.

New commitments are possible for scrap-based electric arc furnaces (EAFs), basic oxygen furnaces (BOFs), and direct reduced iron (DRI), with CCU, CCUS, or CCS, Hydrogen direct reduction and electrolysis. Also, for existing GHG-reduction measures including CCUS and CCS and new-lining EAFs, all of which are transformative technologies.[88]

New commitments for transitional technologies, including (new-lining) BOFs, (new-lining) DRI, and coking plants only with dry coke cooling, are limited to 50% of the investment volume in each business area until 2025. Alternatively, investment in transitional technology under the emission threshold of <1.6 t CO_2/t crude steel is possible. The threshold is lowered by 0.1 t CO_2/t for the following two periods and alternative financing based on emissions within its limits will no longer be possible after 2034. The business volume is also gradually lowered: first to 39% (2025–2029), then to 23% (2030–2034), and finally to just 6% (2035–2039). Financing for specific transitional technologies is sourced out stepwise. BOFs and coking plants only with dry coke cooling are no longer supported from 2030, while investment in existing new-lining BOF projects is no longer possible from 2035. Only existing new-lining DRI projects and new constructions of DRI can still receive investment. After 2039, KfW completely excludes financing for transitional technologies.[89]

84 Transport & Environment (n.d.) Greenhouse gases.
85 Maersk (08/2021). A.P. Moller – Maersk accelerates fleet decarbonisation with 8 large ocean-going vessels to operate on carbon neutral methanol.
86 Poseidon Principles (n.d.). Principles Overview.
87 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group, p. 6.
88 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
89 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.

Conclusion

The NZE indicates chemicals, steel, and cement production accounted for ~60% of energy consumption in the industry sector and ~70% of industrial CO_2 emissions in 2020. Most technology for emissions reduction in these industry sub-sectors is still under development and will make decarbonisation challenging in these sectors.[90]

CO_2 emissions in the heavy industry sector are predicted to decline by 93% by 2050. This owes to the increasing use of hydrogen and CCUS technologies, which are expected to account for a 50% emissions reduction by 2050.

Emissions for iron and steel are predicted to decrease from 2.4 Gt in 2020 to 0.2 Gt in 2050. In this scenario, the steel industry will continue using 'significant amounts of coal in 2050' in combination with CCUS. However, a major change in technology is also part of the NZE in both sub-sectors. Electricity and non-fossil fuels will increasingly meet energy demand in place of coal. Technologies such as EAF, electrification of already existing assets, DRI on a hydrogen basis, and iron ore electrolysis are important for this transformation. Technologies still under development (such as the latter two) will account for the majority of emissions reduction after 2030, in addition to technology using CCUS, such as DRI based on natural gas, or retrofitted blast furnaces.[91]

As key milestones for these technologies, the NZE proposes an increased share of hydrogen-based DRI-EAF in primary steel production of 29% in 2050, while iron ore electrolysis-EAF is expected to grow to 13% in 2050. CCUS-equipped processes will rise to 53%.[92]

Only one investment cycle remains until 2050 because of the long average operational lifespan of high-emission heavy industry technology, such as blast furnaces. New investment decisions must then be taken. Blast furnaces and other heavy industry assets operate for around 25 years, and often longer, considering most are refurbished to extend their lifespan. The NZE, therefore, considers the time span until 2030 as an opportunity to replace existing technology with transformative and innovative technology after the 25-year investment cycle, as around 30% of assets will reach their end of life by then.[93]

The sector guidelines should therefore be more cautious with financing BOF and DRI facilities without CCUS technology, which are possible until the end of 2029.[94]

Another key milestone is that CCUS-equipped processes will comprise over half of steel and iron production by 2050. The guidelines, however, still allow investment in new-lining BOFs without CCUS until the end of 2034. New-lining DRI and normal DRI facilities that are not hydrogen-based or use CCUS technology commitments are possible even until the end of 2040.[95]

Nevertheless, considering the criticism of CCS technology, a clear focus should be on supporting emerging alternative production technologies, which are already included in the guidelines, such as hydrogen-based iron ore reduction.[96] Investment in hydrogen could pose an especially good alternative here, as one of the guidelines' objectives is to increasingly support transformative technologies such as green hydrogen.[97] Moreover, the increased gas prices resulting from Russia's war in Ukraine led to a faster drop in prices for green hydrogen than anticipated.[98] (In CCUS technology for this industry sub-sector, KfW also includes CCS and CCU. The KfW Group should set its primary focus on financing CCUS.)

90 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
91 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
92 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
93 IEA (2021) Net Zero by 2050: A Roadmap for the Global Energy Sector.
94 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
95 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
96 Climate Action Network International (2021) Position: Carbon Capture Storage and Utilisation.
97 KfW (2021) Background paper on the Paris-aligned sector guidelines of KfW Group.
98 Clean energy Wire (04/2022) Rising gas prices make green hydrogen cheaper than grey hydrogen.

4.6 Sustainability Strategy of Korean PFIs

In Korea, PFIs only recently started to reflect climate-related aspects in their business strategies. By supporting the guidelines issued by the TCFD in May 2021, not only the KDB, but also KEXIM and K-SURE, committed to disclosing climate change-related risks, and to increasing ESG-related investments. The institutions followed up on their commitments by establishing ESG-related departments later in 2021.

Their sustainability strategies now mainly centre on expanding ESG investment based on positive screening. No particular business strategies or roadmaps for alignment with the 1.5°C goal has been developed thus far. As the indexes for 'ESG investment' have not been made public, analysing standards for their positive screening processes and criteria for Paris alignment will be future challenges.

4.6.1 KDB

The KDB is now working on its sustainability strategy, after establishing its ESG and New Deal Planning Department in 2021. The KDB indicates its strategy will cover its action plan for evaluating climate change risks and achieving carbon neutrality.[99] The KDB also committed to zero coal-power-related exposure by 2045, via its 'Coal power industry credit management guideline,' settled in October 2021.[100]

Before developing the new strategy, the KDB had developed an environmental reviewing process and positive screening criteria for green projects. It introduced a framework for environmental and social risk management for services such as project finance, project-related corporate loans, and project finance advisory services after adopting the Equator Principles[101] in 2017.

Since then, the KDB has been issuing green bonds to support the green sector in:

- Renewable energy (wind, solar, hydro, bioenergy, etc.)
- Energy efficiency (energy storage systems, smart grids, district heating)
- Pollution prevention and management
- Sustainable land and marine management
- Clean transportation
- Sustainable water and wastewater management
- Climate adaptation
- Green buildings

The KDB also launched a five trillion won (~US$3.89 billion) financial product, KDB Carbon Spread, which provides low-interest loans to low-carbon industries. Launched in 2021, KDB Carbon Spread products provide loans to green economy activities stipulated in the Korean Sustainable Finance Taxonomy (K-Taxonomy).[102]

99 KDB (2021) Notice of tender for consultation of Sustainability management implementation strategies
100 The guideline of the KDB was presented in the 'Global ESG and future (May 6, 2022)' webinar hosted by Korean ESG association. Available on : www.youtube.com/watch?v=2CxaWwuiQUg&t=3364s
101 The Equator Principles serve as a risk management framework for financial institutions to identify, assess and manage the environmental and social risks of investment projects.
102 KDB (2022) (Press release) KDB, expand its interest rate advantages to the Carbon Spread products.

Conclusion

The KDB's sustainable strategy needs to more strongly reflect imminent climate-related risks. While KDB set a deadline for coal-power exposure, it is recommended that this deadline should be moved forward and expanded to coal-related industries.

Sectoral strategies for other business areas should also be established, without stopping at only setting a partial strategy for the power sector.

Finally, criteria for disfavouring low-carbon industries should be reconsidered, as K-Taxonomy has been criticised for allowing gas as a transitional green investment.[103]

4.6.2 KEXIM and K-SURE

Both of Korea's ECAs announced climate-related business strategies in 2021, and established an ESG implementation department and ESG committee within their organisation. KEXIM disclosed its ESG management roadmap in July 2021.[104] K-SURE unveiled a strategy through its sustainability report published in February 2022.[105]

Both institutions' business strategies mainly focus on expanding ESG-related investments. KEXIM pledged to support 180 trillion won (US$159 billion) worth of ESG loans and issue more than US$20 billion in ESG bonds by 2030, while K-SURE committed to expanding ESG-related insurance support to 11.5 trillion won (~US$8.96 billion) by 2024.

KEXIM provides a more ambitious strategy by pledging to achieve a net-zero asset portfolio by 2050 and set reduction targets for exposure to carbon-intensive industries.[106] KEXIM also designates the following ESG investment target sectors until 2030:

- Hydrogen energy
- Solar and wind power
- Rechargeable battery and energy storage systems
- Future mobility
- 5G and next-generation semiconductors
- Pharmaceuticals and healthcare
- Digital and content

By taking an ESG management approach, the current climate-related business strategies of KEXIM and K-SURE face clear challenges. As climate strategies primarily focus on the environmental aspects of ESG management commitment, evaluating climate risks and establishing strategies for Paris alignment have yet to be considered. Criteria for disfavouring 'ESG investment' also remain vague. Proper guidelines for evaluating ESG screening criteria that ensure Paris alignment should therefore be introduced, and investment strategies for various sectors need to be added afterwards.

Conclusion

The lack of sectoral climate business strategies makes it difficult to evaluate Korean public financial institutions' ambitions and compare them with the IEA's NZE scenario at this early stage. The KDB's targets of decreasing coal-power assets by 2045 need to be accelerated, as the NZE projects global unabated coal power will decrease to 30% by 2030 (0% in advanced economies) and will be phased out in all regions by 2040.

103 Ministry of Environment (2021) K-Taxonomy guideline
104 KEXIM (2021) (Press release) KEXIM announces 'ESG management roadmap' for the first time among public banks.
105 K-SURE (2022) 2021 K-SURE Sustainability Report.
106 KEXIM (2021) Sustainable Finance Framework

5. Exclusion Lists

5.1 KfW Group

The KfW Group published its exclusion list in 2019. It encompasses nine different fields not eligible for receiving financing for new projects:

- Production or trade-in products, or any activity that falls under national or international phase-out or prohibition regulations, or is internationally banned, such as certain toxic or ozone-depleting substances
- Investment related to destruction or significant impairment of areas particularly worthy of protection, without compensation consistent with international standards
- Producing or trading controversial weaponry, or parts thereof, such as nuclear weapons or radioactive munitions
- Producing or trading radioactive material, excluding, for example, medical devices
- Producing or trading unbound asbestos, excluding, for example, cement formwork with bound asbestos
- Destructive methods of fishing or use of certain fishing nets
- Prospecting, exploring, and mining of coal, especially land-based transportation and infrastructure used for coal, as well as power plants, heating stations, and combined heat and power (CHP) generation facilities, and related stub lines
- Non-conventional prospecting, exploration, and extraction of oil from oil shale, tar, or oil sands

For coal, some exceptions apply. For example, financing commitments to power transmission grids with significant feed-in of coal power are possible in countries with an ambitious Nationally Determined Contribution. Co-financing of CHPs is also possible in developing countries if, for example, no sustainable alternative exists and environmental hazards are reduced.

In selected sectors, the KfW Group financing is contingent on fulfilling certain supplementary requirements. Regarding gas, for example, non-conventional prospecting, exploration, and extraction must be accompanied by a disclosure of the safeguarding of material groundwater, measures for protecting resources and recycling, and the use of suitable technology.[107]

DEG also refers to another exclusion list, provided by the European Development Finance Institution (EDFI). However, all excluded fields regarding environment and climate correlate with the KfW Group list. Additional excluded projects or businesses not mentioned in KfW's main list are in the social field, such as prohibiting forced labour and child labour.[108]

5.2 Korean PFIs

Since October 2021, the Korean Government has been applying investment exclusion standards for overseas coal-fired power projects. This follows its April 2021 declaration to suspend direct public financing for overseas coal power generation. All public institutions are subject to this guideline, including the KDB, KEXIM, and K-SURE.[109] The guideline indicates that only overseas coal power generation projects need to adhere to the exclusion criteria. It states that an update could follow the OECD CSFU (sectoral understanding for coal-fired plants), leaving room in the future for financing projects with CCS.

107 KfW (2019) Ausschlussliste der KfW Bankengruppe.
108 European Development Finance Institution (2011) Harmonized EDFI Exclusion List.
109 Korean Government (2021) Guidelines for public finance's new overseas coal fired power projects financing

The KDB introduced a separate 'Coal power industry credit management guideline' in October 2021. This indicates ESG and New Deal Planning Department approval is needed to pursue related projects when reviewing investment in coal-related industries such as mining, import, and transportation.

KEXIM and K-SURE have been conducting environmental and social screening following the OECD common grounds, and have committed to investing in projects that comply with local environmental law and international environmental standards.

6. Recommendations

KfW should make sectoral strategies Paris-aligned by using the NZE and adjusting its exclusion lists accordingly.

- In view of recent findings showing strong alignment between the NZE and IPPC requirements to reach the 1.5°C goal, the KfW Group should ensure Paris alignment of its sectoral strategies. To do so, it should base its sector guidelines on the NZE scenario and additional scenarios. This is best achieved before the end of 2022.
- Additional scenarios should be considered to amend the NZE where it falls short on ambition or detail. One aspect is the NZE's strong reliance on CCUS technology, especially in the power sector. As a solution, the sector guidelines could refer to additional scenarios when dealing with this problem. Reclaim Finance proposes the One Earth Climate Model as an alternative, as it outlines a 1.5°C pathway for specific sectors, takes a more cautionary approach to applying CCUS, and predicts investment in fossil power plants will end after 2030.[110] Owing to remaining uncertainties in CCUS development and deployment, caution should be taken towards investment in this technology, the shortcomings of which should be acknowledged in the sector guidelines, especially as CCUS technology functions to keep fossil fuels in the energy system.[111]
- In accordance with adaptation of the sector guidelines based on the NZE, the exclusion list should also be updated to align with a scenario that reaches net zero by 2050. Recommendations from civil society should be considered in this reviewing process, such as suggestions proposed by the New Climate Institute, World Resource Institute, and Germanwatch.
- The sector guidelines should also enhance consideration of the long operational lifespans of gas and oil power plants, as well as heavy industry assets. The guidelines should consider the drop in oil and gas demand and production, as predicted in the NZE. With no new oil and gas fields being required, and some fields expected to face retirement, the guidelines should take stricter measures to avoid stranded assets.
- Additionally, the guidelines should consider Germany's pledge 'to end the financing of unabated fossil fuels abroad through public funds by the end of 2022'[112] as a signatory to the Statement on International Public Support for the Clean Energy Transition.
- The sector guidelines should provide further information to ensure transparent alignment with a 1.5°C pathway, such as where exceptions are made for investment. An example is the financing of oil and diesel plants until the end of 2029 under certain conditions. Here, more information should be provided on exactly what conditions are referred to.

110 Reclaim Finance (2021) The IEA's Net-Zero 2050: The new normal and what's left to be done.
111 Greenpeace; IISD; Oil Change International (2022) Zeroing In: A guide for the finance sector on the IEA's Net Zero Emissions scenario and its implications for oil and gas finance.
112 UN Climate Change Conference UK 2021 (2021) "Statement on International Public Support for the Clean Energy Transition."

- The guidelines being subject to reviews and updates in line with developments in technology and the market are positive, but it is unclear how regularly these are to be conducted. We recommend that updates in IEA 1.5°C-compliant scenarios always result in an automatic adjustment of the guidelines. KfW should engage with civil society and other experts to obtain feedback when updating the guidelines.
- Certain aspects made it difficult to compare the guidelines and the scenario. For example, the guidelines on aviation only provide emissions-reduction targets in percentages, but without information on the amount of CO_2 in Mt CO_2 (used in the NZE pathway) on which this percentage is based. Transparency needs to increase within climate policies that state the KfW Group's ambitions to allow tracking and monitoring for all stakeholders, including civil society.

Disparate strategies and programs exist and have been made public, such as the Sustainable Finance Strategy and tranSForm project. However, more information and details are needed to evaluate their ambition and progression.

- To generate much-needed spillover in ambition, sector policy-related documents should contain the greatest possible detail. This would help civil society stakeholders and industry peers in following the KfW Group's path to net zero in 2050 and for keeping with the 1.5°C goal.
- To strengthen commitments to a 1.5°C pathway that achieves net zero by 2050, the KfW Group could step up efforts by presenting its own organisational net-zero target and portfolio on how to reach it.

Germany should capitalise on its G7 Presidency to further strengthen its commitment to exiting international fossil fuel financing and rally like-minded countries to do the same. Steps towards this end should entail:

- Widening the scope of the Statement on International Public Support for the Clean Energy Transition to include indirect financing and domestic support.
- Publishing of a voting guideline in line with the above pledge, applicable to bilateral and multilateral development finance as well as export finance.
- Working towards a joint oil and gas sector understanding as part of the OECD Arrangement – the main supranational regulatory framework of officially supported export finance.
- Korea should make use of the current global momentum of exiting fossil fuel finance by joining international trends and commitments and revise its Korean Green Taxonomy accordingly.
- Korea and its DFIs should join the COP26 pledge to end new international public financing of unabated fossil fuels by the end of 2022. This is because Korea is one of the largest public fossil fuel finance providers that has not signed the statement – along with Japan and China.[113]
- Considering DFIs' importance, setting sectoral strategies aligning with the Paris Agreement is important for climate action. In order to tackle the climate crisis, Korean DFIs should develop their own sectoral strategies. They should ensure that any sectoral strategies and exclusion lists align with a pathway that leads to net zero by 2050 and are compatible with a 1.5°C goal.
- Existing sustainability and ESG investment strategies of KDB, KEXIM and K-SURE, should enhance their climate ambitions and be made open to the public. In this way, stakeholders can monitor, analyse, and evaluate standards. Additionally, civil society and experts can contribute to improving strategies by providing feedback and recommendations.

113 Oil Change International (2022) Using international public finance to unlock a just transition: key data and opportunities.

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For further information, please contact one of our offices

Germanwatch – Bonn Office
Kaiserstr. 201
D-53113 Bonn, Germany
Phone: +49 (0)228 / 60492-0
Fax: +49 (0)228 / 60492-19

Germanwatch – Berlin Office
Stresemannstr. 72
D-10963 Berlin, Germany
Phone: +49 (0)30 / 2888 356-0
Fax: +49 (0)30 / 2888 356 -1

E-mail: info@germanwatch.org

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