Won-young, Yangyi
Member of the National Assembly of the Republic of Korea

Coal Finance in Korea : Changes in 2021 and Next Steps

2021 White Paper on Korea's Coal Finance

Korea Sustainability Investing Forum www.kosif.org www.kosif.org

Korea Sustainability Investing Forum (KoSIF) is a non-profit organization launched in 2007 to contribute to creating sustainable communities by promoting socially responsible investments. To this end, KoSIF is involved in a variety of activities including research and development, sustainability promotion and spread, and policy development and legislation support. In addition, it assumes the leading role in organizing CDP Korea and actively encourages more financial institutions and corporations in Korea to respond to climate change as part of efforts to promote CDP goals. Also, it is fully committed to spreading global initiatives including TCFD, PACF, SBTi, RE100 and EV100 among Korean financial institutions and corporations, thereby helping raise their sustainability.

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Yang was elected to the 21st National Assembly through proportional representation and serves as a member of the Trade, Industry, Energy and Startups Committee. She is concurrently the chief researcher at the Climate Crisis Green New Deal Research Group of the National Assembly with her primary field of interest being in achieving carbon neutrality and energy transition by 2050. Yang and her staff have collected coal finance-related data of public and private financial institutions and provided KoSIF with the data which forms the backbone of this report.

Won-young, Yangyi member of the National Assembly
2021 White Paper on Korea's Coal Finance
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Chairman, KoSIF

Korea, previously a wasteland of coal phase-out made the coal phase-out declaration in 2018, with over 100 financial institutions including National Pension Service having joined the cause since then. KoSIF have led the coal phase-out of the Korean financial industry by creating a coal phase-out coffer and carbon neutrality coffer, marked by its climate finance support ceremony to achieve carbon neutrality by 2050, as well as publishing a white paper on coal finance.

"Finance for coal phase-out is now moving on to finance for fossil fuel phase-out and ultimately to finance for carbon neutrality."

"We urge the phase-down of unabated coal-fired power generation and the phase-out of inefficient fossil fuel subsidies." The Glasgow Climate Pack adopted at the 26th UN Climate Change Conference of the Parties (COP26) contains specific pledges concerning coal-fired power generation. The parties have agreed to a phase-out of coal-fired power generation in the draft, but it was later changed to a phase-down due to objection from China and India. That said, it is the first international agreement on a phase-down of coal-fired power generation in history.

During COP26, the Asia Development Bank (ADB) announced "Energy Transition Mechanism" (ETN) in which coal-fired power plants will be bought out and closed down ahead of schedule to facilitate the transition to renewable energy in Indonesia, Vietnam, the Philippines and other Southeast Asian countries. It is indeed an ambitious plan.

Finance for coal phase-out is now moving on to finance for fossil fuel phase-out and ultimately to finance for carbon neutrality. Thirty-nine European investment banks and multinational development banks in the U.S., Germany, France and other European countries adopted the statement that public financial institutions will stop investing in all types of fossil fuels, including coal and natural gas by 2022, with more than 450 financial institutions (KRW 130 trillion in asset under management) joining GFANZ during COP26. Participating financial institutions have pledged to reduce their asset portfolio emissions by 50% by 2030 and to net zero by 2050.

Korea, previously a wasteland of coal phase-out made the coal phase-out declaration in 2018, while over 100 financial institutions including National Pension Service have joined the cause since then. KoSIF have led the coal phase-out of the Korean financial industry by creating a coal phase-out coffer and a carbon neutrality coffer, marked by its climate finance support ceremony to achieve carbon neutrality by 2050, as well as publishing a white paper on coal finance. Notably, all public and private financial institutions have been surveyed to collect and analyze data, and based on the data, the 2020 White Paper on Coal Finance in Korea was published, revealing Korean financial institutions' addiction to coal.

KoSIF has published the second White Paper on Coal Finance in Korea. According to data, Korean financial institutions' exposure to coal-fired power generation and related corporations increased from KRW 67 trillion at the end of June in 2020 to KRW 86 trillion a year later. In an analysis of exposure to coal assets based on maturities of PF loans and corporate bonds, the exposure stands to still be substantial by 2030 when coal-fired power generation will be terminated in advanced countries to limit global temperature increases to 1.5 degrees C as well as by 2040 when the shutdown of coal-fired power plants is scheduled to take place in developing countries. The asset portfolio emissions that Korean financial institutions will have accumulated from 2021 to 2050 due to PF loans and corporate bonds tallies 1.04 billion tCO2e, 1.5 times the 2018 annual greenhouse gas emissions in Korea.
It is impossible for financial institutions to keep their asset portfolio carbon-neutral unless coal is divested from their portfolios. If Korean financial institutions do not extend the maturities of coal-related loans and bonds currently held in their portfolios, their portfolios will be divested of coal-related assets before 2050. In other words, they will be able to achieve carbon neutrality in time without taking any drastic steps in particular. Therefore, Korean financial institutions' efforts toward carbon neutrality need to focus on the year 2030 rather than 2050. They have to create a specific roadmap and take actions to eliminate coal and other fossil fuel assets from their portfolio before 2030. Fortunately, a growing number of Korean financial institutions are declaring their decision to withdraw their investments.

"A decade of action' determines our future. Who will take action? Actions speak louder than words.

Won-young Yanyi

Member of the Trade, Industry, Energy and Startups Committee, the National Assembly

The international community has pledged to phase down coal-fired power generation under the Glasgow Climate Pact at the 26th United National Climate Change Conference (COP26) held in November 2021. The pact, the first climate agreement explicitly planning to reduce coal dependence and fossil fuel subsidies demonstrates how critical of a global issue coal and fossil fuel phase-down is.

“

In order to respond to the accelerating climate crisis and manage risks associated with the crisis, ceasing new coal investments is far from enough. It is essential to get rid of existing coal finance positions and assets that generate large amounts of greenhouse gases.

”

The International Energy Agency (IEA) together with over 40 countries worked out a statement on transition from coal to clean energy. With the climate crisis manifesting as an imminent reality, ESG and carbon neutrality have emerged as a global concern. There is a growing sense of urgency in the international community, which is stepping up each member's response accordingly. Against this backdrop, Korea, the world's 10th largest economy by GDP bears an increasingly hefty sense of responsibility.

As part of moves to fulfill its responsibilities, Korea has passed the Framework Act on Carbon Neutrality and Green Growth at the National Assembly in August, 2021. Under this Act, greenhouse gas emissions have to be cut down by more than 35% by 2030 from 2018 levels. Then-President Moon Jae-in announced the plan to raise Korea's national greenhouse gas reduction target to 40% at COP26.

Following the first white paper published last year, the second white paper has been compiled based on a comprehensive survey on overall coal finance positions in Korea to provide an overview of how far Korea's policy and finance have progressed over the past year, given the rapidly changing circumstances. So much has changed over the past year. Only 18 financial institutions have declared their commitment to coal phase-out when the first white paper was released, and the tally increased to 100 in a year. Some financial institutions took it one step further and made a pledge to carbon neutrality and coal phase-out, and examined their portfolio emissions as a first step. The first white paper had a significant impact on the financial industry embracing coal phase-out as a benchmark for ESG finance. Yet, there's much more that needs to be done. Accumulated coal finance support was KRW 59.5 trillion last year, but increased some KRW 15 trillion to 74.9 trillion year-on-year. As a result, risk assets also rose from KRW 67.9 trillion to 86 trillion.

Public financial institutions remain lukewarm on coal phase-outs, blaming the government for a lack of policy support, and they have not even set carbon neutrality goals. Unfortunately, the private financial sector is simply waiting for existing coal finance positions to end as they mature, without making new coal investments in a passive stance. Given the nature of finance, the contract amounts will be invested as scheduled. Even though more financial institutions are making a pledge on coal phase-out, it does not instantly produce tangible results.

In order to respond to the accelerating climate crisis and manage risks associated with the crisis, without making new coal investments is far from enough. It is essential to get rid of existing coal finance positions and assets that generate large amounts of greenhouse gases.

In this vein, the Science-Based Target Initiative (SBTi), one of global carbon neutrality initiatives, urges that financial institutions must set their 2030 targets in line with the 1.5℃ scenario. But only three Korean financial groups including KB Financial Group, Shinhan Financial Group, and Woori Financial Group have joined the initiative. In order to deal with coal phase-out and the social cost associated with carbon emissions extensively, financial institutions need to consider a broader range of actions including early redemptions or withdrawal of their investments from coal-fired power generation and even fossil fuels. Finance acts as a guide for a country's industry and economy. If finance continues to prop up high-carbon industries and remains lukewarm toward coal phase-out, it will likely delay the industrial transition for the entire country and eventually lead to lowering national competitiveness.

I sincerely hope this white paper will serve as a useful tool to review the changes of coal finance over the past year, redefine the role of finance for a better future of mankind, and come up with timely and effective government policies. I would like to express my sincere gratitude to KoSIF for working closely with me to publish this paper. We need to keep a close watch on the role of finance and its fulfillment of social responsibility in achieving coal phase-out as well as carbon neutrality on an ongoing basis. My pledge to help lead to a sustainable Earth is unwavering and unabated.

Executive Summary

KRW 74.9 trillion: Cumulative Coal Finance (2009 – June 2021) (excluding stocks)[1]

Top-10 coal financiers: Public sector (Unit: KRW 100 mil)

1	National Pension Service	*98,499*
2	Export-Import Bank of Korea (EIBK)	*53,666*
3	Korea Trade Insurance Corporation	*46,680*
4	Korea Post	*11,578*
5	Industrial Bank of Korea (IBK)	*5,997*
6	MG Community Credit Cooperative	*5,356*
7	Industrial Bank of Korea	*1,243*
8	Teachers' Pension	*1,000*
9	The Korean Teachers' Credit Union	*700*
10	Government Employees Pension Service	*500*

Top-10 coal financiers: Private sector (Unit: KRW 100 mil)

1	Samsung Fire & Marine Insurance	*82,903*
2	Samsung Life Insurance	*46,985*
3	DB Insurance Co., Ltd.	*35,291*
4	Heungkuk Fire & Marine Insurance	*31,835*
5	Hyundai Marine & Fire Insurance	*30,454*
6	Korean Reinsurance Company	*29,532*
7	Nonghyup Life Insurance	*26,910*
8	Hi Investment & Securities	*25,195*
9	Lotte Insurance Co., Ltd.	*22,565*
10	Heungkuk Life	*19,276*

Declare Coal Phase-Out and Set Carbon Neutrality Goals

Declaration of coal phase-out is now considered a beginning of ESG finance.

- Number of institutions that have pledged not to underwrite any more project finance deals for coal-fired power generation and stop investing in coal-related bonds: 100 (at June 2020: 18)

Few financial institutions have created a roadmap for withdrawal of their existing investments in coal-related assets.

- Number of institutions with plans to withdraw their assets related to coal-fired power generation: 4(Samsung Fire & Marine Insurance, DB Insurance, AIA Life Insurance, Hi Investment & Securities)

A growing number of financial institutions set carbon neutrality goals. The goals must include financed emissions.

- No. of financial institutions that have set carbon neutrality goals: 14 (public sector: 2/ private sector: 12);
- No. of financial institutions with carbon neutrality goals including financed emissions[2]: 8 (public sector: 0 /private sector: 8);
- No. of financial institutions with plans to achieve carbon neutrality goals: 21;
- Financed emissions refer to greenhouse gas emissions generated by assets held by the investing financial institutions. A global finance initiative for net zero, a key component of climate risk management recommends that net-zero goals include financed emissions.

Financial Institutions Participating in Climate Change Finance Initiatives

Initiative	Financial Institution
PCAF[3]	Shinhan Financial Group, KB Financial Group, Woori Financial Group, Hana Financial Group, Industrial Bank of Korea (IBK), DGB Financial Group, JB Financial Group, & Hanhwa Asset Management
SBTi[4]	Woori Financial Group, KB Financial Group, Mirae Asset Securities, SK Securities, Shinhan Financial Group, & IBK
NZBA[5]	Shinhan Financial Group, KB Financial Group, IBK, & JB Financial Group

1. Data of the previous year was used for institutions that have not responded to the survey for this year.
2. Financed emissions: greenhouse gas emissions emitted by companies included in its portfolio, in which a financial institution invests through debt or equity.
3. PCAF (Partnership for Carbon Accounting Financials)
4. SBTi (Science-Based Target initiative)
5. NZBA (Net-Zero Banking Alliance) 0.6 standards have been used.

Financial Institutions' Coal Asset Risks – Exposure to Coal Assets[1]

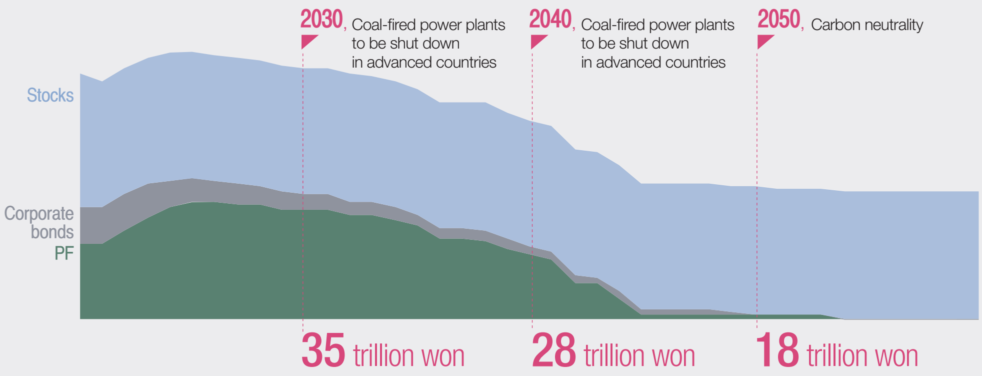
The combined exposure of Korean financial institutions to coal assets tallies KRW 86 trillion (as of June 2021).

- Public sector: KRW 39.9 trillion. Korea Development Bank (KDB) with an exposure of approximately KRW 17 trillion to secure control of KEPCO represents 45% of the total.
- Private sector: KRW 46 trillion (Non-life insurance KRW 25.9 tril, life insurance: KRW 14.3 tril, banks: KRW 5 tril)

Future Coal Exposures: 2030, 2040, 2050

- The analysis includes stocks excluding insurance (long-term holding presumed), PF, and corporate bonds based on maturities.
- 2030 exposures total KRW 34.6 trillion, higher than KRW 33 trillion for 2021 and the exposures are expected to remain high at KRW 28 trillion in 2040.
- Assets related to coal-fired generation in Korea make up 85% of the 2030 exposures and 97% in 2040.

Exposures to Coal Assets Based on Stocks, PF & Bond Maturities



Financial Institutions' Carbon Neutrality Goals Are Meaningless without a 2030 Roadmap

Coal-related financed emissions are forecast to remain high until 2040.

- Coal-related financed emissions of 44,230,000tCO2e in 2021. The emissions are forecast to remain at 30,000,000tCO2e or higher until 2040 before they start to decrease at a fast rate.
- Considering the maturities of financial assets and other factors, they will likely reach 2050 carbon neutrality goals even if they continue to invest in fossil fuels until 2030.
- Financial institutions are required to form their 2030 roadmap to make sure their carbon neutrality goals entail no greenwashing issues.

Financial institutions need to proactively manage their coal and fossil fuel assets to improve their financial health.

- IMF has recommended that the average global greenhouse gas price should be increased up to USD 75 by 2030 in order to achieve carbon neutrality.
- Under the NGFS' 2050 carbon neutrality scenario, carbon price in Korea is expected to be KRW 160,000 in 2030, KRW 300,000 in 2040, and KRW 820,000 in 2050. The cumulative carbon cost of PF, corporate bonds, and other financial projects underwritten by Korean financial institutions is estimated at KRW 190 trillion by 2050 and KRW 150 trillion of this is expected to be generated in 2030 or later.
- Financial institutions are required to withdraw their investments in the existing coal and fossil fuel assets or get rid of the exposure to them prior to 2030 according to financial soundness criteria.

1. Exposure: amount of money exposed to risk

Executive Summary

Size of Coal Finance

Cumulative coal finance

(Unit: Trillion KRW)

59.5 > **74.9**

2009 – June 2020 | 2009 – June 2021

1. Figures exclude amounts of coal finance with target areas undisclosed.

(Unit: Trillion KRW)

Item		2021	2020
Private/ Public	Public	22.5	22.1
	Private	52.4	37.4
Region[1]	Korea	52.0	45.0
	Overseas	11.1	10.7
Type	PF	18.7	16.0
	Bonds	30.5	25.3
	Insurance (sum insured)	25.7	18.2

Financial institutions that have declared their pledge on coal phase-out

(Unit: Trillion KRW)

18 > **100**

June 2020 | June 2021

(Individual banks alone have declared their pledge to coal phase-out, but not done across the board on a group level.)

	Organization	Declared pledge on coal phase-out
Public Sector	Export-Import Bank of Korea	X
	KDB	X
	IBK	X
	NPS	○
	Korea Trade Insurance Corp.	N.A.

	Organization	Declared pledge on coal phase-out
Private sector	KB	○
	Shinhan[1]	△
	Hana	○
	Woori	○
	Nonghyup	○

Exposure to coal assets[1]

(Unit: Trillion KRW)

67.9 > **86.0**

June 2020 | June 2021

1. Exposure: amounts of assets exposed to risks;
2. % of total assets at the end of 2020

(Unit: Trillion KRW)

Rank	Organization	Exposure	% of total assets
1	KDB	18.0	7%
2	NPS	9.7	1%
3	Samsung Fire & Marine Insurance	6.7	7%
4	Export-Import Bank of Korea	5.5	6%[2]
5	DB Insurance Co. Ltd.	4.9	12%

Carbon neutrality goals

(Unit: Trillion KRW)

0 > **14**

June 2020 | June 2021

	Organization	Pledge on coal phase-out
Public Sector	Export-Import Bank of Korea	○
	KDB	X
	Korea Trade Insurance Corp.	N.A.
	IBK	X
	NPS	X

	Organization	Pledge on coal phase-out
Private sector	KB	○
	Shinhan	○
	Hana	○
	Woori	○
	Nonghyup	X

Cumulative investments in renewable energy

(Unit: Trillion KRW)

28.2 > **30.9**

2009 – June 2020 | 2009 – June 2021

1. Formerly known as Shinhan Life

(Unit: Trillion KRW)

Rank	Organization	Exposure	% of total assets
1	Export-Import Bank of Korea	5.0	5%
2	KDB	4.3	2%
3	Kyobo Life Insurance	4.2	4%
4	Shinhan Life Insurance[1]	3.0	8%
5	Samsung Life Insurance	1.8	1%

Public financial institutions

1. Financed emissions: greenhouse gas emissions emitted by companies included in their portfolio, in which a financial institution invests through debt or equity;
2. Their figures of carbon neutrality did not include financed emissions in the survey, but the figures of their financed emissions from outside sources were later combined.
3. Latest data was not used in the survey. Figures of the previous year were used (as of June 2020).

(Unit: Trillion KRW)

22.1 > **22.5**

2009 – June 2020 | 2009 – June 2021

(Unit: Trillion KRW)

Organization	Coal finance	Pledge on coal phase-out		Carbon neutrality goals	
		New	Withdrawn	Goal	Financed emission[1]
NPS	9.8	○	–	X	–
Export-Import Bank of Korea	5.4	X	X	○	○[2]
KDB	0.6	X	X	X	–
IBK	0.1	X	X	X	–
Korea Trade Insurance Corp.[3]	4.7	N.A.			

Banks

(Unit: Trillion KRW)

2.0 > **5.8**

2009 – June 2020 | 2009 – June 2021

(Unit: Trillion KRW)

Organization	Coal finance	Pledge on coal phase-out		Carbon neutrality goals	
		New	Withdrawn	Goal	Financed emission
Shinhan Bank	1.4	○	X	○	○
BNK	1.4	○	X	X	–
Kookmin Bank	0.8	○	X	○	○
Busan Bank	0.7	○	–	X	–
Nonghyup Bank	0.7	○	X	X	–

Non-life insurers[1]

1. Insurance policies for the operation of coal-fired power plants are renewed annually. Given this practice, the exposure is calculated based on the combined total of individual plants' sums insured for the first year of contract.

(Unit: Trillion KRW)

18.7 > **25.9**

2009 – June 2020 | 2009 – June 2021

(Unit: Trillion KRW)

Organization	Coal finance	Pledge on coal phase-out		Carbon neutrality goals	
		New	Withdrawn	Goal	Financed emission
Samsung Fire & Marine	8.3	○	○	X	–
Hyundai Marine & Fire	3.0	X	X	X	–
Lotte Insurance	2.3	X	X	X	–
Heungkuk Fire & Marine	3.2	○	X	○	X
KB Insurance	1.1	○	X	○	○

Life Insurers

1. Previous year's figures used if 2021 figures were not available.
2. Formerly known as Shinhan Life

(Unit: Trillion KRW)

15.1 > **17.2**

2009 – June 2020 | 2009 – June 2021

(Unit: Trillion KRW)

Organization	Coal finance	Pledge on coal phase-out		Carbon neutrality goals	
		New	Withdrawn	Goal	Financed emission
Samsung Life	4.7	○	X	X	–
Nonghyup Life[1]	2.7	N.A.			
Heungkuk Life	1.9	X	X	X	–
Shinhan Life[2]	1.5	X	X	X	–
Hanhwa Life[1]	1.2	N.A.			

Securities Companies

(Unit: Trillion KRW)

1.3 > **3.4**

2009 – June 2020 | 2009 – June 2021

(Unit: Trillion KRW)

Organization	Coal finance	Pledge on coal phase-out		Carbon neutrality goals	
		New	Withdrawn	Goal	Financed emission
High Investment & securities	2.5	X	○	X	–
Korea Investment & Securities	0.5	○	X	X	–
KB Securities	0.4	○	X	○	○
Hana Securities	0.01	○	X	○	X

Coal Finance in Korea
: Changes in 2021 and Next Steps

Current Status of Coal Finance and Climate Finance Policies

「"Zero" demand for corporate bonds issued by Samcheok Thermal Power Plant」 No financial institutions participated in the sale of KRW 100 billion worth of corporate bonds issued by Samcheok Thermal Power Plant in June 2021. Contrary to the full underwriting of its bonds issued 9 months ago, the stark contrast of zero underwriter in this recent bond issuance marks a completely different attitude of Korean financial institutions toward coal issues.

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No. of Korean financial institutions that have made a pledge on coal phase-out

I Coal Phase-out: A New Benchmark in Finance I

Concerns over the negative impact of coal-fired power generation on climate change, air pollution and human health have been constantly raised. However, it is not until recent that people have started to pay attention to the role and responsibility of finance in connection with coal-fired generation in Korea.

Pledge on coal phase-out by major financial institutions

KB Financial Group	KDB
Shinhan Financial Group[1]	Export-Import Bank of Korea
Woori Financial Group	IBK
Hana Financial Group	Korea Trade Insurance Corp.
Nonhyup Financial Group	NPS

An astronomical amount of money is needed to construct a coal-fired power plant, and it is practically impossible to raise funds for the construction project without having financial institutions involved. Previously, financial institutions have viewed coal-fired power generation as a stable source of profit, and thus have been involved in the construction of coal-fired power plants both in Korea and overseas in different schemes including PF and bond underwriting.

However, the perception of coal-fired generation has undergone a drastic change recently amid the heated ESG campaign. In ESG finance, one of the most controversial issues is financial support for industries associated with coal-fired power generation, which is voted as No. 1 culprit for GHG emissions. Korean financial institutions have demonstrated the most notable progress in coal phase-out of all ESG issues. As of June 2021, 100 financial institutions in Korea have pledged not to make any more investments in coal-fired power plants. The number represents a dramatic increase from 18 a year ago when the first white paper on coal finance in Korea was published. Now "coal phase-out" marks the advent of and serves as a benchmark for ESG finance.

I No New Public Financial Support for Overseas Coal-Fired Power Plants I

Then-President Moon Jae-in announced that the Korean government will make no new public support for overseas coal-fired power plants at the World Leaders Summit on Climate held in April. Public financial institutions including the Export-Import Bank of Korea, Korea Trade Insurance Corp. and Ko-

1. Only Shinhan Bank has made a pledge on coal phase-out. No such pledge has been made on a group level.
2. The bills include the revised versions of Korea Electric Power Corporation Act, Trade Insurance Act, Korea Development Bank Act and Korea Export-Import Bank Act with the aim of banning KEPCO and Korean public financial institutions from participating in overseas coal-fired generation projects or providing funds for such projects.
3. There are exceptions to the OECD Arrangement on Officially Supported Export Credits, Annex VI: Sector Understanding on Export Credits for Coal Fired Electricity Generation Projects. In October 2021, it was revised to fully ban support for the construction of new coal- fired power plants without CCUS.

Coal & Climate Finance Milestones

	2010	2015	2016	2017	2018
Coal finance	• (2013) World Bank declares it will stop funding coal–fired generation projects.	• (Global) OECD pledges to restrict financial support for overseas coal–fired generation	• (Global) OECD implements the sector understanding on export credits for coal–fired electricity generation.	• (Global) PPCA is launched. • (Global) GPFG bans investing in KEPCO.	• Government Employees Pension Service & Teachers' Pension, the first two public financial organizations to declare their pledge on coal phase–out.
Climate finance	• (2014) EU Parliament passes NFRD.	• National Pension Act is revised; (Global) TCFD is launched.	• Korean–style stewardship code is introduced.	• (Global) NGFS is launched. • (Global) TCFD recommendations are released.	• NPS, introduced the stewardship code. • (Global) EU released the Sustainable Finance Action Plan (SFAP).

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No. of organizations that have introduced a coal phase-out coffer:

Government agencies: 5
Metropolitan city governments: 12
Local governments: 45
District offices of education: 14

rea Development Bank (KDB) have assumed a key role in helping KEPCO-led Korean consortiums participate in the construction and operation of coal-fired power plants in overseas through loans, insurance services, and investments. Although environmental groups both at home and abroad have consistently voiced concerns and the National Assembly have proposed four different bills[2] on banning coal-fired power generation overseas, public financial institutions have remained reluctant to withdraw their support for overseas coal-fired generation projects, citing「OECD Sector Understanding on Export Credits for Coal-Fired Electricity Generation」[3] as a reason.

Metropolitan Governments & District Offices of Education: Coal Phase-Out Coffer Status

Seoul	Metropolitan Government	Office of Education	Busan	Metropolitan Government	Office of Education
Incheon	Metropolitan Government	Office of Education	Daegu	Metropolitan Government	Office of Education
Gwangju	Metropolitan Government	Office of Education	Daejeon	Metropolitan Government	Office of Education
Ulsan	Metropolitan Government	Office of Education	Sejong	Metropolitan Government	Office of Education
Gyeonggi	Provincial Government	Office of Education	Gangwon	Provincial Government	Office of Education
Chungbuk	Provincial Government	Office of Education	Chungnam	Provincial Government	Office of Education
Jeonbuk	Provincial Government	Office of Education	Jeonnam	Provincial Government	Office of Education
Gyeongnam	Provincial Government	Office of Education	Gyeongbuk	Provincial Government	Office of Education
Jeju	Provincial Government	Office of Education			

The declaration of the pledge marks a milestone with the government vowing to keep public finance away from projects in developing countries. However, the government will still provide supports that have been recently pledged for Jawa, Indonesia 9.10 and Vung Ang II in Vietnam, and has not yet clarified its position on other types of fossil fuel than coal.
In the private sector, coal phase-out policy is created and published on a financial institution or group level. Similarly, public sector financial organizations also need to publish their pledge and specific policies on coal phase-out on an organization level to clearly demonstrate their intention to push ahead with coal phase-out.

I Coal Phase-out Coffer, the Driving Force behind Financial Institutions' Pledges on Coal Phase-out I

The central and local governments have a great influence on the economy as a market participant, let alone through law and regulations enforcement agencies. Domestic public procurement tallied around KRW 176 trillion in 2020. Central governments around the world understand their role as a purchaser and take advantage of this status to enhance the sustainability of society at large. In this vein, a growing number of central and local governments are prioritizing the sustainability of products, services and suppliers in the process of procurement.
The same is true for finance. Central and local governments, and their agency organizations with a combined budget of more than KRW 600 trillion under their management are one of the most important customers for financial institutions. They need to depend on financial services as they manage, operate, and implement the funds. A coal phase-out coffer means that central, local and provincial governments include their pledge on coal phase-out and the size of coal finance among others in their selection criteria of their coffers for fund management, major creditor banks, and project management banks. KoSIF developed this approach in 2019 as one of the ways to encourage financial institutions to better respond to climate change by using market mechanism.
As of November 2021, 76 local governments and district offices of education have introduced a coal phase-out coffer. The combined amount of these coffers was more than KRW 235 trillion. Out of 19 metropolitan cities and provincial governments, 14 excluding Busan, Ganwon and other three incorporated coal finance in their coffer selection criteria, and all district offices of education except Gyeonggi, Daegu and Gyeongbuk have adopted a coal phase-out coffer. As for the central government, the

2019

- Chungnam Provincial government, the first provincial government to introduce coal phase-out coffer.
- DB Insurance, , the first non-life insurer in Korea to declare a pledge on coal phase-out finance
- The Bank of Korea (BOK) joined NGFS.
- NPA announced plans to promote responsible investment.

2020

- The National Assembly proposes 4 bills banning overseas coal-related projects.
- KB Financial Group, , the first financial group in Korea to declare a pledge on coal phase-out
- Seoul City & Gyeonggi Province joined PPCA.
- FSC/ MOE launched the Task Force for Green Finance.
- MOE declared its endorsement for TCFD.
- Guidelines on Green Bond were released.

2021

- The government announced it will cease funding new overseas coal-fired generation projects.
- NPS declares a pledge on coal phase-out.
- (Global) UN COP26 reached an agreement on coal-fired generation phase-down.
- (Global) Public finance declares no more investments in fossil fuels. 39 countries & organizations including the U.S. & France joined the cause.
- 112 Korean financial institutions declared their support for climate finance.
- FSC & FSS joined NGFS and declared its endorsement for TCFD.
- FSC released a corporate disclosure overhaul plan.
- (Global) GRANZ was launched.
- (Global) IFRS established ISSB.

"All parties are urged to phase down unabated coal-fired power plants."

– Glasgow Climate Pact –

Ministry of Environment also decided to examine coal issues under the new criteria when selecting financial institutions to manage the water system management funds of the four major rivers. In fact, a large number of private financial institutions voted for the quick spread of coal phase-out coffer as one of the key drivers behind their pledge on coal phase-out.

I From Coal Phase-Out Coffers to Carbon Neutrality Coffers I

Steps are ramping up to make a smooth transition from the successful spread of coal phase-out coffers to carbon neutrality. The role of finance is pivotal to achieve carbon neutrality goals. Realizing carbon neutrality is practically infeasible if sufficient amounts of investments or funds are made available for projects to respond to climate change or reduce GHG. Coal phase-out coffer is intended to divert funds away from industries that have a negative impact on climate change, while the goal of carbon neutrality coffers is to redirect the flow of funds into industries that can help prevent climate crisis.

ADB's plan for purchase & early shutdown of coal-fired power plants in Southeast Asia[3]

- ADB announced Energy Transition Mechanism (ETM) during COP26;
- ETM was launched to take over and shut down coal-fired power plants in Southeast Asia, and make a transition to renewable energy.
- In the pilot projects slated to be carried out in Indonesia, the Philippines, & Vietnam, 50% of all coal-fired power plants in the target countries will be shut down earlier than scheduled.
- The project will involve private & public sector partnership, and the U.S., UK, Japan, HSBC, & the Rockefeller Foundation declared their support for the project.

Carbon neutrality coffers include not only coal investment amount and coal phase-out pledge, but also investment target companies' climate change information disclosures, pledge on net zero including portfolio, and other activities that the investing financial institutions can do in order to promote target companies' responses to climate change.

The financial industry in Korea has made impressive changes over the past year. However, climate crisis continues to worsen, requiring stepped-up efforts. The global community needs to directly cope with climate change, as well as develop safety programs that can ensure the stability of financial systems amid looming climate change. The Korean financial sector needs to take steps to go beyond coal phase-out, proactively manage asset risks associated with climate crisis, and thus capitalize on climate change.

I COP26 agree to a coal phase-down I

The 26th UN COP26 enacted the Glasgow Climate Pact, the first international agreement on coal-fired generation in November, 2021 in Glasgow, UK. According to the nationally determined contribution (NDC) submitted by the parties to the Pact, GHG emissions are expected to rise 14% (2.5~2.7℃ increase in average global temperature) in 2030 compared to 2010. So the parties agreed to reduce their coal dependence and cut down on subsidies for fossil fuels to limit the temperature increase to 1.5℃. As for coal-fired generation, the parties agreed to a coal phase-down.

Earlier, over 40 countries including Vietnam and Indonesia[2] signed the "Global Coal to Clean Power Transition Statement." Under the statement, major economies pledged to shut down coal-fired generation by the 2030s with other countries by the 2040s. In Vietnam and Indonesia, public financial institutions have still been funding coal-fired generation.

1. The parties agreed to a "phase-out" of coal-fired power generation in the draft, but it was later changed to a "phase- down" due to objection from China & India.
2. Indonesia pledged their efforts to phase down by 2040 on condition it receive support.
3. Source: https://www.adb.org/news/features/energy-transition-mechanism-explainer-support- climate-action-southeast-asia

Major Initiatives on ESG & Climate Finance

ESG Finance

- UNEP FI, Environment Programme Finance Initiative (EPFI)
- UNEP FI, Principle for Sustainable Insurance (PSI)
- UNEP FI, Principles for Responsible Banking (PRB)
- Principles for Responsible Investment (PRI)
- Sustainable Investment Forum (SIF)
- Global Sustainable Investment Alliance (GSIA)
- Equator Principles
- International Sustainability Standards Board (ISSB)

Climate Change

- Taskforce on Climate-Related Financial Disclosure (TCFD)
- Central Banks & Supervisors Network for Greening the Financial System (NGFS)
- CDP Signatories
- Climate Disclosure Standard Board (CDSB)
- Partnership for Carbon Accounting Financials (PCAF)
- Climate Action 100+
- Investors Group on Climate Change (IGCC)

Southeast Asia has experienced a particularly rapid growth in the number of new coal-fired power plants in recent years. The international community is taking concrete steps to shut down these plants before they reach their design life and help them transition to renewable energy. During COP26, ADB released ETM, a program launched to shut down coal-fired power plants in Southeast Asian countries as early as possible.

Coal-Fired Power Plants Shutdown Timetable[2] under Net Zero by 2050: IAE's Roadmap for the Global Energy Sector

2030	2040
Coal-fired generation to be shut in advanced economies	Coal-fired generation to be shut in developing countries

I Global public financial organizations, coal/ fossil fuel phase-outs I

COP26 adopted the "Statement on International Public Support for the Clean Energy Transition[1]" calling for public financial organizations to stop investing in fossil fuels by 2022. The pledge covers coal as well as other fossil fuels, such as oil and natural gas, and was signed by 39 countries and organizations including the U.S., Germany, France, and European Investment Bank (EIB). It is viewed as a responsible action taken by pubic financial organizations as they take the lead in the effort to tackle climate crisis and enhance sustainability of society at large. Korea as a country or Korean public financial institution has not joined the statement.

I Glasgow Financial Alliance for Net Zero, GFANZ I

Buildings or data centers owned by financial institutions emit very little amounts of greenhouse gases. However, public voices are intensifying that financial institutions should assume a more pivotal role in responding to climate change due to the extensive impact of assets they have in their portfolio and the risks associated with them. The same is true for carbon neutrality. Carbon neutrality goals of financial organizations must include financed emissions associated with their portfolio.

COP26 launched GFANZ in which over 450 financial institutions come together from around the world with combined assets of USD130 trillion under management. To be eligible for GFANZ membership, a financial institution needs to pledge to reach net-zero financed emissions prior to 2050 and reduce financed emissions by 50% or more by 2030.

Coal-fired generation emits approximately 25% of all greenhouse gas emissions generated each year around the world. It is practically infeasible to achieve net zero emissions as long as a financial institution continues to invest in coal-fired generation or own coal assets. As a result, global financial institutions have moved proactively and declared coal phase-out. Leading global organizations are now taking it a step further and creating a system to manage high-emission assets as well as coal assets in order to accelerate the push for carbon neutrality goals.

I A pledge to stop investing in coal assets is not enough. The Korean financial sector should create a roadmap for carbon neutrality. I

Recently, The Korean financial sector has developed a completely new perspective on climate change. The change is clearly evidenced by a series of pledges by financial institutions to stop their investments in coal-fired generation. However, merely ceasing to make any more investments is not enough to mitigate with risks from climate change and reach carbon neutrality. It is essential to establish a long-term roadmap that can help them develop their unique competitive edge in the net-zero/ carbon-neutral economy. The first step entails coming up with an exit plan on existing investments in coal and high-emission assets.

1. Source: https://ukcop26.org/global- coal-to-clean-power-transition- statement/
2. Source: https://www.iea.org/commentaries/key- lessons-for-phasing-out-co2-emitting-coal-plants-from-electricity-sectors

Net Zero

- Glasgow Financial Alliance for Net Zero (GFANZ)
- Science-Based Target initiative (SBTi)
- Net-Zero Banking Alliance
- Net-Zero Asset Owner Alliance
- Net Zero Asset Managers Initiative
- Net-Zero Insurance Alliance
- Paris Aligned Investment Initiative
- Net-Zero Financial Service Providers Alliance

Coal Phase–Out

- The Powering Past Coal Alliance (PPCA)
- Global Coal Project Finance Tracker
- Insure Our Future

Carbon Neutrality and Finance

Financial Institutions' Implementation of Carbon Neutrality Goals and Coal Finance

COP26 held in Glasgow reconfirmed the need to limit the average global temperature increase to 1.5℃ or less as recommended in the 2018 Special Report on Global Warming of 1.5℃.[1] In addition, countries agreed to submit their 2030 reduction targets aligned with the 2050 net zero goals by next year to this end.

People and organizations emit GHGs as they perform numerous economic and daily activities. Global GHG emissions are the sum of GHG emissions emitted from all these individual activities. Generally, GHG emission reduction goals are met in the reverse order of calculating emissions. In other words, if the global reduction target is determined, the national target is set accordingly. Based on the national target, individual organizations are assigned reduction obligations or governments change their social and economic systems in a way that encourages them to voluntarily reduce emissions.

That said, even if all the parties fulfill their nationally determined contributions (NDC), global emissions are expected to increase 13.7% in 2030 from 2010 levels. Given that a 45% reduction is required by 2030 in order to reach the 1.5℃ target, it is underwhelming, to say the least. Against this backdrop, UNFCCC parties have urged countries to submit their revised 2030 NDC aligned with the Paris Agreement by the end of 2022 under the Glasgow Climate Pact. Higher national targets will eventually trickle down to higher levels of responsibility for corporations and other organizations.

I Carbon neutrality goals of financial institutions I

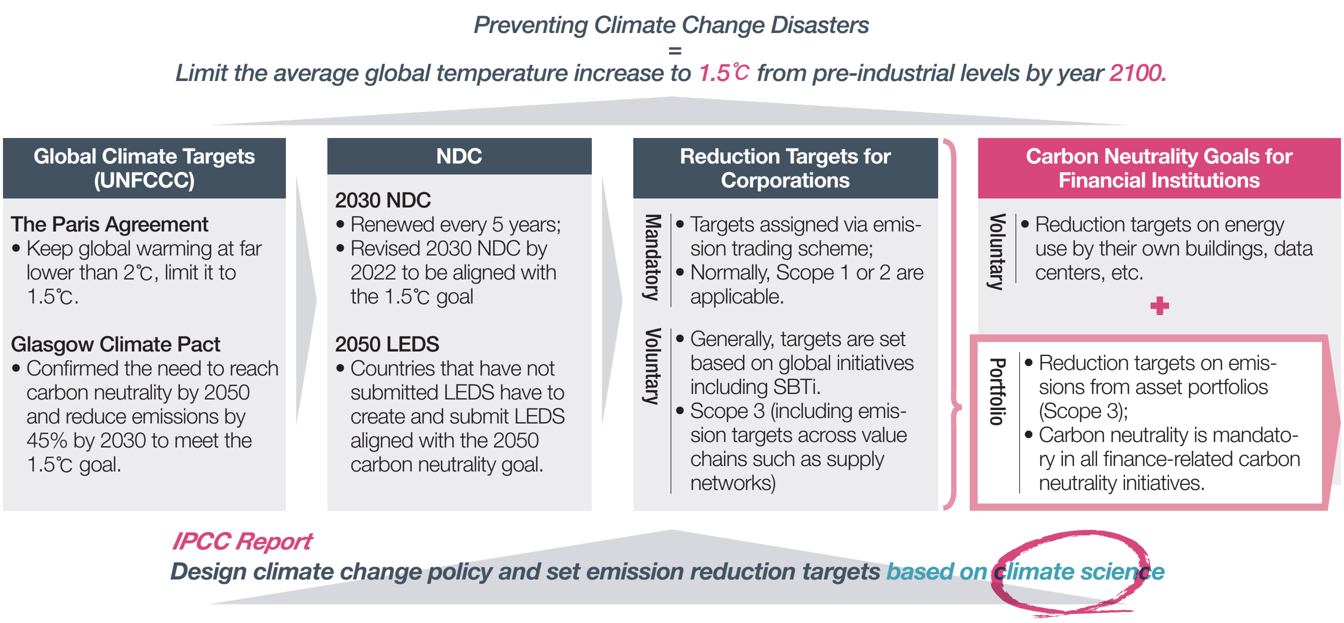
The responsibility and role of financial institutions with respect to climate change are far greater than those of non-financial companies. Finance has both the power and responsibility to change the flow of an industry. On the other hand, if invested companies fail to respond to climate change, the negative repercussions directly transfer into finance. Carbon neutrality for a financial institution entails something more than making net GHG emissions from its workplaces zero. All financial initiatives related to climate change that are launched recently require that member financial institutions control GHG emissions associated with their asset portfolios. As such, their carbon neutrality goals must be based on financed emissions.

I Climate finance initiatives and emission targets I

Recently, a growing number of Korean financial companies have made carbon neutrality pledges. Tak-

1. Original text: Also recognizes that limiting global warming to 1.5 °C requires rapid, deep and sustained reductions in global greenhouse gas emissions, including reducing global carbon dioxide emissions by 45 percent by 2030 relative to the 2010 level and to net zero around mid-century, as well as deep reductions in greenhouse gases;

Climate Change Goals and Carbon Neutrality of Financial Institutions



"All financial companies should prove their leadership by divesting from coal assets immediately."

Mark Carney
(UN Special Envoy on Climate Action and Finance/ former Governor of the Bank of England)

ing cues from global financial companies, Korean financial companies are getting actively involved in global initiatives to determine financed emissions and emission targets.

Eight Korean financial groups or institutions have joined the Partnership for Carbon Accounting Financials (PCAF) that provides the criteria for measuring financed emissions, and they are using the criteria in determining their financed emissions. Seven financial institutions in Korea have embraced the Science-Based Target initiative (SBTi) that offers guidance and resources for science-based GHG reduction target setting.

Membership in Global Climate Finance Initiatives

Initiative	Financial Institution
PCAF	Shinhan Financial Group, KB Financial Group, Woori Financial Group, Hana Financial Group, Industrial Bank of Korea, DGB Financial Group, JB Financial Group, & Hanhwa Asset Management
SBTi	Woori Financial Group, KB Financial Group, Mirae Asset Securities, SK Securities, Shinhan Financial Group, DGB Financial Group, & Industrial Bank of Korea
NZBA	Shinhan Financial Group, KB Financial Group, Industrial Bank of Korea, & JB Financial Group

I 35 financial institutions pursue either carbon neutrality goals or plans I

A total of 14 financial institutions have reported instating carbon neutrality goals, and 21 said they have plans to set their goals. All of the top five commercial banks either have established their goals or are planning to do so. Kookmin Bank, Shinhan Bank and Woori Bank have reported their carbon neutrality goals including financed emissions, while Hana Bank submitted its goals that did not include financed emissions. Hana Financial Group including Hana Bank said it would set new carbon neutrality goals including financed emissions.

The Export-Import Bank of Korea (EIBK), one of the key public financial institutions in Korea said it has set in place carbon neutrality goals, while Industrial Bank of Korea and KDB said they are planning to formulate their goals. EIBK said it reflected financed emissions in its goals, but its financed emissions, which is the backbone of the entire target-setting process, had not been accurately finalized during its announcement, thus raising doubts over its commitment to implementing the goals. Finally, KDB said it would not include financed emissions in its carbon neutrality goals.

I Carbon neutrality goals remain elusive as long as financial institutions own coal assets I

Mark Carney, Special Envoy on Climate Action and Finance and Chairman of GFANZ said that a financial institution's pledge on carbon neutrality is merely preliminary, and urged that financial institutions withdraw their financial support for coal and fossil fuels by 2040 according to the IEA's scenario to ensure the pledge is fulfilled. SBTi also recommends that the member financial institutions not only cease making new investments in coal assets immediately but also divest all of their coal finance in developed countries by 2030 and in developing countries by 2040. Critics say that financial institutions' pledge on carbon neutrality is just greenwashing as long as they persist to engage in coal finance.

If financial support for coal and fossil fuels continues, the 45% emission reduction by 2030, the premise for carbon neutrality by 2050 is virtually infeasible. That said, Samsung Fire & Marine Insurance, DB Insurance, AIA Life Insurance, and Hi Investment & Securities have said they plan to divest their existing investments in coal-fired generation in the survey conducted for this report.

Financial Institutions & Carbon Neutrality Goals

		Organization
Carbon neutrality goals set in place	Financed emissions included	Kookmin Bank, Shinhan Bank, Woori Bank, AIA Life, KB Life, Met Life Insurance, KB Insurance, KB Securities, & EIBK
	Financed emissions excluded	Hana Bank[1], DB Insurance, Heungkuk Fire & Marine Insurance, Hana Securities, & Yeosu Gwangyan Port Authority[2]
Planning to set carbon neutrality goals		The Korean Teachers' Credit Union, KDB, IBK, Kwangju Bank, Nonghyup Bank, Busan Bank, Samsung Life Insurance, Shinhan Life Insurance[3], ABL Life, Heungkuk Life Insurance, DGB Life, Kyobo Life Insurance, Tongyang Life Insurance, Samsung Fire & Marine Insurance, Seoul Guarantee Insurance, Korea Reinsurance Company, Hanhwa General Insurance, Hyundai Marine & Fire Insurance, IBK Securities, Meritz Securities, and Hi Investment & Securities

1. Hana Financial Holding Company announced its plan to set new goals including financed emissions.
2. Yeosu Gwangyang Port Authority responded on fund management.
3. Formerly known as Shinhan Bank

Financial Institutions' Coal Risks

Financial Institutions' Exposure to Coal Assets

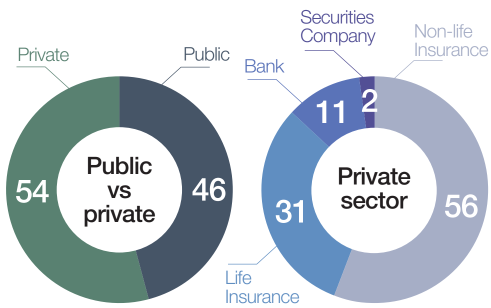
In addition to its environmental and ethical implications, coal finance in itself is a financial activity that entails high risk. The purpose of this report is to assess Korean financial institutions' climate risk and their likelihood of reaching carbon neutrality goals.

86 Trillion KRW

Exposure to coal

Recently, circumstances surrounding climate change have been proceeding rapidly both at home and abroad. More than 120 countries have made their pledge on carbon neutrality. Korea also declared its commitment to achieving carbon neutrality in 2020, and the National Assembly enacted the Framework Act on Carbon Neutrality and Green Growth making carbon neutrality mandatory in August 2021. Policy changes on a national and global level have a sweeping impact on society at large and the economic system of a country.

Financial institution exposure (unit: %)



I Financial institutions need to manage the climate risk of their portfolio I

Climate change and the resulting changes to the social and economic systems are expected to affect significantly the market value of assets that financial institutions have in their portfolio. According to a stress test[1] the Bank of Korea performed under the NGFS 1.5℃ scenario, Korea's GDP loss in 2050 due to climate change-related transition risk is estimated to be up to 7.4% or 0.25% on average annually. As a result, coal-based industries are expected to experience a rising rate of insolvency and falling stock prices, which in turn, will likely lower the capital adequacy ratio of Korean banks by up to 5.8% or 0.19% on average annually in 2050. As climate change is expected to influence the real economy and asset values, which will eventually undermine the stability of the financial system, NGFS has recommended that climate risk be included in the financial regulatory system. The Financial Supervisory Commission (FSC) and Financial Supervisory Service (FSS), two top regulatory authorities in Korea said they will make regulatory agendas on climate risks against financial companies.

The first step that financial institutions need to take in managing climate risks is identifying the size of assets subject to climate change. In this report, Korean financial institutions' exposures to coal assets have been analyzed for the second year.[2]

I Methodology for determining exposures to coal assets I

Exposures have been determined based on the analysis of assets that Korean financial institutions have invested in coal-fired power plants and coal-related corporations in Korea and overseas.

Exposures to Coal Assets (Unit: KRW 100 mil)

Rank	Organization	Exposure	% of total assets	Type of asset			
				Credit	Corporate bonds	Insurance	Stock
1	KDB	179,826	7%	9,774	841	-	169,211
2	NPS	96,783	1%	-	96,783	-	-
3	Samsung Fire & Marine Insurance	66,884	7%	7,372	10,785	47,996	731
4	EIBK	55,079	6%	55,079	-	-	-
5	DB INSURANCE	49,014	12%	1,787	-	47,227	-
6	Samsung Life Insurance	47,219	2%	10,997	36,222	-	-
7	Korea Trade Insurance Corp.	46,680	113%	-	-	46,680	-
8	Lotte Insurance	31,692	19%	5,528	-	26,035	129
9	Heungkuk Fire & Marine Insurance	31,462	23%	4,998	-	26,464	-
10	Korea Reinsurance Company	30,483	45%	218	-	30,265	-

1. Source: The Bank of Korea (2021), Financial Stability Report-Reference 7. Stress Test on Banks with Climate Change Transition Risks Considered;
2. The Bank of Korea analyzed banks' exposures including loans, stocks & corporate bonds, to mining, oil, & chemical industries in 2018.

- Target financial institutions: all public financial institutions & private financial institutions;
- Scope of asset location: domestic & overseas assets in which Korean financial institutions have invested;
- Type of asset: balance as of end-June 2021, loans (PF & corporate loans), corporate bonds, insurance (insured amount) and stocks;
- Type of industry or project: coal-fired generation projects & mining companies that belong to coal-fired generation.

I Korea Financial Institutions' Exposure to Coal: KRW 86 trillion I

Korean financial institutions have a total exposure of approximately KRW 86 trillion to coal-fired generation and related corporations, with public financial institutions accounting for about KRW 39.9 trillion and the private sector KRW 46 trillion. Notably, KDB accounts for 45% of the total exposure held by the public sector, and has about KRW 17 trillion in exposure to KEPCO for the purpose of maintaining control of the largest electricity utility in Korea. In the private sector, non-insurance companies have the largest exposure of KRW 25.9 trillion, followed by life insurers with KRW 14.3 trillion and banks with KRW 5 trillion. In a breakdown of the private sector by business group, Samsung Group has by far the largest exposure of KRW 11.4 trillion, followed by DG Group and Taegwang Group with KRW 4.9 trillion exposure, respectively. In general, business groups that have insurance subsidiaries tend to have greater exposures. By type of asset, insurance ranked highest with KRW 25 trillion, followed by corporate bonds with KRW 23.4 trillion, loans with KRW 19.8 trillion, and stocks with KRW 17.7 trillion.

I Future Exposures in 2030, 2040, and 2050 I

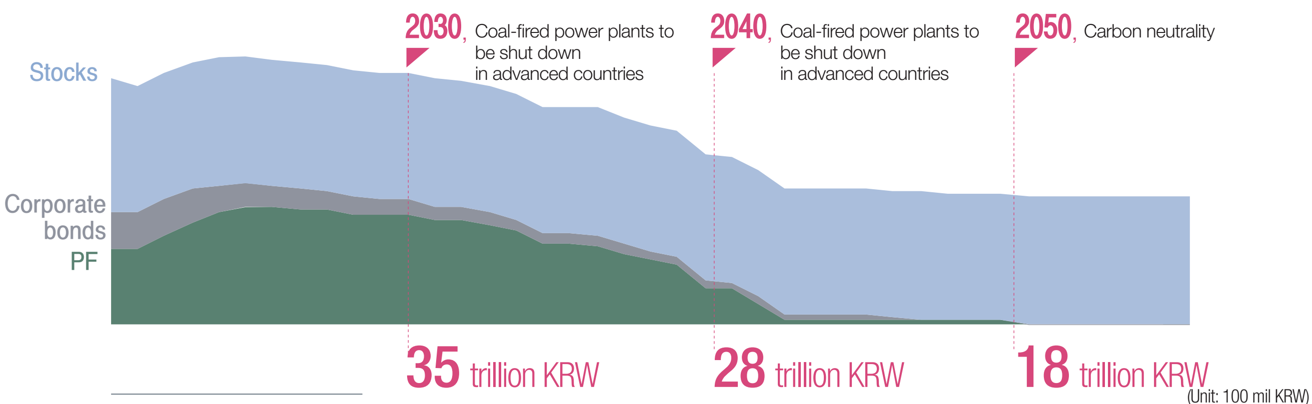
This analysis focused on exposures in 2030, 2040, and 2050, which are important years with respect to climate change and coal-fired generation. The analysis was based on the assumption of continued holdings of stocks and used the maturities as provided in the survey for PF loans[1] and corporate bonds[2]. Insurance was excluded from the analysis because policies are often renewed annually.
Financial institutions' exposures to coal assets except insurance are expected to increase for the next three to four years and peak at KRW 36.8 trillion in 2025 because a considerable portion of the contracted loans for new coal-fired plants is anticipated to expire during this period. The exposures are forecasted to decrease gradually after peaking in 2025 as loans and corporate bonds mature. In the case of stocks, KDB's stake in KEPCO makes up the majority of the total as the state-run bank needs to maintain a controlling stake. Given the purpose of KDB's stock ownership, its exposure will likely remain unchanged.

I Exposures in 2030 expected to be larger than now I

Korean financial institutions' exposures to coal assets in 2030 tally KRW 34.6 trillion, which is larger than KRW 33 trillion in 2021. Notably, 85% of the 2030 exposures was assets related to coal-fired power plants in Korea. The exposures remained high at KRW 28 trillion in 2040 and the portion of exposures to domestic coal assets increased to 97%. Except KDB whose exposure is made up mostly of its stocks in KEPCO, EIBK has the largest exposure by 2030 and insurers' exposures are high beyond 2030. Overseas projects in Vietnam and Indonesia, funded by EIBK have relatively short maturities, while domestic projects in which insurance companies invested have longer maturities. Considering that KDB is unlikely to dispose of its stocks in KEPCO for governance-related reasons, it will have to take a more active role as a majority shareholder in enabling KEPCO to manage its climate risks and improve fundamentals.

1. Excluding regular corporate loans whose maturity dates are not known.
2. Excluding bonds whose maturity dates are not known.
3. Formerly known as Shinhan Bank

Analysis of Exposures to Coal Assets Based on Maturity Dates of Stocks, PF, & Bonds



(Unit: 100 mil KRW)

Exposure to coal by organization 5

Organi-zation	Total	Advanced countries	Developing countries
KDB	178,784	171,659	7,125
EIBK	41,031	-	41,031
Samsung Life Insurance	17,843	17,843	-
Kyobo Life Insurance	13,163	13,163	-
Heungkuk Life Insurance	11,744	11,744	-

Organi-zation	Total	Advanced countries	Developing countries
KDB	170,543	170,543	-
Samsung Life Insurance	12,944	12,944	-
Kyobo Life Insurance	11,348	11,348	-
Samsung Fire & Marine Insurance	8,845	8,845	-
Heungkuk Life Insurance	8,822	8,822	-

Organi-zation	Total	Advanced countries	Developing countries
KDB	169,211	169,211	-
Kyobo Life Insurance	4,300	4,300	-
Shinhan Life Insurance3	1,776	1,682	95
Hanhwa General Insurance	1,700	1,700	-
Heungkuk Life Insurance	1,236	1,236	-

Carbon Neutrality of Finance and 2030 Roadmap

Financed Emissions from Coal Assets of Financial Institutions and Impact on Financial Soundness

Future value (or debt service coverage) of coal-related assets funded by financial institutions via investments, loans, etc., are closely connected to GHG prices. IMF recommended that global average GHG prices should reach USD 75 by 2030 to achieve carbon neutrality.

Comparison of Carbon Prices

$ 140
NGFS net-zero scenario
Korea 2030 carbon prices

$ 75
IMF-recommended average global carbon prices in 2030

$ 55
EU-ETS average carbon Prices5

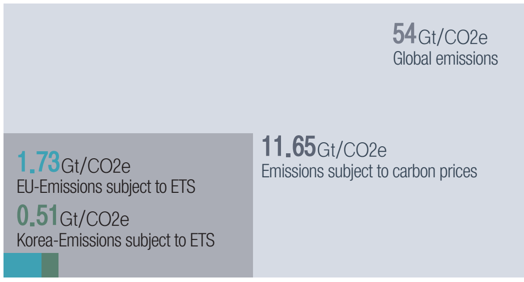
$ 17
Korea-ETS average carbon prices[5]

$ 3
Average global carbon prices

I GHG emissions subject to the carbon pricing scheme make up only 21.5% of global emissions and the prices average 3 USD. I

What is noteworthy in IMF's recommendation is "global average GHG prices." Currently, 45 countries either have introduced a carbon pricing scheme including carbon tax and ETS or are planning to introduce it.[1] However, GHG prices still remain very low in most countries except the EU-ETS that is experiencing steep price increases recently[2]. Average global GHG prices hover around USD 3 per ton.

Carbon Pricing System Comparison



I Drastic changes in the value of assets are inevitable to achieve carbon neutrality goals I

Emissions subject to the EU-ETS account for merely 3.2% of the global total. Given that only 21.5% of all global emissions are subject to a pricing scheme, it appears inevitable to quicken the global introduction of a carbon pricing scheme and drastically raise carbon prices at the same time in order to implement IMF recommendations. Global efforts toward reaching carbon neutrality goals entail drastic changes in the value of assets in high-emission industries.

Recently, the EU has announced its plan to introduce the "Carbon Border Adjustment Mechanism," CBAM[3], with the U.S. considering introducing it as well. In addition, Southeast Asia countries, including Indonesia and Vietnam, are also considering ETS or a carbon tax. It is becoming increasingly difficult to avoid emission costs under the Polluters Pay Principle[4]. In other words, circumstances are shifting in a way that makes countries where emissions take place pay carbon prices or incur the cost in the export process.

Since carbon pricing schemes include power generation as a primary element in most countries,

PCAF-based measurement of financed emissions

- GHG Protocol, Greenhouse Gas Accounting Standards for corporations and financial institutions categorizes emissions into Scope 1 (direct), Scope 2 (indirect) & Scope 3 (value chain) according to the source of emission.
- Financed emissions fall under Scope 3, Category 15 "Investment." Partnership for Carbon Accounting Financials (PCAF) has developed the Global GHG Accounting and Reporting Standard for the Financial Industry offering specific emissions-measuring guidelines.
- TCFD, SBTi and other major climate finance initiatives recommend using PCAF to measure financed emissions.
- The analysis in this report was conducted based on the PCAF standard, and it included only corporate bonds & project finance for which exact emissions can be measured.

PCAF Partnership for Carbon Accounting Financials

PCAF Financed Emissions Formula

$$\text{Financed emissions} = \sum_i \text{Allocation Coefficient}_i \times \text{Emissions of invested entity}_i$$

(i = invested entity or loan-taking entity)

$$\text{Allocation Coefficient}_i = \frac{\text{Loan (investment) balance}}{\text{Total capital}_i + \text{total debt}_i}$$

PCAF asset type

Listed stocks & corporate bonds	Corporate loans & unlisted stocks	Project finance
Commercial real estate	Mortgage (home-backed loan)	Car loans

1. Source: World Bank (https://carbonpricingdashboard.worldbank.org/)
2. Price of EUA, emission permit of the EU-ETS has exceeded EUR 60 per ton recently.
3. CBAM: Carbon cost is additionally imposed in the process of importing products produced in a country where a carbon pricing scheme has not been introduced or carbon prices are low.
4. Polluters Pay Principle (PPP): Polluters pay the cost of taking pollution-preventing actions or compensating for damages caused by pollution.
5. Average prices in 2021

10.4

billion KRW tCO2e

2021 – 2050
Cumulative financed emissions (forecasted)

44.23

million KRW tCO2e

2021 financed emissions

58.13

million KRW tCO2e

2025 financed emissions (peak)

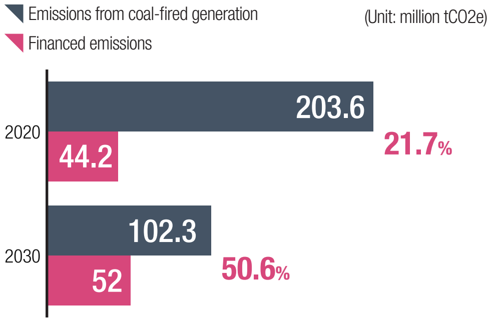
the impact on corporations related to coal-fired generation will likely be the greatest and direct.

I Financed emissions from coal assets of domestic financial institutions I

The following methods were used in this report to estimate domestic financial institutions' environmental and social responsibilities for climate change and the size of risk exposures they may face down the road.

1. PCAF standard was used to measure emissions from coal-related asset portfolios.
2. NGFS' carbon pricing scenario was applied to determine the carbon cost of coal assets subject to investments or loans, and the size of risk exposures imposed on a financial institution was indirectly analyzed.

Changing Ratios Between Korea's 2030 NDC Coal-Fired Generation Emissions & Financed Emissions



Cumulative emissions from project financing and corporate bonds undertaken by Korean financial institutions between 2021 and 2050 are 1.04 billion tCO2e. This is 1.5 times the annual emissions of Korea in 2018 (net emissions: 686,000,000tCO2e/ total emissions: 728,000,000 tCO2e). Korea is ranked 6th in the world based on the 2018 annual emissions.

I Emissions to peak in 2025. Emissions to remain higher than the 2021 levels until 2034 I

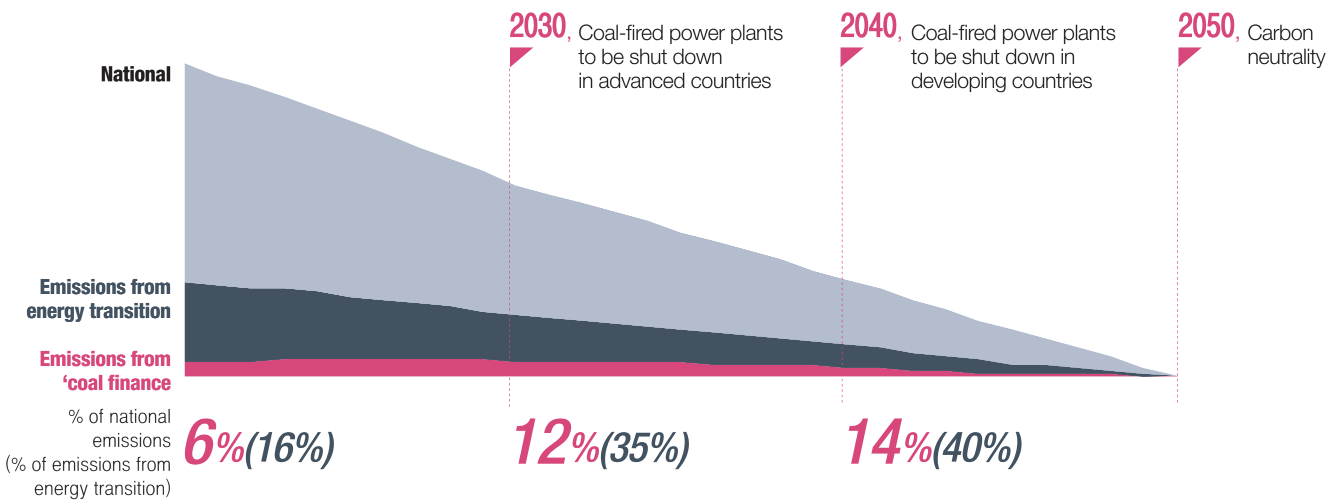
Measured based on the assumption of repayment of PF loans and corporate bonds upon maturity, financed emissions of financial institutions from coal-fired generation-related assets are expected to keep rising from 44,230,000 tCO2e in 2021 to peak at 58,130,000 tCO2e in 2025. Financed emissions are forecasted to hover over KRW 30 million tCO2e by 2040 before they start to decline at an accelerating rate in 2041.

The ratio of financial institutions' financed emissions to Korea's total emissions from coal-fired generation is forecasted to more than double from 21.7% in 2021 (compared to 2018 emissions) to 50.6% in 2030. Financial sector's contribution to emissions from coal-fired generation in 2030 and beyond is quite alarming, given that coal-fired power plants are scheduled to shut down in 2030 as recommended by the IEA, and Korea's emissions from coal-fired generation according to its 2030 NDC are expected to decrease by more than 50% compared to 2018 levels

The Korea financial sector has significantly expanded financial support for coal-fired generation projects since the late 2010s. This is exactly the opposite of the global trend that financial institutions retract their financial support for coal assets in response to the warning that climate change can have a grave impact on the stability of the financial system. Nevertheless, private financial institutions in Korea have provided massive funds for the construction of the 7th new coal-fired power plant in Korea and state-run financial institutions including EIBK and KDB have taken over coal-fired generation projects in Southeast Asia where other developed countries withdrew their investments. Coal finance emissions of domestic financial institutions are likely to remain high in 2030 and 2040 when climate change policies are expected to become even stricter. This is attributed to a combination of factors including a short-term outlook of finance, absence of a risk management system that reflects global policy trends, and optimism for government policy.

1. Target Standard: Accumulate Billing Amount / Issue Bonds not included, FIs that apply different standards are mentioned separately (Refer Annotation)
2. Issue Bonds (10 Trillion KRW) included
3. Issue Bonds (25 Trillion KRW) included
4. Year 2030 Balance Standards
5. Year 2030 Current year Input Amount

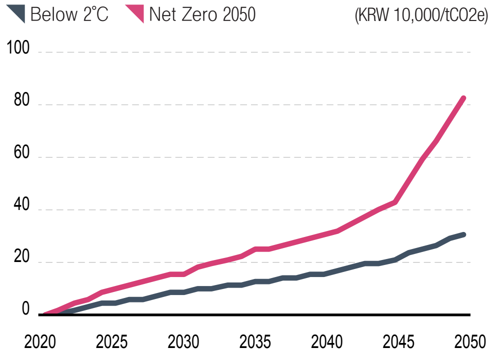
Coal Finance Emissions based on Maturity Dates of PF Loans & Corporate Bonds[1]



I A clearly-defined 2030 roadmap needs to be set in place to ensure that carbon neutrality does not end up as “greenwashing” I

99.9% of loans and bonds held by Korean financial institutions with regard to coal-fired generation mature before 2050. It means if they do not extend these maturities, these coal-related assets will automatically expire.

Carbon Prices in Korea under Different NGFS Scenarios[3]



Most loans and bonds related to fossil fuels including coal and LNG have maturities generally not exceeding 30 years. In other words, financial institutions’ portfolios associated with fossil fuels can automatically achieve carbon neutrality by 2050 by simply allowing such loans and bonds to expire or mature. In some cases, even if they continue their financial support for fossil fuels for the next ten years, they can still easily reach carbon neutrality as long as they do not extend the maturities.

Therefore, we need to focus more on year 2030, not 2050 with regard to the carbon neutrality of financial institutions. SBTi requires that financial institutions must establish their 2030 goals in phase with the 1.5℃ scenario when they set carbon neutrality goals. Among the financial institutions that have made a pledge on carbon neutrality, KB Financial Group, Shinhan Financial Group and Woori Financial Group have joined the SBTi. EIBK which has not joined the initiative have all of its coal-fired generation loans maturing before 2040. These financial institutions need to present their 2030 roadmap if their pledges on carbon neutrality are not to be viewed as “greenwashing.”

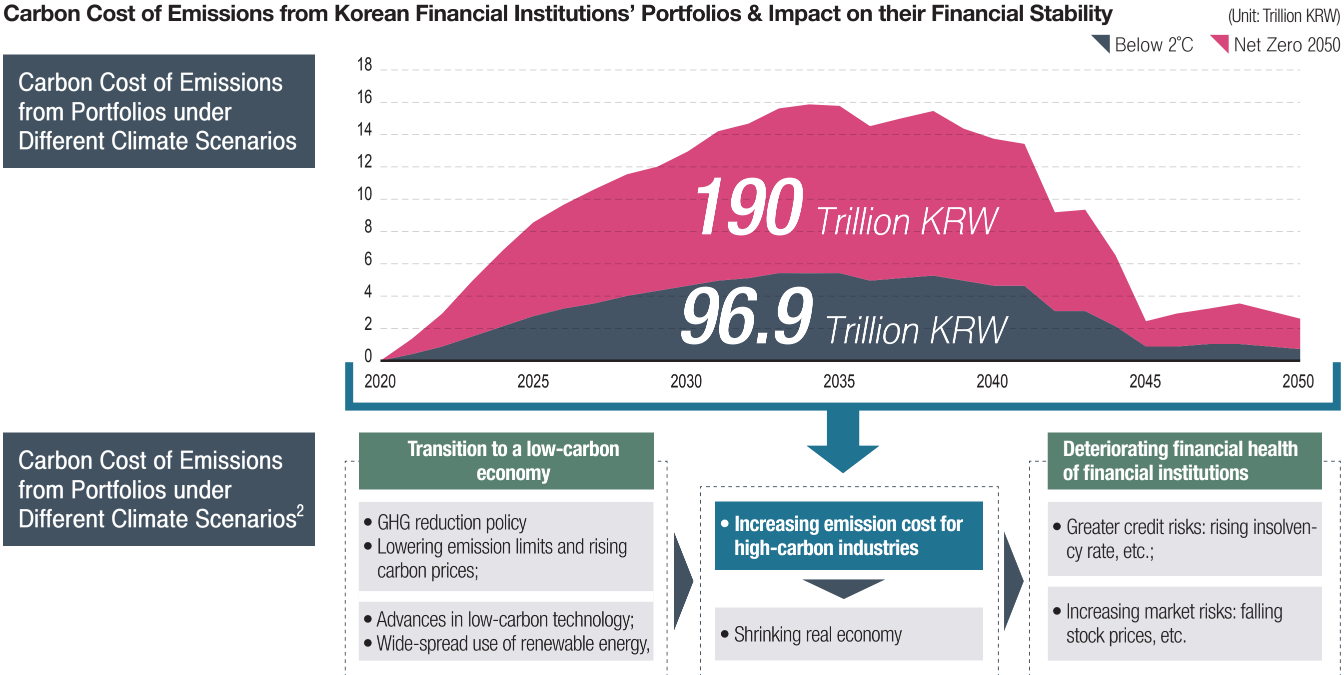
I Cumulative carbon cost associated with coal-fired generation financed by Korean financial institutions to tally KRW 190 trillion by 2050 I

Financial institutions’ early divestment from coal and fossil fuel assets is a valid strategy not only for the environment but also for their financial health. According to NGFS’ 2050 carbon neutrality scenario1, carbon prices in Korea are expected to rise to KRW 160,000 in 2030, KRW 300,000 in 2040 and KRW 820,000 in 2050. Rising carbon prices translate into a higher cost of loans, investment projects, or corporate activities. Rises in the cost that investing organizations need to pay will likely lead to their deteriorating debt service coverage, which ultimately undermines the financial health of financial institutions overall.

The cumulative carbon cost in 2050 of corporations or projects for which domestic financial institutions provided PF loans or underwrote corporate bonds is forecasted to reach KRW 190 trillion. Of the total, KRW 150 trillion is expected to take place in 2030 and later. It is essential for financial institutions to divest from or repay existing coal or fossil fuel assets prior to 2030 in order to remain financially stable and viable.

1. NGFS has developed climate change scenarios to design financial policies. Central banks including the Bank of Korea and financial regulators use these scenarios to analyze the impacts of climate change on macro-economic and financial systems. There are six scenarios (Net Zero 2050, Below 2℃, Divergent Net Zero, Delayed Transition, NDC, Current Policies). Net Zero 2050 and Below 2℃ were used in this report. Please visit the NGFS website (https://www.ngfs.net/ngfs-scenarios-portal/explore) for more information on each of the six scenarios.
2. Source: Financial Stability Report, the Bank of Korea
3. KRW 1,150 per USD rate was used and prices are indicated in KRW.

Carbon Cost of Emissions from Korean Financial Institutions’ Portfolios & Impact on their Financial Stability (Unit: Trillion KRW)



2030 & 2040 Financed Emissions & Portfolio Carbon Cost

(Unit: Trillion KRW)

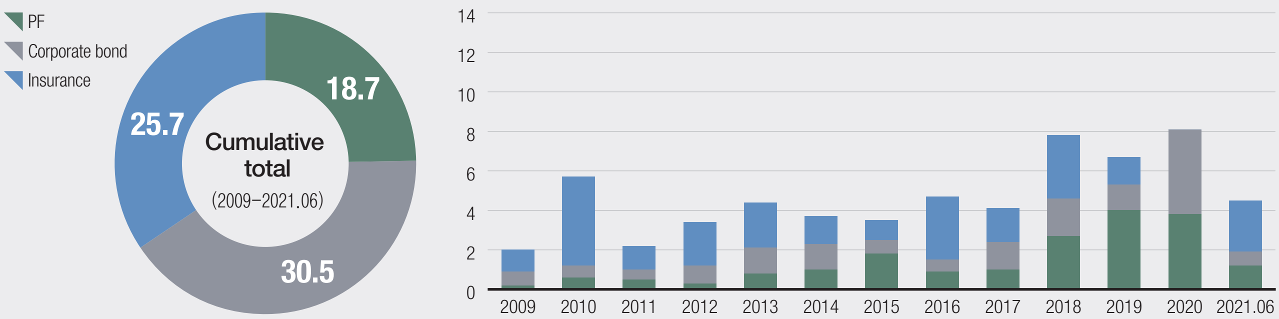
Organization name	2021			2030			2040		
	Financed emissions (tco2e)	Below 2°C	Net Zero 2050	Financed emissions (tco2e)	Below 2°C	Net Zero 2050	Financed emissions (tco2e)	Below 2°C	Net Zero 2050
Public financial institutions									
NPS					N.A.				
Korea Trade Insurance Corp.					N.A.				
IBK	66,632	6	13	133,371	119	214	84,837	132	254
EIBK	9,715,548	927	1,955	13,287,133	11,815	21,319	2,583,925	4,007	7,730
KDB	984,714	94	198	2,797,179	2,487	4,488	376,677	584	1,127
Banks									
Kookmin Bank	1,434,380	137	289	1,777,897	1,581	2,853	977,798	1,516	2,925
Nonghyup Bank	1,063,702	102	214	892,124	793	1,431	803,135	1,245	2,403
Shinhan Bank	1,217,469	116	245	1,316,887	1,171	2,113	1,250,842	1,940	3,742
Woori Bank	770,139	73	155	1,007,668	896	1,617	706,977	1,096	2,115
Hana Bank	494,498	47	99	1,218,731	1,084	1,955	634,827	984	1,899
Non-life insurers									
Samsung Fire & Marine Insurance	2,844,309	271	572	3,240,752	2,882	5,200	2,418,886	3,751	7,237
Hanhwa General Insurance	1,223,922	117	246	1,320,483	1,174	2,119	1,266,575	1,964	3,789
Hyundai Marine & Fire Insurance	1,223,795	117	246	1,424,217	1,266	2,285	1,173,675	1,820	3,511
DB Insurance	561,781	54	113	971,477	864	1,559	692,302	1,073	2,071
KB Insurance	1,368,278	131	275	1,689,177	1,502	2,710	1,098,503	1,703	3,286
Life insurers									
Kyobo Life Insurance	2,545,704	243	512	3,907,985	3,475	6,270	3,390,094	5,257	10,142
Mirae Asset Life Insurance	705,329	67	142	950,068	845	1,524	950,068	1,473	2,842
Samsung Life Insurance	6,390,822	610	1,286	5,282,830	4,698	8,476	3,833,616	5,944	11,469
Shinhan Life Insurance[1]	2,217,060	212	446	1,615,972	1,437	2,593	1,116,713	1,732	3,341
Heungkuk Life Insurance	3,380,272	323	680	3,138,600	2,791	5,036	2,465,729	3,823	7,377
Securities Companies									
Hi Investment & Securities	38,244	4	8	–	–	–	–	–	–
Korea Investment & Securities	91,638	9	18	–	–	–	–	–	–
KB Securities	220,682	21	44	–	–	–	–	–	–

1. Former Shinhan Life Insurance, formerOrange Life

Trends of Coal Finance in Korea[1, 2]

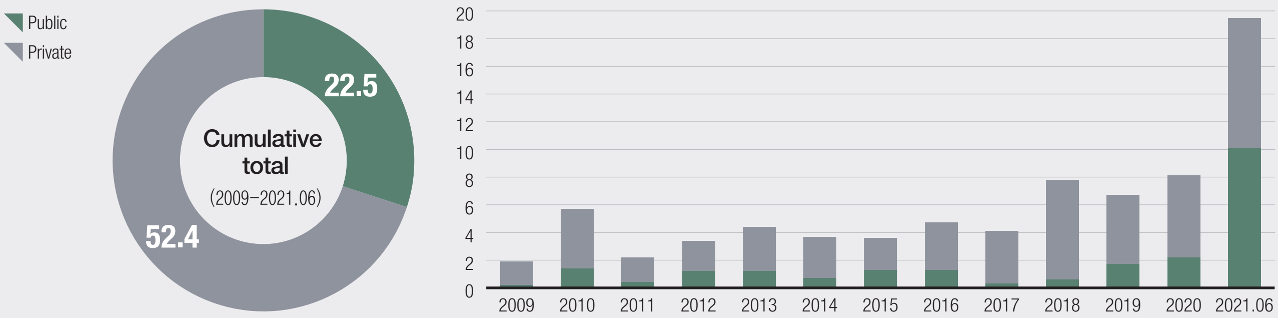
Size of Coal Finance by Type

(Unit: Trillion KRW)



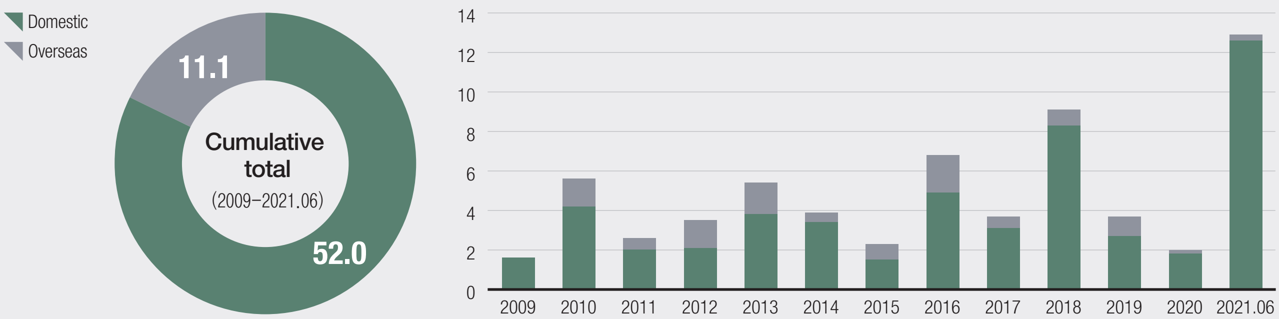
Size & Ratio of Coal Finance: Public vs. Private Financial Institutions

(Unit: Trillion KRW)



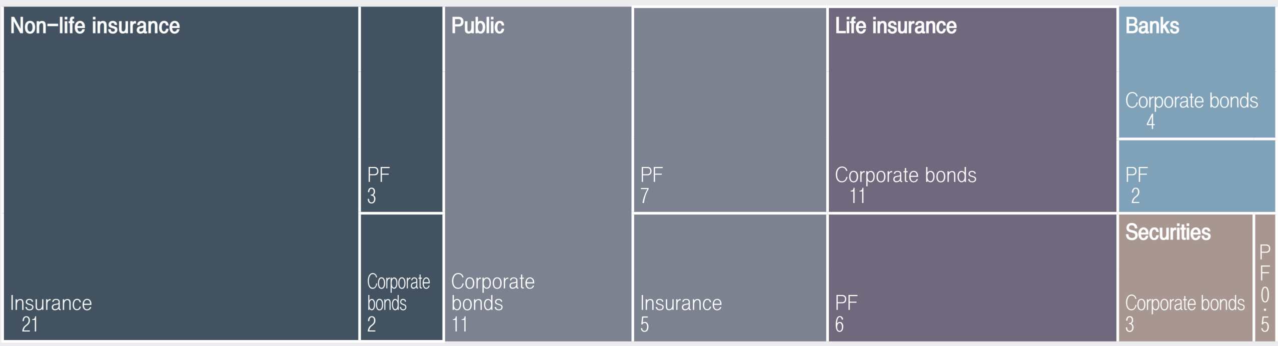
Size & Ratio of Coal Finance: Domestic vs. Overseas

(Unit: Trillion KRW)



Size of Coal Finance by Sector (Cumulative total: 2009- June 2021)

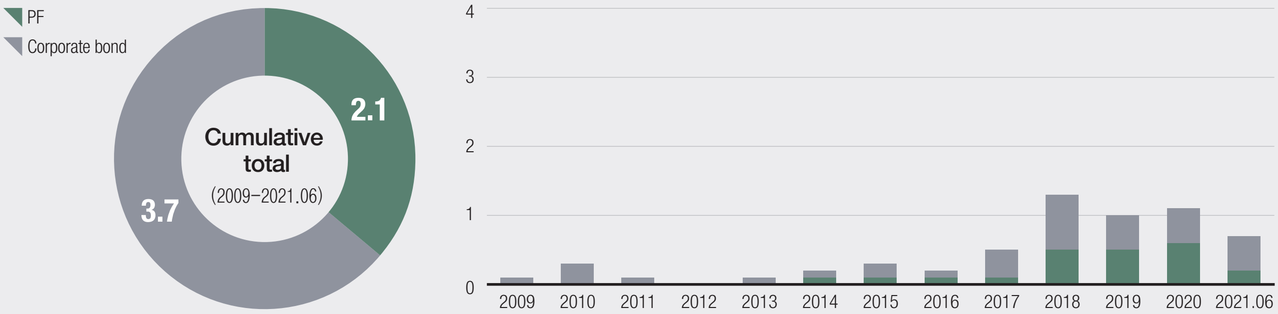
(Unit: Trillion KRW)



1. The amount by year includes only assets whose maturity has been confirmed.
2. Operation insurance indicates the sum of insured amount of the first contract year for the plant.

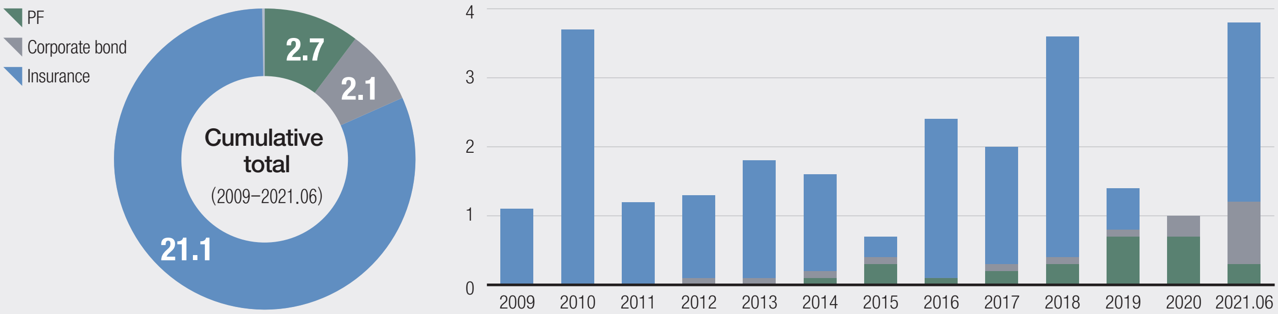
Coal Finance by Sector: **Banks**

(Unit: Trillion KRW)



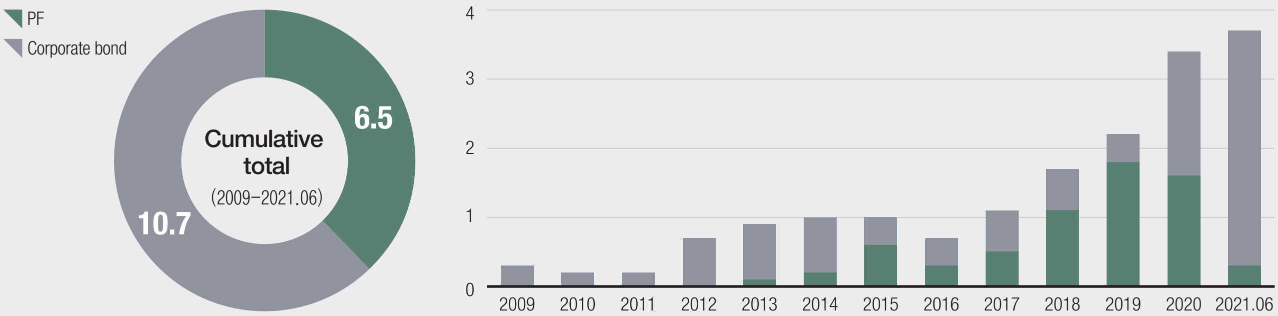
Coal Finance by Sector: **Non-Life Insurers**

(Unit: Trillion KRW)



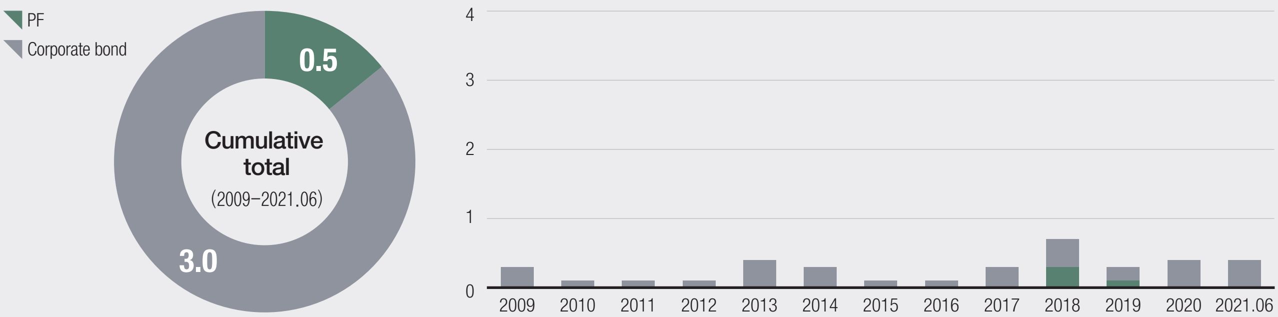
Coal Finance by Sector: **Life Insurers**

(Unit: Trillion KRW)



Coal Finance by Sector: **Securities Companies**

(Unit: Trillion KRW)



Ranks of Coal Finance in Korea [1,2]

Top-10 Coal Financiers: Public Financial Institutions

(Unit: 100million KRW)

Legend: PF, Corporate bond, Insurance

1	NPS	98,499	1,716 / 96,783
2	EIBK	53,666	53,666
3	Korea Trade Insurance Corp.	46,680	46,680
4	Korea Post	11,578	478 / 11,100
5	KDB	5,997	5,398 / 599
6	MG Community Credit Cooperative	5,356	5,356
7	IBK	1,243	1,243
8	Teachers' Pension	1,000	1,000
9	The Korean Teachers' Credit Union	700	700
10	Government Employees Pension Service	500	500

Top-10 Coal Financiers: Private Financial Institutions

(Unit: 100million KRW)

Legend: PF, Corporate bond, Insurance

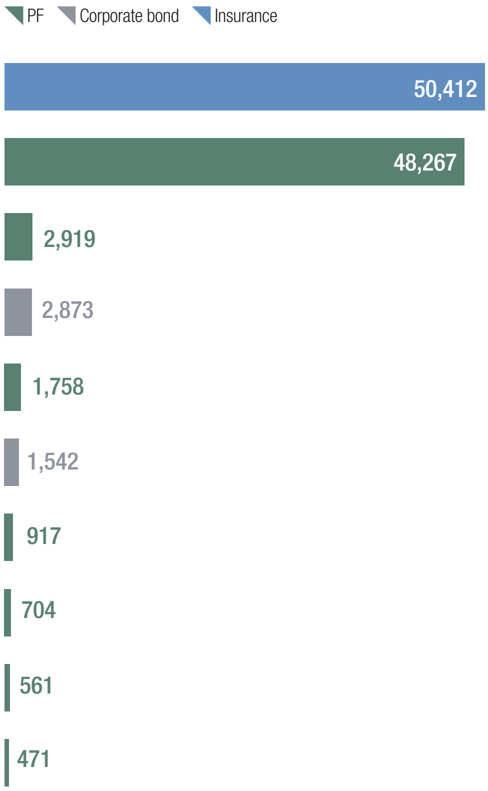
1	Samsung Fire & Marine Insurance	82,903	6,872 / 12,469 / 63,562
2	Samsung Life Insurance	46,985	11,795 / 35,190
3	DB Insurance	35,291	2,790 / 32,502
4	Heungkuk Fire & Marine Insurance	31,835	2,788 / 29,046
5	Hyundai Marine & Fire Insurance	30,454	4,740 / 1,578 / 24,135
6	Korea Reinsurance Company	29,532	109 / 29,423
7	Nonghyup Life Insurance	26,910	14,052 / 12,858
8	Hi Investment & Securities	25,195	25,195
9	Lotte Insurance	22,565	2,764 / 19,801
10	Heungkuk Life Insurance	19,276	5,540 / 13,736

1. Excluding volume of equity share purchases;
2. For institutions with no survey this year, last year's result was used.

Top-10 Overseas Coal-Fired Generation Financiers

(Unit: 100million KRW)

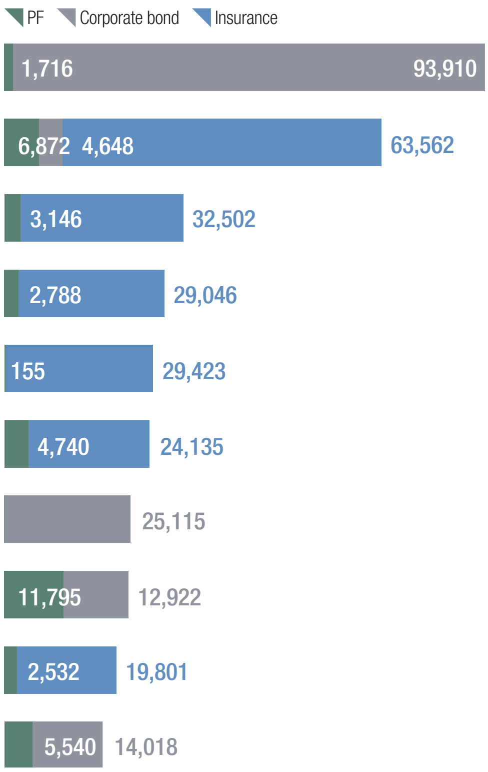
1	Korea Trade Insurance Corp.	*50,412*
2	EIBK	*48,267*
3	KDB	*2,919*
4	NPS	*2,873*
5	Woori Bank	*1,758*
6	Mirae Asset Life Insurance	*1,542*
7	Hana Bank	*917*
8	Korea Investment & Securities	*704*
9	Kookmin Bank	*561*
10	Nonghyup Bank	*471*



Top-10 Domestic Coal-Fired Generation Financiers

(Unit: 100million KRW)

1	Samsung Fire & Marine Insurance	*95,626*
2	Samsung Life Insurance	*75,082*
3	DB Insurance	*35,648*
4	Heungkuk Fire & Marine Insurance	*31,835*
5	Hyundai Marine & Fire Insurance	*29,578*
6	Korea Reinsurance Company	*28,875*
7	Nonghyup Life Insurance	*25,115*
8	Hi Investment & Securities	*24,717*
9	Lotte Insurance	*22,333*
10	Heungkuk Life Insurance	*19,557*



Coal Financing by Government Ministries' & Agencies

(Unit: 100million KRW)

Rank	Organization name	No. of respondent organizations	Size of coal finance	Organization	Size of coal finance by organization
1	Ministry of Health & Welfare	1	98,499	NPS	98,499
2	Ministry of Strategy & Finance	1	53,666	EIBK	53,666
3	Ministry of Trade, Industry and Energy	1	46,680	Korea Trade Insurance Corp.[1]	46,680
4	Ministry of Science & ICT	1	11,578	Korea Post[1]	11,578
5	Financial Supervisory Commission	2	7,240	KDB	5,997
				IBK	1,243
6	Ministry of Public Administration & Security	1	5,356	MG Community Credit Cooperative[1]	5,356
7	Ministry of Education	2	1,700	Teachers' Pension[1]	1,000
				The Korean Teachers' Credit Union	700
8	Ministry of Personnel Management	1	500	Government Employees Pension Service[1]	500

Coal Financing by Sector: Private Financial Institutions

(Unit: 100million KRW)

	Rank	Organization	Size of coal finance
Bank	1	Shinhan Bank	14,170
	2	BNK Kyongnam Bank	13,567
	3	Kookmin Bank	8,059
	4	Busan Bank	7,359
	5	Nonghyup Bank	6,850

	Rank	Organization	Size of coal finance
Life Insurers	1	Samsung Life Insurance	46,985
	2	Nonghyup Life Insurance[1]	26,910
	3	Heungkuk Life Insurance	19,276
	4	Shinhan Life Insurance[2]	14,781
	5	Hanhwa Life[1]	11,683

	Rank	Organization	Size of coal finance
Non-life Insurers	1	Samsung Fire & Marine Insurance	82,903
	2	DB Insurance	35,291
	3	Heungkuk Fire & Marine Insurance	31,835
	4	Hyundai Marine & Fire Insurance	30,454
	5	Korea Reinsurance Company	29,532

	Rank	Organization	Size of coal finance
Securities	1	Hi Investment & Securities	25,195
	2	Korea Investment & Securities	4,932
	3	KB Securities	3,941
	4	Hana Securities	51

1. Unanswered this year, used last year's data
2. Former Shinhan Life Insurance

Coal Financing by Business Group: Private Sector

(Unit: 100million KRW)

Rank	Group name	Size of coal finance	Subsidiaries	Size of coal finance by subsidiary
1	Samsung Group	129,887	Samsung Fire & Marine Insurance	82,903
			Samsung Life Insurance	46,985
2	Taegwang Group	51,111	Heungkuk Fire & Marine Insurance	31,835
			Heungkuk Life Insurance	19,276
3	DB Group	35,625	DB INSURANCE	35,291
			DB Life	334
4	Shinhan Financial Group	32,508	Shinhan Life Insurance[1]	14,781
			Shinhan Bank	14,170
			Shinhan Life Insurance[2]	3,557
5	Hyundai Marine & Fire Insurance	30,454	Hyundai Marine & Fire Insurance	30,454
6	Korea Reinsurance Company	29,532	Korea Reinsurance Company	29,532
7	DGB Financial Group	28,283	Hi Investment & Securities	25,195
			DGB Life Insurance	3,088
8	KB Financial Group	24,412	KB Insurance	11,448
			Kookmin Bank	8,059
			KB Securities	3,941
			KB Life Insurance	963
9	Lotte Group	22,565	Lotte Insurance	22,565
10	BNK Financial Group	20,926	BNK Kyongnam Bank	13,567
			Busan Bank	7,359

1. Former Shinhan Life Insurance
2. Former Orange Life

Appendix 1. Survey & Methodology

[Summary of the Survey]

▶ **Target Participants**: all public and private financial institutions in Korea

▶ **Survey Method**
- Public sector: The survey was distributed from the office of National Assembly Member Won-young Yangyi to the competent government ministries and agencies to which the public financial institutions report.
- Private sector: Data was requested to the Financial Supervisory Service (FSS) via the Office of National Assembly Member Won-young Yanyi, and the FSS distributed the survey to individual financial companies.

▶ **Survey Content**
- Target Asset Types: coal-fired generation-related PF, corporate loans, corporate bonds (including corporate bonds), insurance, stocks, coal phase-out pledges and plans, investments in renewable energy, etc.
- Target Areas: Korea and overseas
- Period: 2009 – end of June 2021

▶ **No. of Respondent Organizations: 64** [1]
- Public organizations: 14
- Private organizations: 50
  - Banks: 11
  - Insurance companies: 13
  - Non-life insurance companies: 19
  - Securities companies: 7

❖ The survey respondents were required to provide their previous year's data for the purpose of assessing the overall scale of national coal finance in Korea, but for those that did not offer this year (2021)'s data, the previous year (2020)'s data was used for this analysis.

[Analysis and Rank-Setting Methods]

▶ **Data and Methodology Used in the Analysis**
- The analysis in this report used PF loans, corporate bonds, and insurance amounts that are related to coal-fired generation from 2009 to the end of June 2021 as the base data.
- For PF loans, the amount of money that has been actually taken out was used as the base data and the contracted amount was used as necessary.
- Time series analysis: used only for amounts that can specify time periods;
- Analysis by region: used only for amounts that can identify regions.

▶ **Data and Methodology Used for Determining Ranks**
- PF loans, corporate bonds, and insured amounts were used for determining the ranks, and the final ranks were set based on the sums of these amounts (except amounts invested in stocks).
- The ranks by region were determined based on the amounts that can identify regions (excluding data that do not identify regions).

▶ **Data and Methodology Used for Analysis of Exposures to Coal Assets**
- Balances as of the end of June 2021. Sums of coal-fired generation projects in Korea and overseas, loans to corporations that belong in mining and coal-fired generation industries (including regular corporate loans and PF loans), corporate bonds, insured amounts, and stocks.

▶ **Method of determining Financed Emissions**
- PCAF methodology was used.
- The analysis included only PF and corporate bonds whose emissions and asset size can be measured.

1. The organizations that replied "not applicable" are excluded.

Appendix 2. Coal Finance of Public Financial Institutions[1]

1. The table includes only the figures of financial institutions that have submitted 2020 & 2021 data. No data is available in the table for institutions that indicated “N.A.” in the survey.
2. If 2021 data is not available, 2020 data is used.

(Unit: 100million KRW)

Organization name	Competent government authority	Assets under management	Exposures to coal assets	Size of coal finance (Based on balance)					Size of coal finance (2009 – June 2021, cumulative total)		Year of coal phase-out pledge	Plans to divest existing investments
				PF	Corporate bonds	Insurance	Corporate loans	Equity investment	PF	Corporate bonds		
Government Employees Pension Service[2]	Ministry of Personnel Management	87,473	0.7%	-	500	-	-	82	-	500	N.A.	N.A.
The Korea Scientists & Engineers Mutual-Aid Association	Ministry of Science and ICT	86,723	0.0%	-	-	-	-	-	-	-	X	-
Promotion of public health[2]	Ministry of Health and Welfare	1,831	0.0%	-	-	-	-	-	-	-	N.A.	N.A.
NPS	Ministry of Health and Welfare	8,935,012	1.1%	-	96,783	-	-	-	1,716	96,783	2021년	-
Soldiers' welfare[2]	Ministry of National Defense	-	-	-	-	-	-	-	-	-	N.A.	N.A.
Geumgang River Water System management	Ministry of Environment	90	0.0%	-	-	-	-	-	-	-	X	-
Nakdong River Water System management	Ministry of Environment	2	0.0%	-	-	-	-	-	-	-	X	-
Agricultural Policy Insurance & Finance Service	Ministry of Agriculture, Food and Rural Affairs	296	0.0%	-	-	-	-	-	-	-	X	-
Korea Trade Insurance Corp.[2]	Ministry of Trade, Industry and Energy	41,417	112.7%	-	-	46,680	-	-	-	-	N.A.	N.A.
Protection of cultural properties	Cultural Heritage Administration	-	-	-	-	-	-	-	-	-	X	-
Radio-active waste management[2]	Ministry of Trade, Industry and Energy	29,795	0.0%	-	-	-	-	-	-	-	N.A.	N.A.
Teachers' Pension[2]	Ministry of Education	219,214	0.6%	-	1,000	-	-	231	-	1,000	N.A.	N.A.
Promotion of industrial technology & industrialization[2]	Ministry of Trade, Industry and Energy	730	0.0%	-	-	-	-	-	-	-	N.A.	N.A.
MG Community Credit Cooperative[2]	Ministry of Public Administration & Security	659,748	0.8%	5,255	-	-	-	-	5,356	-	N.A.	N.A.
Relief for asbestos victims[2]	Ministry of Environment	391	0.0%	-	-	-	-	-	-	-	N.A.	N.A.
Fisheries development[2]	Ministry of Marine Affairs and Fisheries	1,675	0.0%	-	-	-	-	-	-	-	N.A.	N.A.
The Community Media Foundation	Korea Communications Commission	130	0.0%	-	-	-	-	-	-	-	X	X
The Credit Guarantee Foundation	Ministry of SMEs and Venture Startups	-	-	-	-	-	-	-	-	-	X	-
The Yeosu Gwangyang Port Authority	Ministry of Marine Affairs and Fisheries	17,520	0.0%	-	-	-	-	-	-	-	X	-
Yeongsangang River, Seomjingang River Water Systems management	Ministry of Environment	272	0.0%	-	-	-	-	-	-	-	X	-
Korea Post[2]	Ministry of Science and ICT	1,380,555	0.9%	286	11,100	-	286	807	478	11,100	N.A.	N.A.
Electricity industry infrastructure[2]	Ministry of Trade, Industry and Energy	14,953	0.0%	-	-	-	-	-	-	-	N.A.	N.A.
Housing & Urban Guarantee	Ministry of Land, Infrastructure & Transport	-	-	-	-	-	-	-	-	-	X	-
IBK	Financial Supervisory Commission	3,349,588	0.0%	258	-	-	258	-	1,243	-	X	X
Han River Water System management	Ministry of Environment	999	0.0%	-	-	-	-	-	-	-	X	-
Korea Mineral Resource Information Service[2]	Ministry of Trade, Industry & Energy	81	100.0%	-	-	-	81	-	-	-	N.A.	N.A.
The Korean Teachers' Credit Union	Ministry of Education	497,323	0.1%	-	700	-	-	-	-	700	2019년	-
KDB	FSC	2,759,444	6.5%	3,914	841	-	5,860	169,211	5,398	599	X	X
EIBK	Ministry of Strategy & Finance	975,900	5.6%	28,421	-	-	26,658	-	53,666	-	X	X
Overseas infrastructure & urban development projects[2]	Ministry of Land, Infrastructure& Transport	-	-	-	-	-	-	-	-	-	N.A.	N.A.

Appendix 3. Coal Finance of Private Financial Institutions[1]

1. The table includes only the figures of financial institutions that have submitted 2020 & 2021 data. No data is available in the table for institutions that indicated "N.A." in the survey.
2. If 2021 data is not available, 2020 data is used.
3. Formerly known as Shinhan Life Insurance;
4. Formerly known as Orange Life

(Unit: 100million KRW)

Organization name	Competent government authority	Assets under management	Exposures to coal assets	Size of coal finance (Based on balance)					Size of coal finance (2009 – June 2021, cumulative total)		Year of coal phase-out pledge	Plans to divest existing investments
				PF	Corporate bonds	Insurance	Corporate loans	Equity investment	PF	Corporate bonds		
Bank												
Kwangju Bank	JB Financial Group	274,136	0.0%	-	-	-	-	-	179	-	2020	-
Kookmin Bank	KB Financial Group	4,387,999	0.3%	4,293	1,993	-	4,293	843	6,066	1,993	2020	X
Nonghyup Bank	Nonghyup Financial Group	3,533,289	0.2%	2,396	4,300	-	471	-	2,550	4,300	2021	X
The National Agricultural Cooperative Federation[2]		1,152,370	0.3%	1,036	-	-	-	1,937	1,036	-	N.A.	N.A.
Busan Bank	BNK Financial Group	652,931	0.7%	405	3,800	-	100	-	459	6,900	2021	-
Shinhan Bank	Shinhan Financial Group	4,140,168	0.2%	3,878	4,900	-	294	-	4,170	10,000	2021	X
Woori Bank	Woori Financial Group	3,760,575	0.1%	2,691	-	-	311	689	3,289	-	2020	X
Hana Bank	Hana Financial Group	3,977,055	0.2%	1,857	-	-	7,264	-	3,200	-	2021	X
BNK Kyongnam Bank	BNK Financial Group	449,362	0.5%	145	2,000	-	-	-	145	13,422	2021	X
Life Insurance												
Kyobo Life Insurance	Kyobo Group	1,159,926	0.7%	8,556	-	-	-	-	9,824	-	2021	X
Nonghyup Life Insurance[2]	Nonghyup Financial Group	102,763	16.5%	3,896	12,858	-	-	207	14,052	12,858	N.A.	N.A.
Tongyang Life	Dajia Insurance Group	363,189	1.4%	1,388	3,559	-	-	-	2,778	7,407	X	X
Met Life	Met Life USA	242,837	1.3%	-	2,929	-	-	303	-	4,774	X	X
Mirae Asset Life Insurance	Mirae Asset Financial Group	617,738	0.8%	2,315	2,761	-	-	-	2,315	6,812	X	X
Samsung Life Insurance	Samsung Group	3,085,233	1.5%	10,997	36,222	-	-	-	11,795	35,190	2020	X
Shinhan Life Insurance[3]	Shinhan Financial Group	367,336	4.0%	1,475	10,515	-	1,475	1,376	1,474	13,307	X	X
Shinhan Life Insurance[4]	Shinhan Financial Group	345,973	0.7%	-	2,474	-	-	-	-	3,557	X	X
Hanhwa Life[2]	Hanhwa Group	1,257,799	0.8%	4,771	-	-	4,771	-	11,683	-	N.A.	N.A.
Heungkuk Life Insurance	Taegwang Group	306,934	5.8%	4,140	9,370	-	3,685	455	5,540	13,736	X	X
ABL Life	Dajia Insurance Group	204,725	0.3%	311	-	-	311	-	420	-	X	X
AIA Life	AIA Group	178,555	0.7%	-	1,300	-	-	-	-	3,300	2018	O (2030)
DB Life	DB Group	124,214	0.3%	234	100	-	-	-	234	100	X	X
DGB Life	DGB Financial Group	68,091	4.5%	188	2,900	-	-	-	188	2,900	2021	X
IBK Pension Insurance[2]	IBK	88,939	0.3%	170	110	-	-	-	170	120	N.A.	N.A.
KB Life	KB Financial Group	122,452	1.4%	879	-	-	811	68	963	-	2020	X
KDB Life	KDB	203,185	2.3%	1,672	3,000	-	-	-	3,178	3,000	X	X
Non-Life Insurance												
Lotte Insurance	Lotte Group	162,710	19.5%	2,764	-	26,035	2,764	129	2,764	-	X	X
Samsung Fire & Marine Insurance	Samsung Group	912,927	7.3%	6,569	10,785	47,996	803	731	6,872	12,469	2020	O (2040)
Seoul Guarantee Insurance Company	Seoul Guarantee Insurance Company	91,519	4.8%	-	-	4,369	-	-	-	200	2021	-
Korea Reinsurance Company	Korea Reinsurance Company	67,335	45.3%	109	-	30,265	109	-	109	-	X	X
Hanhwa General Insurance	Hanhwa Group	199,460	6.3%	173	4,110	8,298	-	-	352	5,110	2021	X
Hyundai Marine & Fire Insurance	Hyundai Marine & Fire Insurance	497,494	4.3%	4,112	1,578	11,333	4,112	71	4,740	1,578	X	X
Heungkuk Fire & Marine Insurance	Taegwang Group	134,522	23.4%	2,499	-	26,464	2,499	-	2,788	-	2021	X
DB INSURANCE	DB Group	403,512	12.1%	1,787	-	47,227	-	-	2,790	-	2019	O (2050)
KB INSURANCE	KB Financial Group	389,076	2.7%	4,168	100	1,902	4,168	204	6,498	700	2020	X

Organization name	Competent government authority	Assets under management	Exposures to coal assets	Size of coal finance (Based on balance)					Size of coal finance (2009 – June 2021, cumulative total)		Year of coal phase-out pledge	Plans to divest existing investments
				PF	Corporate bonds	Insurance	Corporate loans	Equity investment	PF	Corporate bonds		
Nonghyup Property & Casualty Insurance[2]	Nonghyup Financial Group	95,350	0.8%	36	747	-	-	-	36	747	N.A.	N.A.
Securities Dealers												
Meritz Securities	Meritz Financial Group	397,096	1.3%	-	-	-	5,154	-	-	-	X	X
Mirae Asset Daewoo[2]	Mirae Asset Financial Group	-	-	-	-	-	-	-	-	-	N.A.	N.A.
Hana Securities	Hana Financial Group	347,933	0.0%	-	-	-	-	-	51	-	2021	X
Hi Investment & Securities	DGB Financial Group	109,262	0.1%	-	120	-	-	-	-	25,195	X	O (2025)
Korea Investment & Securities	Korea Investment Holdings	604,629	0.3%	1,004	79	-	1,004	-	1,062	3,870	2020	X
Hyundai Motor Securities[2]	Hyundai Motor Group	-	-	-	-	-	-	-	-	-	N.A.	N.A.
IBK Investment & Securities	IBK	52,024	0.0%	-	-	-	-	-	-	-	X	X
KB SECURITIES	KB Financial Group	540,361	0.0%	-	200	-	-	-	3,481	460	2020	X
NH Investment & Securities[2]	Nonghyup Financial Group	-	-	-	-	-	-	-	-	-	N.A.	N.A.
Asset Management												
Shinhan BNP Paribas Asset Management[2]	Shinhan Financial Group	96	100.0%	-	-	-	-	96	240	-	N.A.	N.A.
Heungkuk Asset Management[2]	Taegwang Group	2,066	58.3%	1,205	-	-	-	-	1,700	-	N.A.	N.A.

Appendix 4. Carbon Neutrality Goals & Investments in Renewable Energy

1. The table includes only the figures of financial institutions that have submitted 2020 & 2021 data. No data is available in the table for institutions that indicated "N.A." in the survey.
2. Formerly known as Shinhan Life

(Unit: 100million KRW)

Organization	Competent government authority/group	Carbon neutrality goals			Plans to set carbon neutrality goals		Cumulative investments in renewable energy	Target investments in renewable energy		
		Goals in place	Target Year	Inclusion of financed emissions	Plans in place	Timetable		Targets set in place	Target year	Target amount
Public Sector										
The Korea Scientists & Engineers Mutual-aid Association	Ministry of Science & ICT	X	-	-	X	-	634	O	No specific plans in place	-
The Yeosu Gwangyang Port Authority	Ministry of Marine Affairs & Fisheries	O	2040	X	-	-	-	X	-	-
IBK	FSC	X	-	-	O	2021	2,995	O	2025	14,500
The Korean Teachers' Credit Union	Ministry of Education	X	-	-	O	TBD	2,914	O	TBD	-
KDB	FSC	X	-	-	O	2022	44,389	O	2021	12,667
EIBK	Ministry of Strategy & Finance	O	2050	O	-	-	56,281	O	21-30년 (10)	107,000
Private Sector – Banks										
Kwangju Bank	JB Financial Group	X	-	-	O	2022	-	X	-	-
Kookmin Bank	KB Financial Group	O	Internal (2040), Asset portfolio (2050)	O	-	-	5,118	O	2021	1,880
Nonghyup Bank	Nonghyup Financial Group	X	-	-	O	2022	469	O	-	-
Busan Bank	BNK Financial Group	X	-	-	O	TBD	610	O	-	No specific targets
Shinhan Bank	Shinhan Financial Group	O	2050	O	-	-	3,287	O	-	-
Woori Bank	Woori Financial Group	O	2050	O	-	-	11,965	O	TBD	TBD
Hana Bank	Hana Financial Group	O	2050	X	-	-	-	-	-	-
BNK Kyongnam Bank	BNK Financial Group	X	-	-	X	-	196	X	-	-
Private Sector - Life Insurance										
Kyobo Life Insurance	Kyobo Group	X	-	-	O	TBD	42,433	O	-	-
Tongyang Life Insurance	Dajia Insurance Group	X	-	-	O	TBD	2,521	-	-	-
Met Life	Met Life USA	O	Reached in 2015 based on HQ	O	-	-	-	X	-	-
Mirae Asset Life Insurance	Mirae Asset Financial Group	X	-	-	X	-	1,406	-	-	-
Samsung Life Insurance	Samsung Group	X	-	-	O	TBD	18,889	O	2030	58,000
Shinhan Life Insurance[2]	ShinhanFinancial Group	X	-	-	O	TBD	30,619	O	2022	1,500
Heungkuk Life Insurance	Taegwang Group	X	-	-	O	TBD	8,625	O	2025	5,000
ABL Life	Dajia Insurance Group	X	-	-	O	TBD	2,676	O	2021	400
AIA Life	AIA Group	O	2030	O	-	-	-	X	-	-
DB Life	DB Group	X	-	-	X	-	797	X	-	-
DGB Life	DGB Financial Group	X	-	-	O	2022	-	X	-	-
KB Life	KB Financial Group	O	Scopes 1 & 2: 2040 / Asset portfolio (Scope3): To reach carbon neutrality by 2050	O	-	-	2,594	O	2023	1,381
KDB Life	KDB	X	-	-	X	-	228	O	2022	1,000
Private Sector – Non-Life Insurance										
Lotte Insurance	Lotte Group	X	-	-	X	-	3,381	O	-	Working on setting goals
Samsung Fire & Marine Insurance	Samsung Group	X	-	-	O	TBD	17,699	O	Investment:2030	Investment: KRW 6.4 tril

Organization	Competent government authority/group	Carbon neutrality goals			Plans to set carbon neutrality goals		Cumulative investments in renewable energy	Target investments in renewable energy		
		Goals in place	Target Year	Inclusion of financed emissions	Plans in place	Timetable		Targets set in place	Target year	Target amount
Seoul Guarantee Insurance Company	Seoul Guarantee Insurance Company	X	-	-	O	2022	-	X	-	-
Korea Reinsurance Company	Korea Reinsurance Company	X	-	-	O	TBD	399	O	TBD	TBD
Hanhwa General Insurance	Hanhwa Group	X	-	-	O	TBD	9,101	O	2021	800
Hyundai Marine & Fire Insurance	Hyundai Marine & Fire Insurance	X	-	-	O	TBD	6,487	O	2021	1,000 ~2,000
Heungkuk Fire & Marine Insurance	Taegwang Group	O	2050	X	-	-	6,355	O	2021	1,880
DB Insurance	DB Group	O	2050	X	-	-	8,617	O	2025	6,000
KB Insurance	KB Financial Group	O	Emissions from inside (Scopes 1 & 2): 2040/ Asset portfolio (Scope3): by 2050	O	-	-	8,580	O	2030	21,066
Private Sector – Securities Dealers										
Meritz Securities	Meritz Financial Group	X	-	-	O	TBD	8,558	O	2021	4,000
Hana Securities	Hana Financial Group	O	2050	X	-	-	13,394	O	-	-
Hi Investment & Securities	DGB Financial Group	X	-	-	O	2022	1,330	X	-	-
Korea Investment & Securities	Korea Investment Holdings Co.	X	-	-	X	-	3,283	-	-	-
IBK Investment & Securities	IBK	X	-	-	O	TBD	-	X	-	-
KB SECURITIES	KB Financial Group	O	2050	O	-	-	1,022	X	-	-

Appendix 5. Carbon Neutrality & Membership in Climate Finance Initiatives

Initiatives	Institutes
SBTi (Science-Based Targets initiative)	IBK I KB Financial Group I Mirae Asset Securities I Woori Financial Group I Shinhan Financial Group I SK Securities I DGB Financial Group I JB Financial Group
SBTi BA (Business Ambition) for 1.5℃ campaign	Woori Financial Group
Net-Zero Banking Alliance	IBK I JB Financial Group I KB Financial Group I Shinhan Financial Group
Net-Zero Asset Manager Initiative	Shinhan Asset Management
CDP Signatories	Woori Financial Group I Government Employees Pension Service I DGB Financial Group I Shinhan Financial Group I Hana Financial Group I JB Financial Group I KB Financial Group I Samsung Fire & Marine Insurance I Mirae Asset Securities I Samsung Life Insurance I Hyundai Marine & Fire Insurance I Kiwoom Asset Management I IBK I Samsung Securities I BNK Group I NH Nonghyup Bank I Kyobo Life Insurance I Hanhwa Life
TCFD (Task Force on Climate-Related Financial Disclosures) Supporters	Aju IB Investment I Anda Asset Management I BNK Asset Management I BNK Financial Group I Carrot General Insurance I DGB Financial Group I Hana Financial Group I Hanhwa Asset Management I Hanhwa General Insurance I Hanhwa Investment & Securities I Hanhwa Life Insurance I Hanhwa Savings Bank I Hyundai Marine & Fire Insurance I IMM Private Equity| IBK I JB Financial Group I KB Asset Management I KB Financial Group I Kiwoom Asset Management| Credit Guarantee Foundation I Korea Deposit Insurance Corporation I Korea Exchange I Korea Telecommunications & Clearing Institute I Korea Growth Investment Corp. I Korea Housing Finance Corp. I Korea Investment Corp. I Korea Investment & Securities| Korea Investment Holdings I Korea Securities Depository I Korea Securities Finance Corp. I KIBO I Korea Trade Insurance Corp. I Mirae Asset Securities I Nonghyup Bank I Samsung Active Asset Management I Samsung Asset Management I Samsung Card I Samsung Fire & Marine Insurance I Samsung Life Insurance I Samsung Securities| SG Private Equity I Shinhan Asset Management I Shinhan Financial Group I EIBK I KDB I The Korean Teachers' Credit Union I VI Asset Management I Woori Financial Group I Yuanta Securities
UNEP FI (Finance Initiative)	DB INSURANCE I DGB Financial Group I Hana Financial Group I Hana Securities I Hanhwa Life Insurance I IBK I JB Financial Group I KB Financial Group I KB Insurance I Nonghyup Bank I Nonghyup Life Insurance I Nonghyup Property & Casualty Insurance I Samsung Fire & Marine Insurance I Samsung Life Insurance I Shinhan Financial Group I Shinhan Life Insurance I Woori Financial Group
PRI (Principles for Responsible Investment)	Anda Asset Management |Daishin Securities I ENF Private Equity I Glenwood Private Equity I IIM Private Equity I NPS I Petra Capital Management I Praxis Capital Partners I Sky Lake Equity I Socius I STIC Investments I VI Asset Management Korea I VIG Partners LLC I Socius Well to Sea Investment
PRB (Principles for Responsible Banking)	DGB Financial Group I Hana Financial Group I Hana Securities I IBK I JB Financial Group I KB Financial Group I Nonghyup Bank I Shinhan Financial Group I Woori Financial Group
PSI (Principles for Sustainable Insurance)	DB Insurance I Hanhwa Life Insurance I KB Insurance I Nonghyup Life I Nonghyup Property & Casualty Insurance I Samsung Fire & Marine Insurance I Samsung Life Insurance I Shinhan Life Insurance
PCAF (Partnership for Carbon Accounting Financials)	DGB Financial Group I Hana Financial Group I Hanhwa Asset Management I IBK I JB Financial Group I KB Financial Group I Shinhan Financial Group I Woori Financial Group
EP (Equator Principles)	Hana Bank I Kookmin Bank I KDB I Nonghyup Bank I Shinhan Bank I Woori Bank

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