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2025 KOREAN EMISSIONS TRADING SYSTEM REPORT

Ministry of Climate, Energy and Environment
Greenhouse Gas Inventory and Research Center

Notes for Readers

❶ This report presents the results for 2024, the fourth compliance year of Phase III (2021–2025) for the Korean Emissions Trading System (K-ETS) (the year in the title of the report is the year of publication). It analyzes the allocation, trading, and surrender of emission permits(January 2021–August 2025) for covered entities designated in accordance with Articles 8 and 9 of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits (Act).

❷ This report is based on greenhouse gas (GHG) emissions and emission permits data provided by the National GHG Management System (NGMS), Emissions Trading Registry System (ETRS), Offset Registry System (ORS), and the Korea Exchange (KRX):

- National GHG Management System (NGMS): a database for the GHG and Energy Target Management System and the K-ETS that collects and manages all data related to the emission activities of business entities, such as emissions reports, implementation plans, performance reports, application forms for allocation, and emissions monitoring plans (http://ngms.gir.go.kr)
- Emissions Trading Registry System (ETRS): a computerized system for the registration and management of data related to the allocation, trading, banking, and borrowing of emission permits and certified GHG emissions, etc. (http://etrs.gir.go.kr)
- Offset Registry System (ORS): a computerized system for the registration and management of data related to methodologies for external offset projects for the reduction, absorption, or removal of GHGs and certified GHG reductions (http://ors.gir.go.kr)
- Korea Exchange (KRX): an emission permit exchange designated in accordance with Article 22 of the Act

❸ All numbers in this report are rounded, so some sums and totals may not match.

❹ This report uses CO_2 equivalent ton ($tCO_2eq.$) based on the global warming potential (GWP) for GHGs as the unit for the allocation and surrender of emission permits, and it is marked as t (ton), kt (thousand ton), and Mt (million ton). However, abbreviations (KAU, KCU, and KOC) are used when describing market transactions for emission permits:

For the user

- **1 KAU, 1 KCU, 1 KOC :** 1tCO_2eq.
- **Korean Allowance Unit (KAU)**: emission permits allocated to covered entities in accordance with Article 12 of the Act
- **Korean Credit Unit (KCU)**: emission permits converted from KOCs in accordance with Article 29 of the Act
- **Korean Offset Credit (KOC)**: certified reductions from external offset projects obtained from the reduction, absorption, or removal of GHGs outside the scope of business operations monitored by the K-ETS in compliance with international standards, in accordance with Article 30 of the Act (※ For ease of use, KOCs are also referred to as a type of emission permit in this report)

Summary

1 Overview of the K-ETS

An emissions trading system is a market-based greenhouse gas (GHG) reduction scheme in which the government sets an emissions cap in each of the covered sectors and allocates annual emission allowances to entities that emit more than a certain amount of GHGs, meaning that they can emit GHGs up to the limit set by the emission allowances they hold. It is more cost-effective than direct regulation in that entities participating in the scheme can sell surplus allowances to others through market transactions or make up any deficit in their emission permits through auctions or market transactions.

For Phase I (2015-2017), in order to securely establish the Korean Emissions Trading System (K-ETS) and accumulate experience, the government allocated all emission permits free of charge, applied benchmarking (BM) as an allocation method only for certain sub-sectors, and introduced flexibility mechanisms (e.g., offsetting, banking, and borrowing). For Phase II (2018-2020), with the operational objectives placing emphasis on gradually increasing the size of the reduction in GHG emissions by covered entities, the government enhanced standards for the calculation of the cap and the allocation of emission permits so that they were higher than the level employed in Phase I. In addition, in order to solve problems such as an imbalance in supply and demand for emission permits, the government established standards for the banking of surplus emission permits and implemented measures to activate the emission trading market, such as the introduction of market makers.

For Phase III (2021-2025), the government established the Master Plan for the Emissions Trading System in December 2019 in order to support the effective achievement of Korea's Nationally Determined Contribution (NDC). The Master Plan focuses on promoting strategies such as further developing allocation methods, encouraging a substantial reduction in GHG emissions, and expanding market functions. For the implementation of these strategies, the government established detailed standards regarding Total Emission Allowances, free allocation and auctions, and benchmark-based allocations through the Allocation Plan for Phase III (2021-2025) of the K-ETS in September 2020.

Summary

In October 2021, the government announced an enhanced NDC, which set a target of reducing national GHG emissions by 40% by 2030 compared to 2018 levels. This target was established in light of the legislative intent of the carbon neutrality policy and Korea's role as a responsible member of the international community. In April 2023, the government released the 1st National Basic Plan for Carbon Neutrality and Green Growth, which outlined sector-specific and year-by-year reduction targets aimed at achieving Korea's mid- to long-term GHG reduction goals. Following the announcement of the enhanced NDC and the year-by-year targets, the government revised the Allocation Plan for Phase III (2021-2025) of the Korean Emissions Trading System (K-ETS) in December 2023 and December 2024. These revisions reflected updates to the total emissions cap, measures to revitalize the carbon market, and the relaxation of banking restrictions to support greater flexibility for covered entities. Following the recalculation of national greenhouse gas emissions statistics for the power sector due to the correction of energy statistics in January 2025, the government announced the Amended Allocation Plan for the Phase Ⅲ(2021-2025)(November 2025), reflecting the subsequent adjustments to the total allowable emissions.

2 K-ETS Operational Results

For the 2024 compliance year, the pre-allocated emissions amounted to 544.1 Mt (684 entities), while the final allocation amount, which reflected changes such as additional allocations, allocation revocations, and the succession of rights and obligations, was 581.6 Mt (780 entities).[1)] This represents a 0.4% increase compared to the previous year's final allocation of 579.1 Mt(735 entities). This was due to an increase in the quantity of emission permits won at auction compared to the previous year, and a rise in flexible allocations after the pre-allocation, driven by increased new entrant allocation in the power generation sector under the Phase II allocation plan. The final allocation amount (581.6 Mt) consisted of 561.2 Mt of free allocations (96.5%) and 20.4 Mt of auctioned allowances (3.5%).

According to the results of the government verification of the emissions reports submitted by the 780 entities that received allocated emission allowances, the certified emissions for 2024 amounted to 549.9 Mt(776 entities) and remained stable compared to the previous year (549.9 Mt, 733 entities). The emission permits surrendered by covered entities in the 2024 compliance year amounted to 549.9 Mt (775 entities), made up of 549.8 Mt from Korean Allowance Units (KAUs) (99.99%) and 0.1 Mt from Korean Credit Units (KCUs) (0.01%). The amount of KAUs surrendered increased by 1.0 t from the previous year, whereas that of KCUs decreased by 1.0 t. Penalties will be imposed on one covered entity that failed to meet its obligation to surrender emission permits for 2024 compliance year (8.6 kt).

〈Final Allocation and Emissions in the 2023-2024 Compliance Year〉

In addition to emission permits allocated by the government, emission permits banked from the previous compliance year, emission permits borrowed from the next compliance year, or KCUs may be utilized by covered entities to meet their obligation to surrender emission permits. The emission permits banked from the 2023 compliance year to the 2024 compliance year by covered entities to surrender and trade emission permits amounted to 70.0 Mt (540 entities). The emission permits carried over to the next compliance year (2025) after their surrender for 2024 amounted to 102.2 Mt (560 entities). The emission

1) A total of 45 entities have been added due to new entries and the succession of rights and obligations (i.e., designation of new covered entities arising from, for example, the splitting of covered entities).

permits borrowed from the next compliance year accounted for 0.2 Mt (34 entities), which was used only in the surrender of emission permits. In addition, for the 2024 compliance year, a total of 0.07 Mt of Korean Offset Credits (KOCs) (0.04 Mt from domestic projects and 0.03 Mt from overseas projects) was converted into KCU24. These, combined with the KCUs banked from the previous compliance year, were used for the surrender of emission permits (0.08 Mt, 11 entities).

Broken down by sector, the certified emissions exceeded the final allocation amount in the buildings, waste, and public services/other sectors. However, in all sectors, an amount of emission permits equivalent to the amount of certified emissions was surrendered (i.e., emission targets were met) through the use of the trading and banking of emission permits and offset mechanisms.

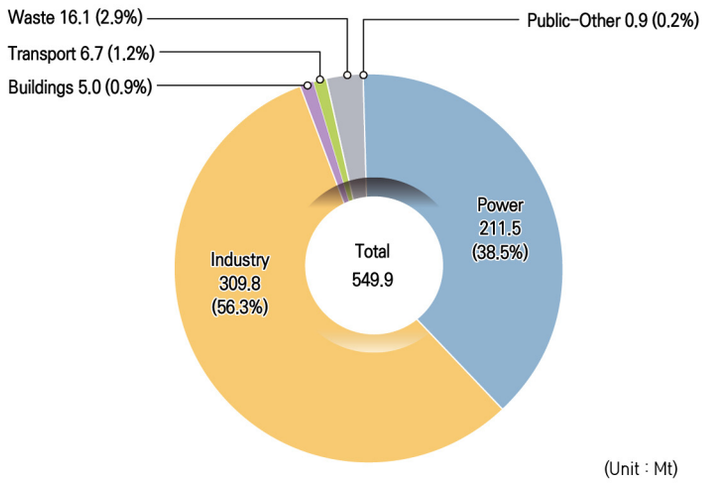
For the 2024 compliance year, the certified emissions from the power sector (65 entities) amounted to 211.5 Mt, which was 0.5 Mt (0.2%) lower than the previous year. This reduction was caused by a decline in coal-fired power generation and an increase in power generation from renewable and nuclear energy sources.

The certified emissions from the industry sector (480 entities) decreased to 309.8 Mt, which was lower than the previous year by 1.5 Mt (0.5%). This reduction was driven by a decline in production at certain entities and the expanded operation of F-gas (fluorinated gas) reduction facilities.

Meanwhile, the emissions from the buildings sector (41 entities) increased by 0.1 Mt (2.3%) to 5.0 Mt compared to the previous year. This increase was driven by factors such as an increase in total energy consumption per unit area of buildings (including electricity and heat).

In the transport sector, the emissions from the 67 covered entities in this sector decreased to 6.7 Mt, which was lower by 0.03 Mt (0.5%) compared to the previous year. Although the number of registered diesel vehicles declined, the emission reduction effect was offset by the slowdown in zero-emission vehicle (ZEV) adoption and an increase in gasoline-powered vehicles, resulting in emissions remaining at a similar level to the previous year.

The certified emissions from the waste sector (121 entities) increased by 13.5%(1.9 Mt) from the previous year at 16.1 Mt, while those frome the public services/other sector (2 entities) remained similar to the previous year at 0.9 Mt.



〈Certified Emissions by Sector in the 2024 Compliance Year〉

3 Analysis of Emissions Trading Market Performance

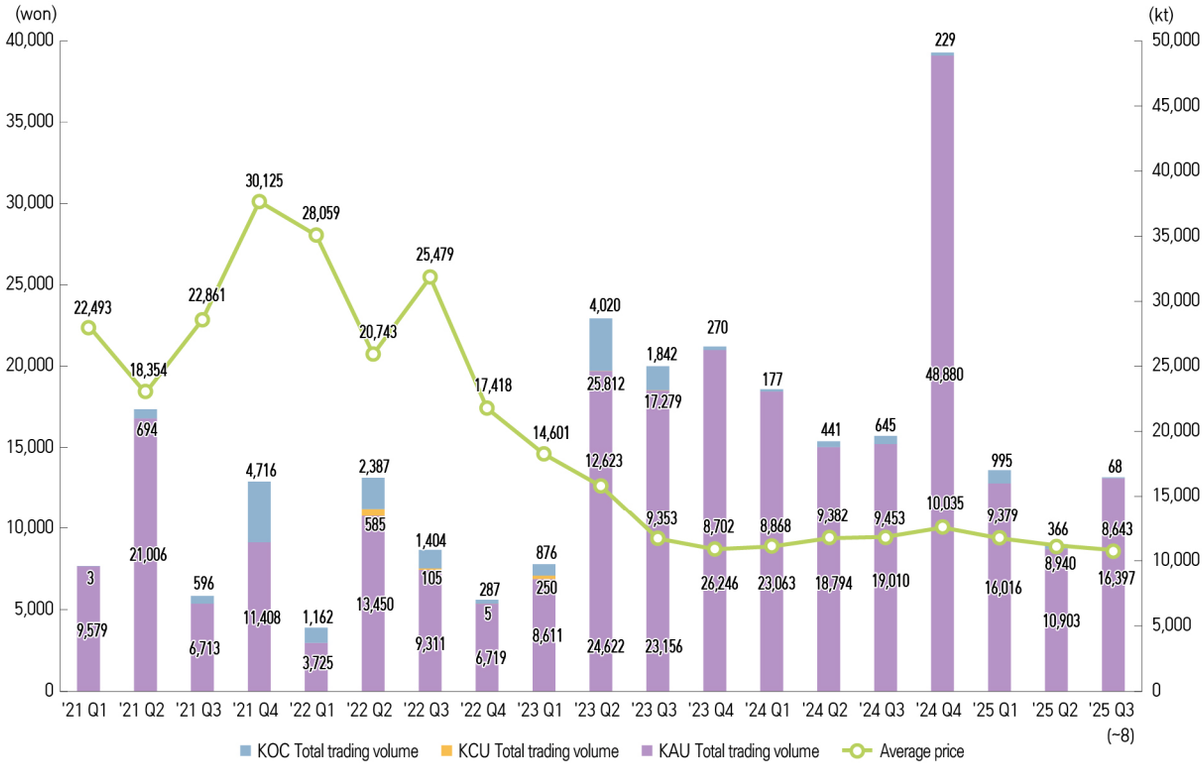
From Phase I to the end of the 2024 compliance year in Phase III (August 2025), a total of 513.3 Mt of emission permits were traded through the exchange and Over-The-Counter (OTC) markets, with total payments of 8,868 billion and an average trading price of 17,277 won per ton.

Of these permits, 462.0 Mt of KAUs (90.0%), 4.4 Mt of KCUs (0.9%), and 46.9 Mt of KOCs (9.1%) were traded. Broken down by market type, the trading volume was 347.7 Mt (67.7%) in the exchange market and 165.6 Mt (32.3%) in the OTC market. By year, the trading volume exhibited an upward trend, rising from 5.7 Mt in 2015 to 47.5 Mt in 2018, 38.1 Mt in 2019, 44.0 Mt in 2020, 54.7 Mt in 2021, 39.1 Mt in 2022, 89.9 Mt in 2023, and reaching 111.2 Mt in 2024, despite some annual fluctuations. The trading volume reached 44.7 Mt by August 2025, representing a slight decrease (21.1%) compared to the same month of the previous year (56.7 Mt).

The average trading price for all emission permits per year increased significantly at an average annual rate of 22.5% from 11,013 won in 2015 to 30,411 won in 2020. Since then, due to the impact of COVID-19, lower production activity, and the damage caused by Typhoon Hinnamno, it declined to 23,149 won in 2021, 22,370 won in 2022, 10,772 won in 2023, 9,575 in 2024, and 8,998 won in 2025 (as of August). The average trading price for Phases I, II, and III was 17,227 won.

Summary

The continuous increase in the trading volume and average trading price from 2015 led to an increase in total payments from 62.4 billion won in 2015 to 1,338.5 billion won in 2020. A subsequent decline was then observed, with total payments amounting to 1,266.6 billion won in 2021, 875.6 billion won in 2022, 968.8 billion won in 2023, and 1,065.2 billion won in 2024. The total payments for emission permits for 2025 amounted to 402.6 billion won, representing a 25.5% decrease from the previous year.

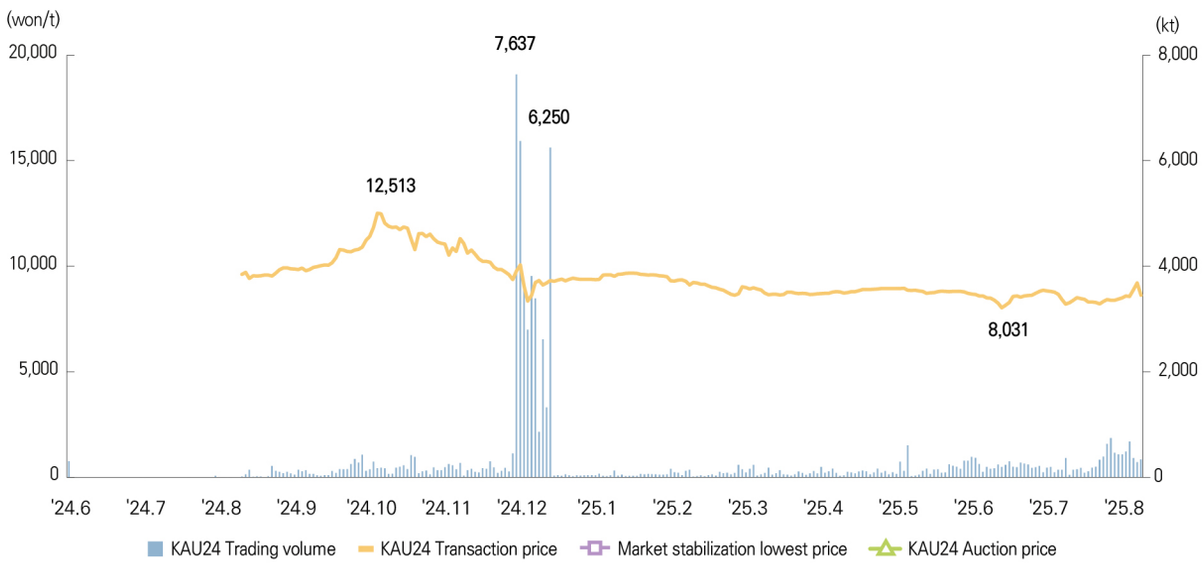


〈Trends in the Trading Volume and Price by Compliance Year〉

The total volume of KAU24, KCU24, and KOCs traded during the period for which KAU24 was listed on the KRX (January 2021–August 2025) as the primary type of emission permit traded for the 2024 compliance year was 121.1 Mt. Of this, KAU24 accounted for 99.9 Mt (82.5%) and KOCs for 21.2 Mt (17.5%). No transactions were recorded for KCU24 (0%). Broken down by market type, of the 99.9 Mt of KAU24 traded, the trading volume was 92.5 Mt (92.6%) in the exchange market and 7.4 Mt (7.4%) in the OTC market. Specifically, the amount of KAU24 traded via real-time exchange trading was 71.1 Mt, which accounted for the highest proportion of the trading volume for KAU24, followed by trading via auction (20.4 Mt), OTC trading (7.4 Mt), and block exchange trading (1.0 Mt). Of note was that the proportion of exchange trading for KAU24 has grown compared to KAU23 (89.4% for the exchange market and 10.6% for the OTC market) due to an increase in real-time exchange trading.

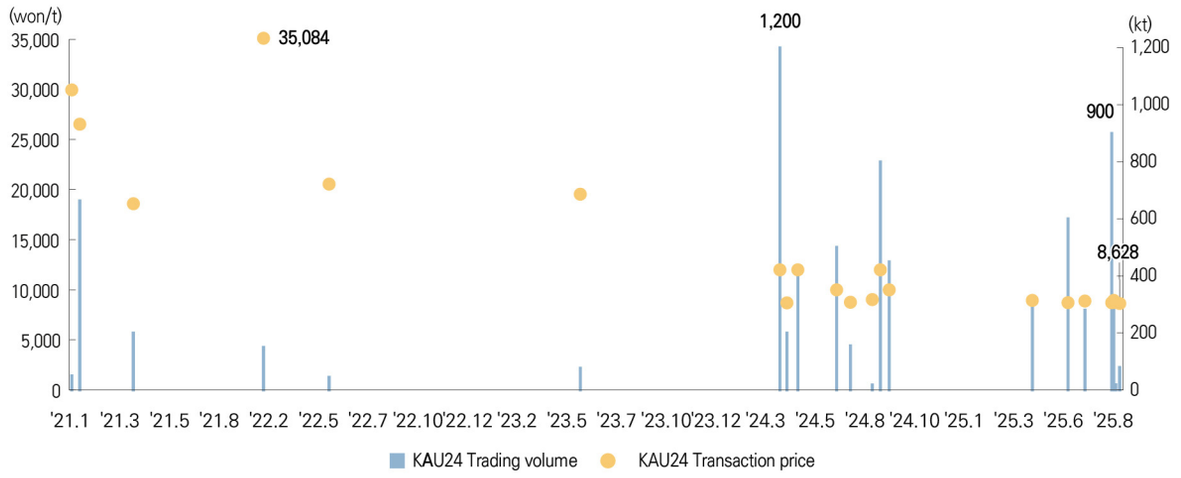
The trading price of KAU24 on the exchange ranged between 8,030 and 12,510 won. The monthly average trading price remained at the 8,900 won level from June to July 2024, but increased to 9,276 won in August, 9,733 won in September, 11,026 won in October, and 11,193 won in November. Subsequently, it decreased to 9,424 won in December. In 2025, from January to August, the average trading price ranged between 8,400 and 9,200 won. The final average trading price of KAU24 on the exchange was 9,349 won.

The auction price for KAU24 was 9,000 won in July 2024 when the auctions began, reaching 9,000 won in August and 9,600 won in September. The price began to rise from October, reaching 10,600 won and 11,600 won in November. However, it began to fall to 10,100 won in December and 9,100 won in March 2025. It remained within the range of 8,790 won to 8,900 won between May and June. The average auction price for KAU24 was 10,197 won.



〈Trends in Trading Volume and Price for KAU24 in the Exchange Market〉

OTC trading of KAU24 began on 6 January 2021. Until April 2021, trading occurred sporadically in the price range between 18,500 won and 29,900 won. The trading price of 35,084 won for February 2022 was the highest OTC trading price for KAU24. Subsequently, there were no transactions from July 2023 to February 2024. Although the price remained in the 12,000 won range in March 2023, it sharply fell to an average range of 8,700 won to 8,900 won between April and August 2025. The 2024 compliance year ended after a single transaction was recorded in August 2025 at 8,628 won, the lowest OTC trading price for KAU24. Ultimately, the average OTC trading price for KAU24 was 14,679 won, which was 57.0% higher than its average exchange trading price.



〈Trends in Trading Volume and Price for KAU24 in the Over-The-Counter Market〉

4 Analysis of the Survey of Covered Entities

A survey was conducted with covered entities that were able to meet their obligation to surrender emission permits for the 2024 compliance year regarding their views of and response to the K-ETS, the GHG emission reduction efforts and performance, and the support required to respond to the K-ETS. The total number of responses was 461, representing a response rate of 59.4%.

Continuing from the previous year, covered entities were generally supportive of the K-ETS (positive: 75.1%; negative: 3.9%) and considered the K-ETS necessary to achieve Korea's NDC(positive: 70.7%; negative: 6.1%) and for the transition to a sustainable society despite the costs of responding to it (positive: 68.1%; negative: 9.3%). In addition, compared to the 2024 survey results(positive: 47.8%; negative: 14.5%), more responding entities reported that the K-ETS contributes to achieving GHG reduction targets in a cost-effective manner(positive: 55.5%; negative: 13.9%), indicating an improvement in the perceptions of the system's efficiency.

Regarding the impact of the K-ETS on GHG emission reduction activities, the proportion of positive responses was higher than that of negative responses for the establishment of mid- to long-term strategies for GHG reduction(positive: 54.4%; negative: 12.4%), efforts to transition to low-carbon facilities or processes(positive: 45.8%; negative: 19.7%), contribution to the improvement of internal processes for energy conservation(positive: 49.0%; negative: 16.5%), and the promotion of activities aimed at developing low-carbon technologies(positive: 34.1%; negative: 32.3%), while the proportion of negative responses was higher for the establishment or implementation of plans for external reduction

projects(positive: 31.7%; negative: 36.9%). These results suggest that the responding entities have primarily focused on relatively short-term and immediately applicable reduction activities, such as improving internal processes and transitioning to low-carbon facilities or processes, rather than pursuing the implementation of external reduction projects or the development of low-carbon technologies, which often require sustained, long-term efforts to reduce GHG emissions.

A survey on the impact of the K-ETS on the business operations of covered entities revealed an increase in the positive response rate to an increase in production costs for products/services due to the rise in prices of energy/raw materials (positive: 64.2%; negative: 8.7%), indicating that a greater number of entities experienced the burden of increased production costs compared to the previous year. In contrast, negative response rates were slightly higher regarding the following survey items: an increase in additional profits from emission permit trading, a reduction in operational and management costs through internal emission reduction efforts, and the strengthening of product/service competitiveness against other products/services in the same industry through environmental business operations and internal innovation.[2] However, in terms of the increase in additional profits from emission permit trading, the proportion of positive responses increased and that of negative responses decreased compared to the survey results for the 2021 compliance year (positive: 28.0%; negative: 51.9%).

Regarding methods other than using KAUs employed by covered entities to comply with the obligation to surrender emission permits, the purchase of emission permits (70.1%) remained the most commonly used method, consistent with the previous year, followed by technological investment and the promotion of internal reduction activities (24.7%) and the use of banked emission permits (22.2%). Entities with surplus emission permits showed a preference for banking (83.7%) over selling on the market (16.3%). The reasons for favoring banking included an expected increase in the emission permit price due to the insufficient market supply of emission permits, an expected increase in emissions due to the growth of the company and an increase in production, and the deferment of decision-making on selling due to uncertainty regarding the market and policy.

Regarding strategic priorities for complying with the obligation to surrender emission permits in Phase IV relative to Phase III, the largest proportion of respondents (46.2%) reported that their strategic priorities would remain unchanged. Among the respondents anticipating changes (23.6%), the most preferred strategy was the purchase of emission permits from the emissions trading market (89.9%), followed by management and technological investment for internal emission reduction (72.5%) and securing a

2) An increase in additional profits from emission permit trading (positive: 34.9%; negative: 40.1%); a reduction in operational and management costs through internal emission reduction efforts (positive: 25.4%; negative: 36.4%); the strengthening of product/service competitiveness against other products/services in the same industry through environmental business operations and internal innovation (positive: 28.0%; negative: 34.3%).

reduction in GHG emissions through participation in external projects and investment (58.7%). These findings suggest that, during Phase IV, some entities may more actively pursue GHG reduction through internal reduction activities and external projects while simultaneously expanding the use of the emissions trading market to respond cost-effectively to regulations. Continuing from Phase III, the tendency to bank surplus emission permits is expected to remain high (68.3%) in Phase IV.

Regarding the utilization of consignment trading through emissions trade brokerage companies, which has been in effect since November 2025, the largest proportion of respondents (50.1%) reported that they were uncertain. Entities that reported that they plan to utilize consignment trading (14.8%) cited, in order of frequency, a reduction of the administrative burden, an increased possibility of trading at reasonable prices, and an increased possibility of a faster execution of emissions trading as their primary reasons. Among the entities that reported that they do not plan to utilize consignment trading (35.1%), the most frequently cited reason was the burden of commission fees associated with consignment trading (63.0%).

Regarding the operational direction of banking restrictions for Phase V, respondents preferred to maintain banking restrictions (70.9%) rather than to abolish them (29.1%). The primary reasons for favoring the maintenance of banking restrictions were the stabilization of emission permit prices (59.3%) and securing the liquidity of the emissions trading market (58.7%). On the other hand, the primary reasons for favoring the abolition of banking restrictions were enhancing the feasibility of establishing long-term reduction plans (61.2%) and the minimization of government intervention in the market (34.3%).

In terms of internal emission reduction projects that had been completed during Phase III or were still in progress since Phase III, 37.5% of the responding entities reported that such projects had been implemented or were still in progress, while 62.5% reported that there were none. The most common type of internal reduction project that had been completed or was still in progress was the installation of high-efficiency equipment and the improvement of equipment performance (65.9%), followed by power generation and self-consumption using renewable energy (45.7%) and the recovery and utilization of unused thermal energy (27.7%). The top three types of internal reduction activities remained the same as the previous year.[3)]

Among entities with internal reduction projects planned (18.0%) or under review (35.6%) for Phase IV, the most frequently cited reasons for pursuing these projects were a reduction in emission permit allocations due to the NDC-based decline in the cap and the strengthening of benchmark allocation factors (60.7%) and a decrease in free allocations due to the expansion of auctions (44.1%). Additional reasons

3) The installation of high-efficiency equipment and the improvement of equipment performance (40.8%); power generation and self-consumption using renewable energy (21.2%); the recovery and utilization of unused thermal energy (13.5%).

included managerial commitment to ESG management (27.1%) and securing new reduction measures enabled by technological advancements (23.1%).

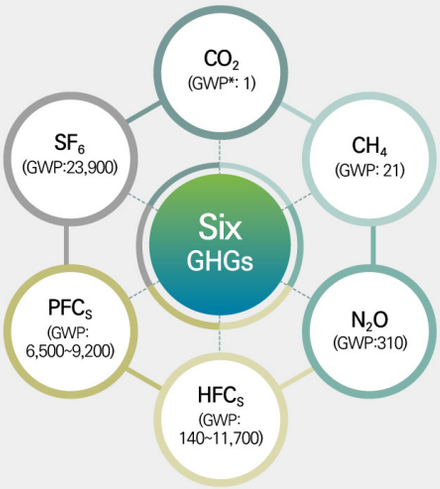
Among entities that had completed, implemented, or reviewed external projects during Phase III (12.4%), the most common type of external project implemented was the use of new renewable energy (42.1%), followed by fuel conversion (24.6%) and landfill gas recovery and utilization (17.5%). Regarding the status of external projects for Phase IV, 78.3% of the responding entities reported that they have no plans for such projects, while 16.9% reported they have external projects under review and 4.8% reported they have external projects planned.

Overall, the level of understanding of the K-ETS and associated systems was found not to be low. A majority of respondents responded positively regarding the design framework of the K-ETS (positive: 60.5%; negative: 3.2%), emissions reporting and certification procedures (positive: 63.6%; negative: 3.0%), emissions trading mechanisms (positive: 53.8%; negative: 10.2%), surrender and banking/borrowing procedures (positive: 61.6%; negative: 4.6%), and methods of system usage (positive: 60.1%; negative: 5.2%), while their negative responses remained relatively low at approximately 10% or less for these items. On the other hand, the level of understanding of the K-ETS and associated systems varied depending on whether the responding entity maintained a dedicated department. Entities with a dedicated department (54.7%) exhibited higher proportions of positive responses regarding the design framework of the K-ETS and emissions reporting and certification procedures.

K-ETS at a Glance

1. K-ETS Overview

Gas Coverage

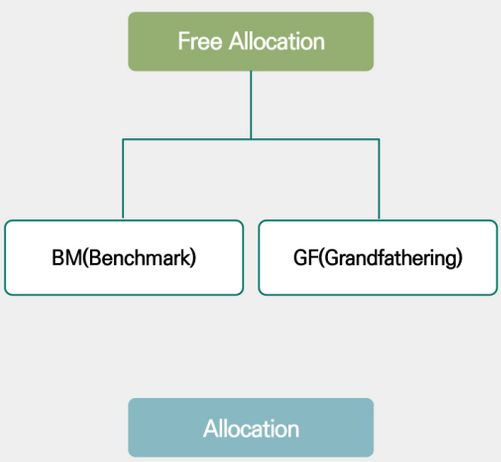


GHG emissions: direct + indirect emissions
- Direct emissions from six GHGs
- Indirect emissions from electricity consumption

*Global Warming Potential

Sector Coverage

Allocation Methods

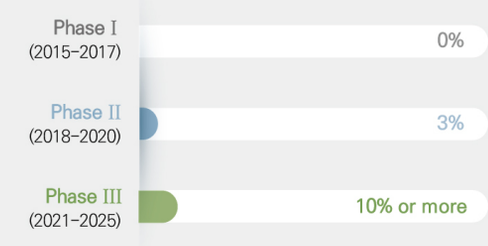


Covered Entities

Total average annual GHG emissions for the past three years

- **125,000t** or more for entities
- **25,000t** or more for business establishments

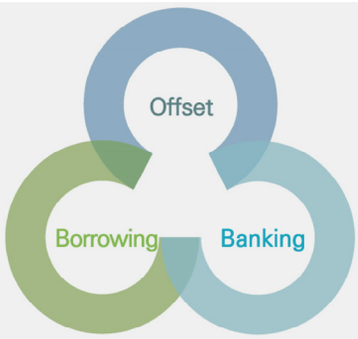
Percentage of Auctioned Emission Permits for Sectors Subject to Auctions for Each Phase



Reserve

Market Stabilization	Additional allocation to manage the market price and liquidity, which is deemed necessary when the price of emission permits suddenly fluctuates or the supply of emission permits falls noticeably short of demand, thus making trading between covered entities difficult, etc.
Market Making	A market maker such as a public financial institution suggests a standard price for emission permits and participates in the trading market to ensure market liquidity
Use for Other Purposes*	Adjusting allocation, such as allocation to new entrants and voluntarily participating entities, additional allocation for the establishment and expansion of facilities, and additional allocation for reduction contributions *This reserve is divided into "power" and "other" in order to ensure fairness between sectors

Flexibility Mechanisms



Offset	If a covered entity possesses or acquires GHG reduction credits generated outside the scope of business operations monitored by the K-ETS, it may convert all or part of them into emission permits, which can be used for trading or compliance
Banking	Surplus emission permits may be carried over to the next compliance year
Borrowing	If emission permits are insufficient to meet the surrender obligation, portion of allocated emission permits may be borrowed from the next compliance year

Calulation of the Cap

Step 1	• Calculate the average sectoral reducation targets the for relevant phase
Step 2	• Calculate the sectoral emissions coverage* from the ETS for the base year *ETS emissions coverage = average emissions of covered entities for the base year / average national emissions for the base year
Step 3	• Calulate the sectoral ETS cap* for the relevant phase *sectoral ETS cap = average sectoral reduction targets for the relevant phase x ETS emissions coverage for the base year
Step 4	• Calulate the ETS cap for the relevant phase (i.e., summing the ETS cap for each sector)

2. K-ETS Operational Results

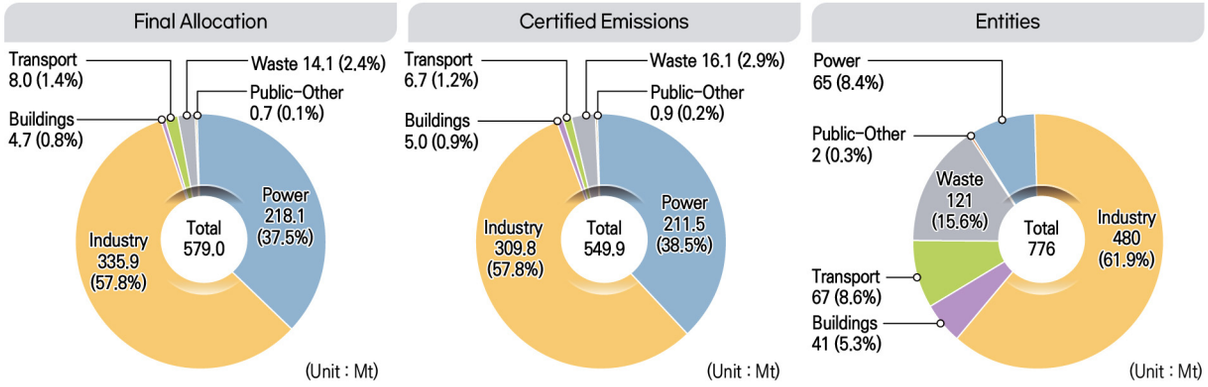
Number of Covered Entities by Compliance Year

(Unit : entities)

Type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Pre-allocation & New entities	525	525	525	591	587	604	684	684	684	684
Final allocation entities	522	564	592	587	611	637	687	714	735	780
Certified entities	522	560	591	586	610	636	687	713	733	776

1) Pre-allocation and new entities: number of entities designated for pre-allocation and new entry allocation before the commencement of a compliance year
2) Final allocation entities: number of entities after reflecting all changes that occur after pre-allocation and new entry allocation
3) Certified entities*: number of entities holding the obligation to surrender emission permits
   * The designation of covered entities or the obligation to surrender emission permits can be canceled due to allocation revocation or mergers according to succession of rights and obligations during a compliance year

Distribution by Sector – Compliance Year 2024



Compliance Results by Compliance Year

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
99.8% (521/522)	100.0% (560/560)	99.7% (589/591)	99.8% (585/586)	99.8% (609/610)	99.8% (635/636)	99.9% (686/687)	100.0% (713/713)	100.0% (733/733)	99.9% (775/776)

Annual Trading Market Performance

Type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Trading Volumes (Mt)	5.7	12.0	26.3	47.5	38.1	44.0	54.7	39.1	89.9	111.2	67.6 (44.7)*
Average price (KRW/t)	11,013	17,056	20,951	22,120	28,440	30,411	23,149	22,370	10,772	9,575	9,461 (8,998)*
Payments (100 mil. KRW)	624	2,041	5,503	10,509	10,831	13,385	12,666	8,756	9,688	10,652	6,393 (4,026)*

* Note : Trading records until August 2025

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2025

KOREAN EMISSIONS TRADING SYSTEM REPORT

I

K-ETS Overview

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1 Overview and Operational Direction of the K-ETS

1.1 Overview

An emissions trading system is a market-based greenhouse gas (hereafter "GHG") reduction scheme in which the government sets an emissions cap and allocates annual emission allowances to entities emitting more than a certain amount of GHGs so that they can emit GHGs up to the limit set by the emission allowances they hold. If a covered entity emits a lower amount of GHGs than the emission permits it secures, it can sell the surplus through market transactions. Conversely, if a covered entity emits a higher amount of GHGs than its emission permits allow, it can make up the deficit through auctions or market transactions. In this sense, the emissions trading system is more cost-effective than direct regulation in terms of reducing GHG emissions.

The Korean Emissions Trading System (hereafter "K-ETS") was launched in 2015, with its legal basis established in 2012 through the enactment of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits (May 2012) (hereafter "the Act") and the associated Enforcement Decree of the Act (November 2012) (hereafter "the Enforcement Decree"), followed by the establishment of the Master Plan for the Emissions Trading System (January 2014), the Allocation Plan for Phase I (2015–2017) (September 2014), and relevant guidelines, which stated the Total Emission Allowances that were connected with Korea's Nationally Determined Contribution (hereafter "NDC") and provided details of the operation of the K-ETS.

Summary of the K-ETS Operational Results for the Third Compliance Year of Phase III (2023)

In 2023, which was the third compliance year of Phase III, a total of 579.1 Mt of emission allowances (573.2 Mt from free allocation and 5.9 Mt from auctioned allowances) were allocated to 735 entities from 69 sub-sectors. The final amount of certified emissions at the end of the 2023 compliance year was 549.9 Mt from 733entities, which was 3.9% lower than the previous year (572.0 Mt from 713 entities). The total amount of KAU23 traded through the exchange and Over-The-Counter (hereafter "OTC") markets, including auctions, from January 2021 to August 2024 was 82.7 Mt. The final amount of emission permits surrendered by covered entities to the government at the end of the 2023 compliance year was 549.9 Mt from 733 entities (548.9 Mt of KAUs and 1.1 Mt of KCUs). All covered entities met their obligation to surrender emission permits. In addition, after the surrender for 2023, 70.0 Mt of emission permits were carried over to the fourth compliance year (2024).

〈Table Ⅰ-1〉 Operational Direction by Phase in the Master Plan

Type	Phase I (2015-2017)	Phase II (2018-2020)	Phase III (2021-2025)
Main Objectives	• Acquire experience and stabilize the K-ETS	• Substantially reduce GHG emissions	• Promote effective reductions
Operations	• Improve flexibility e.g., the ratio of offset credits, etc. • Establish necessary infrastructure for accurate Monitoring, Reporting, and Verification (MRV)	• Expand the applicable scope and raise the targets • Develop various standards, e.g., emissions reporting, verification, etc.	• Reinforce the cap based on the Roadmap • Expand market functions by strengthening the functions of market makers, introducing derivatives in the exchange, etc.
Allocation	• Allocate all emission permits free-of-charge • Apply lessons learned from the GHG and Energy Target Management System	• Introduce auctions • Develop allocation methods, e.g., benchmarking, etc.	• Improve the criteria for selecting sub-sectors eligible for free allocation and expand the ratio of auctions • Expand the use of benchmarking for allocation

For Phase II (2018–2020), the government expanded the scope of the K-ETS and adjusted specific emission reduction targets to be consistent with Korea's NDC in order to raise emission reduction targets so that they were higher than the level achieved in Phase I and gradually increase the size of the reduction in GHG emissions by covered entities. To this end, in 2017, the government prepared the Master Plan for the Emissions Trading System for Phase II (January 2017) to establish the basic direction for the K-ETS during Phase II and the Allocation Plan for Phase II: Step 1 (2018–2020) (December 2017) to establish detailed regulations for the K-ETS, including the cap.

In 2018, an amendment to the Basic Roadmap for Achieving 2030 National GHG Reduction Targets (July 2018) (hereafter "the amended Roadmap") was completed, and the government subsequently announced the Allocation Plan for Phase II: Step 2 (2018–2020) (July 2018), which reflected the amended Roadmap and added further detailed standards, such as total emission allowances and standards for auctions and benchmark-based allocations.

An imbalance in the supply and demand for emission permits arose during Phase II as a result of surplus emission permits not being traded due to unrestricted permission for the banking of surplus emission permits. In order to solve this problem, in June 2019, the government amended the Allocation Plan for Phase II: Step 2 (2018–2020) and introduced new criteria for the banking of emission permits.

In December 2019, the government prepared the Master Plan for the Emissions Trading System for Phase III, which aimed to pave the way for the achievement of Korea's NDC. The Master Plan established strategies to further develop allocation methods, substantially reduce GHG emissions, and expand market functions in order to strengthen the efficacy of the K-ETS. In addition, the Allocation Plan for Phase III (2021–2025) (September 2020), which contained detailed standards such as total emission allowances, standards for free allocations and auctions, and benchmark-based allocations was established for the implementation of these strategies.

In October 2021, the government announced the updated NDC, under which the country has set an enhanced target of reducing its total national GHG emissions by 40% from the 2018 level by 2030, with the aim of achieving the goal of carbon neutrality.[4] The enhanced NDC was adopted in close consideration of the purpose of Korea's carbon neutrality policy and its role as a member of the international community. Following the recalculation of national greenhouse gas emissions statistics for the power sector due to the correction of energy statistics in January 2025, the government announced the Amended Allocation Plan for the Phase Ⅲ (2021–2025)(November 2025), reflecting the subsequent adjustments to the cap.

4) The Framework Act on Carbon Neutrality and Green Growth for Coping with Climate Crisis stipulates the government shall set the target of reducing national GHG emissions by a minimum of 35% from the 2018 level by 2030 (Art. 8(1)). The amount of GHG emissions in 2018 was 727.6 Mt, and the target amount of GHG emissions for 2030 is 436.6 Mt.

Phase III of the K-ETS commenced in 2021. The K-ETS, which was developed with the goal of establishing a stable system in Phase I and reducing national GHG emissions significantly in Phase II, has played a pivotal role in achieving Korea's NDC. Institutional improvements, such as the revitalization of the emissions trading market, improvement of allocation methods, and adjustment of the emissions cap, are required to efficiently support the achievement of the enhanced NDC.

〈Table Ⅰ-2〉 National Policies for GHG Reductions and the K-ETS in Phase II and III

Type		Phase II (2018-2020)	Phase III (2021-2025)
National Policies for GHG Reductions	Reduction target	• Reduction by 37% from BAU (Business -as-usual) levels in 2030 (Jun. 2015)	• Reduction by 40% of the total GHG emissions in 2018 by 2030 (Oct. 2021)
	Sectoral plan	• Basic roadmap for achieving 2030 national GHG reduction targets (Dec. 2016)	• Amendment to the basic roadmap for achieving 2030 national GHG reduction targets (Jul. 2018) • 1st National Basic Plan for Carbon Neutrality and Green Growth(Apr. 2023)
GHG Emissions Trading System	Master plan	• Master plan for the Emissions Trading System for Phase II (Jan. 2017)	• Master plan for the Emissions Trading System for Phase III (Dec. 2019)
	Allocation plan	• Allocation Plan for Phase II: - Step 1 (Dec. 2017)[1)] - Step 2 (Jul. 2018)[2)] - Step 2 amended (Jun. 2019)[3)]	• Allocation plan for Phase III (Sep. 2020)[4)] - Amended (Dec. 2023)[5)] - Amended (Dec. 2024)[6)] - Amended (Nov. 2025)[7)]

1) Details on the allocation for Phase II, and the cap (538.5 Mt) for the first compliance year (2018) and reserve (14.0 Mt) are specified.
※ It was decided that the cap for Phase II would be determined in the Allocation Plan for Phase II: Step 2, taking into consideration the national policies including the amended Roadmap (2018). The amount of emissions allowances for 2018 (Allocation Plan Step 1) would be maintained and guaranteed after the amount of emissions allowances for the Allocation Plan Step 2 was determined, however, the emission permits for 2019 would adjusted if those for '18 increased or decreased.
2) Details for Phase II, such as the cap (1,777.1 Mt), total emissions allowances (1,796.1 Mt), and standards for auctions and benchmark-based allocation were added and specified.
3) Standards for the banking of emission permits across compliance years within Phase II and etc. were revised.
4) Details on the allocations for Phase III and the cap (3,048 Mt) and reserve (34.0 Mt) were specified.
5) The cap for Phase III was adjusted (increased by 12.7 Mt) following the update of Korea's NDC, and the standards for the banking and offsetting of emission permits, etc. were revised for the revitalization of the emissions trading market.
6) Revision of Banking standards for KAU and KCU under the Flexibility Mechanism.
7) The Allocation Plan was amended due to the recalculation of national GHG emissions statistics for the power sector, which resulted from the correction of energy statistics.

〈Table Ⅰ-3〉 Guidelines for the K-ETS in Phase III

Type	Guidelines
Allocation· Revocation	• Guidelines for the Allocation and allocation revocation of GHG emission permits (Ministry of Climate, Energy and Environment, partially amended in October 2025)
Reporting· Certification	• Guidelines for the Reporting and certification of emissions under the GHG Emissions Trading System(Ministry of Environment, amended by other laws in April 2025)
Verification	• Guidelines for the Verification for the operations of the GHG Emissions Trading System(Ministry of Climate, Energy and Environment, partially amended in October 2025)
Emissions Trading	• Regulations for the Additional allocation of emission permits for auctions and market stabilization measures(Ministry of Climate, Energy and Environment, partially amended in November 2025) • Notification on GHG emission permits trading(Ministry of Climate, Energy and Environment, partially amended in October 2025) • Notification on Qualifications and evaluation standards for an emission permits exchange(Ministry of Climate, Energy and Environment, partially amended in October 2025) • Notification on the Supervision of an emission permits exchange(Ministry of Climate, Energy and Environment, partially amended in November 2025) • Notification on the Designation and operations of market makers in the emission permits trading market(Ministry of Climate, Energy and Environment, partially amended in October 2025) • Notification on Emissions trade brokerage companies (Ministry of Climate, Energy and Environment, partially amended in October 2025)
Offset mechanisms	• Guidelines for the Feasibility Assessment of Offset Projects and the Certification of Reductions(Ministry of Environment, partially amended in November 2023)

1.2. Operating Process for the K-ETS

Covered entities that receive allocated emission allowances in accordance with the allocation plans must prepare a GHG Emissions and Energy Usage Report (hereafter "emissions report") by compiling their GHG emission activities undertaken during the relevant compliance year (1 January–31 December). This report must be verified by an external verification institution and submitted to the government together with a verification report from the verification institution. The government then evaluates the amount of GHG emissions specified in the report and certifies the emissions.

Covered entities must surrender their emission permits to the government in an amount equivalent to the amount of certified emissions within eight months from the date of completion of each compliance year. In the event the amount of emission permits held by a covered entity is insufficient, the covered entity may, before surrendering its emission permits, make up for the deficit by purchasing emission permits from the market or by using carried-over or borrowed emission permits, while, if the amount of emission permits exceeds the amount of certified emissions, they can sell the surplus. Covered entities from sub-sectors eligible for auctions can also participate in auctions. The law-based operating schedule for the K-ETS is presented in 〈Figure I-1〉.[5)]

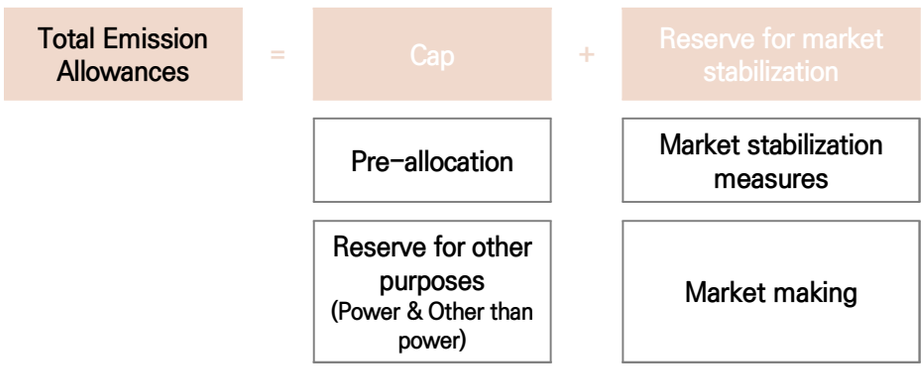
〈Figure Ⅰ-1〉 Schedule for the K-ETS

5) The amount of certified emissions, which serves as the basis for determining the amount of emission permits to be surrendered, is assessed for each compliance year (1 Jan.-31 Dec.). However, emission permits for free allocation are registered to the relevant entity's account before the commencement of a compliance year, and these emission permits can be traded from the date of registration until the date of surrender (exchange trading is possible after the listing of tradable permits on the KRX).

2 Operation of the K-ETS

2.1 Cap

The cap is the total amount of GHG emissions that all covered entities are allowed to emit during a phase, and this is managed by the K-ETS as the emissions target. In addition to the cap, a separate reserve is established, and the sum of the two is the Total Emission Allowances. The reserve is divided according to three purposes: (i) market stabilization measures, (ii) market-making and liquidity management, and (iii) other purposes (power and those other than power).[6] The reserve for market stabilization measures and the reserve for market-making and liquidity management operate separately from the cap, whereas the reserve for other purposes is included in the cap.



〈Figure Ⅰ-2〉 Concept of Total Emission Allowances

The cap is established based on the Basic Roadmap for Achieving 2030 National GHG Reduction Targets as provided under Article 5(1) of the Act. The method of calculation used to establish the cap for Phase III is illustrated in 〈Figure I-3〉.

Step 1	Calculate the average sectoral GHG reduction targets (based on the Roadmap for the Updated NDC (2023)) for Phase III (2021-2025)
Step 2	Calculate the sectoral emissions coverage from the ETS* for the base years (2017-2019) * ETS emissions coverage (2017-2019) = average emissions of the covered entities (2017-2019) / average national emissions (2017-2019)
Step 3	Calculate the sectoral ETS cap* for Phase III (2021-2025) * Sectoral ETS cap (2021-2025) = average sectoral reduction targets (2021-2025) × ETS emissions coverage (2017-2019)
Step 4	Calculate the overall ETS cap for Phase III (2021-2025) (i.e., summing the cap for each sector)

〈Figure Ⅰ-3〉 Calculation for the Cap for Phase III

6) Taking into consideration of factors such as the scale of GHG emissions and differences in the application criteria for the additional allocation of emission permits, the reserve allocated to other purposes is divided into those related to power and those that are non-power-related.

〈Table Ⅰ-4〉 Total Emission Allowances for Phase III

(Unit : Mt)

Type			2021	2022	2023	2024	2025	Total amount
Total emissions allowances			-	-	-	-	-	3,044.3
Reserve	Market stabilization measures[1]		-	-	-	-	-	14.0
	Market making[2]		-	-	-	-	-	20.0
	Other purposes[3]	Power	-	-	-	-	-	68.3
		Other than power	-	-	-	-	-	63.6
Pre-allocation			584.5	584.5	584.5	562.5	562.5	2,878.4
Power sector[4]	Power in general		210.2	210.2	210.2	193.4	193.4	1,017.4
	Other power-related		5.0	5.0	5.0	4.7	4.7	24.6
	Integrated energy supply (Industrial)		14.9	14.9	14.9	14.3	14.3	73.3
Industry sector			328.5	328.5	328.5	325.4	325.4	1,636.3
Buildings sector			4.8	4.8	4.8	4.7	4.7	23.7
Transport sector			8.3	8.3	8.3	8.0	8.0	41.0
Waste sector			12.0	12.0	12.0	11.3	11.3	58.5
Public services/Other sectors			0.77	0.77	0.77	0.74	0.74	3.8

1) This reserve is utilized for the additional allocation of emission permits for the stabilization of prices, etc., in case of the following abnormalities in the emissions trading market (Art. 18, subpara. 3 and Art. 23(1) of the Act; Art. 38 of the Enforcement Decree):
- If the price of emission permits is, for six consecutive months, at least three times higher than the average price for the immediately preceding two years;
- If the average trading volume in the previous month is at least twice as high as the monthly average trading volume in the same month in the immediately preceding two years, and the average emission permit price in the previous month is at least twice as high as the average price in the immediately preceding two years;
- If the average price of emission permits in the previous month does not exceed 70% of the average price in the immediately preceding two years;
- If the trading of emission permits between covered entities is impracticable because the supply of emission permits tradable in the market is significantly short of the amount demanded due to reasons such as covered entities' not trading emission permits in their possession.

2) This reserve is utilized by market makers, such as public financial institutions, to revitalize the emissions trading market (Art. 18, subpara. 2 and Art. 22-2 of the Act).

3) This reserve is utilized for the additional allocation of emission permits in the case of increased GHG emissions due to the opening of new business establishments, the establishment or expansion of facilities within a business establishment, a covered entity's compliance with its obligations under other laws,* or the covered entity's engagement in activities contributing to the achievement of the NDC** (Art. 16(1) of the Act); for the allocation of emission permits to new entrants that are newly designated as covered entities during a phase (Art. 30, subpara. 1 of the Enforcement Decree); and for the processing of objections to pre-allocation, additional allocation, and the revocation of emission permits (Art. 18, subpara. 4 of the Act).
*Constrained-on generation under Article 45(2) of the Electric Utility Act, observance of the obligation to supply integrated energy under Article 16(1) of the Integrated Energy Supply Act, additional flight operations to observe the flight technology standards under Article 77 of the Aviation Safety Act, and facility construction to comply with stronger effluent water quality standards under Article 7 of the Sewerage Act.
**Observance of measures implemented for the expansion of public transportation and transport of large and heavy cargo, and the use of combustible waste instead of fossil fuel.

4) In principle, the cap is established for each sector but, in the power sector, sub-sector-specific (power in general, other power-related, and integrated energy supply(industrial)) caps were established as an exception for some sub-sectors/entities/business establishments* with different GHG emission characteristics.
*Entities belonging to the "electric power generation, transmission, and distribution" (KSIC Code: 351) that mainly use hydropower or nuclear power for power generation, or whose main business is power transmission/substation/distribution, or natural gas terminals; entities belonging to the "manufacture of gas and distribution of gaseous fuel through the mains" (KSIC Code: 352); and entities engaged in integrated energy supply (industrial/residential) belonging to the "steam, chilled, or hot water and air conditioning supply" (KSIC Code: 353).

* Source : Amended Allocation Plan for Phase III (2021-2025) (Ministry of Climate, Energy and Environment, November 2025)

With the finalization of the First National Master Plan for Carbon Neutrality and Green Growth (April 2023), which contains the sectoral and annual emissions reduction roadmap aimed at achieving the updated NDC, the government reviewed measures to adjust the cap so that it aligns with the updated NDC and the roadmap. According to the new reduction roadmap, the required adjustment amount for the cap was 12.7 Mt and, because there was a surplus in the reserve for other purposes, the government decided to use the reserve to adjust the cap and ensure its consistency with the updated NDC, which was subsequently reflected in Amended Allocation Plan in December 2024.

Following the recalculation of national greenhouse gas emissions statistics for the power sector due to the correction of energy statistics, the government reviewed the impact on the cap resulting from changes in the power sector's emission statistics for the base years (2017–2019) of the Phase Ⅲ. The required adjustment amount for the cap due to the energy statistics correction was 25.2 Mt, and the government amended and announced the Allocation Plan in November 2025 to reflect this adjustment..

3 Emissions Trading Systems in Other Countries

3.1. Operation of Emissions Trading Systems in Major Countries[7)]

Carbon pricing, a policy instrument used to reduce GHG emissions in response to climate change, is based on a "polluter pays" principle in which emitters are required to bear the cost of their GHG emissions. Representative examples of carbon pricing schemes include carbon tax schemes, under which GHG emitters are required to pay tax for each unit of GHGs they produce, and emissions trading systems, under which GHG emitters are required to surrender emission permits equivalent to the amount of GHGs they emit.

Carbon taxes are implemented in 43 countries and regions/states, including Japan, South Africa, Mexico, and Canada, and emissions trading systems are implemented in 37 countries and regions/ states, including the EU, China, California (U.S.), and Tokyo (Japan). Some countries, such as Canada and Mexico, simultaneously implement both carbon taxes and emissions trading systems. Approximately 23% of global GHG emissions are currently regulated under carbon pricing mechanisms. The number of participating jurisdictions continues to grow, with Taiwan and Mexico's Durango State introducing carbon pricing schemes in 2024. In 2023, Indonesia, Washington State (U.S.), and Australia introduced emissions trading systems, although no new jurisdictions adopted this type of scheme in 2024.[8)]

The EU Emissions Trading System (EU ETS), the first emissions trading system in the world, was launched in 2005 and is now in its fourth trading phase (2021–2030). The EU ETS is an international emissions trading market that involves 27 member states and Iceland, Liechtenstein, Norway, and Northern Ireland (for power generation). In 2021, it managed approximately 38% of the EU's overall emissions (equivalent to 1,335 Mt out of 3,522.1 Mt, based on the member states). Emissions from maritime transport have been incorporated into the coverage of the EU ETS since 2024. The GHGs covered are carbon dioxide (CO_2), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

In 2022, the EU announced a comprehensive reform plan for the ETS that included raising emission reduction targets, reducing the annual cap, raising the linear reduction factor (LRF), and expanding the scope of regulated sectors.[9)] Reflecting this reform, the annual cap for installations for 2024, which was published in July 2023, was approximately 1,386 Mt, which included 78.4 Mt newly added for the maritime

7) Written based on the "Emissions Trading Worldwide: Status Report 2025" published by the International Carbon Action Partnership (ICAP) as the primary source.
8) Source: World Bank (carbonpricingdashboard.worldbank.org/about#download-data, accessed on 12 Nov. 2025).
9) Source: European Parliament. "Climate change: Deal on a more ambitious Emissions Trading System (ETS)," European Parliament Press release, https://www.europarl.europa.eu/news/en/press-room/20221212IPR64527(accessed on 20 Nov. 2025).

transport sector. The overall cap is scheduled to be reduced annually, with the LRF set at 4.3% per year for the period 2024 to 2027, relative to the average annual volume of allowances issued during the second trading phase. In addition, the annual cap for the aviation sector is approximately 28.9 Mt, which will also be reduced annually by employing the same LRF that is applied to installations.[10)]

In the U.S., regional emissions trading programs are currently in operation in California and Washington State and under the Regional Greenhouse Gas Initiative (RGGI).[11)] In the case of Massachusetts, entities are required to comply with both the state and RGGI programs. As of 2022, the California program, the largest emissions trading program in the U.S., covered approximately 76% (281.6 Mt) of the state's GHG emissions (371.1 Mt). Under the program, facilities in the power, industry, transport, and buildings sectors with annual emissions of at least 25,000 t are regulated, and the covered entities are required to calculate and report their emissions of the seven major GHGs (CO_2, N_2O, CH_4, SF_6, HFCs, PFCs, and NF_3) and other fluorinated GHGs.

In Canada, carbon pricing has been in effect in all provinces since 2019. Each province may choose to implement either the federal carbon pricing system or its own carbon pricing system, such as an emissions trading scheme, provided that it meets federal standards. As of 2022, the Quebec program regulated approximately 76% of the province's GHG emissions. Under the program, facilities with annual emissions of more than 25,000 t or fuel distributors that distribute at least 200 L of fuel are regulated, and the covered entities are required to calculate and report their emissions of the seven major GHGs.

China's national emissions trading system, which was launched in July 2021, covers approximately 60% of the country's total GHG emissions (estimated at around 15.2 billion t as of 2024[12)]). In 2024, China introduced an offset scheme and published new regulations for its emissions trading system. The system regulates business establishments from the power sector with annual emissions of at least 26,000 t, and the covered entities are required to calculate and report their emissions of only CO_2. In 2025, China expanded the scope of the covered industry sector to include steel, cement, and aluminum. Beginning in 2027, China's emissions trading system is scheduled to adopt a top-down approach to setting the overall emissions cap as a replacement for the current bottom-up approach. In addition to the national system, pilot emissions trading schemes are being implemented in eight regional jurisdictions (Shenzhen, Shanghai, Beijing, Guangdong, Tianjin, Hubei, Chongqing, and Fujian).

10) Source: ICAP, "Emissions Trading Worldwide: Status Report 2025."

11) Launched in 2009, the RGGI is the first mandatory emissions trading system in the U.S. and involves the participation of 11 northeastern states, including Massachusetts, New York, and Virginia.

12) Source: Climate Action Tracker (https://www.climateactiontracker.org/countries/china, accessed on 27 Nov. 2025).

In Japan, regional emissions trading programs have been in operation since 2011 in areas such as Tokyo and Saitama Prefecture. Beginning in 2023, Japan introduced a national emissions trading system premised on voluntary participation. A mandatory nationwide emissions trading scheme requiring corporate participation is scheduled to take effect in 2026. In addition, in 2023, Japan enacted the Green Transformation (GX) Promotion Act, which aims to facilitate the country's transition from a fossil fuel–based to a clean energy–based economic and industrial structure. Based on this legislation, Japan adopted the GX Promotion Strategy, announcing its intention to secure a stable energy supply, implement a growth-oriented carbon pricing system, and mobilize financial resources through the carbon pricing system. To this end, Japan has outlined an implementation plan, including a pilot introduction of a regulatory emissions trading system in 2026, the allocation of emission allowances and the subsequent commencement of market trading in 2027, the introduction of a fossil fuel levy (GX surcharge) in 2028, and the implementation of auctions for the power sector in 2033.

Australia has undertaken substantial reform of its existing GHG management framework, the Safeguard Mechanism, transforming it into a system that operates as an emissions trading system in practice in July 2023. The Safeguard Mechanism applies to approximately 219 large facilities in sectors such as power, mining, and manufacturing, with annual emissions of at least 100,000 t of GHGs. Emissions from these facilities account for approximately 29% of Australia's total GHG emissions. Under the mechanism, each covered facility is assigned an annual emissions limit (baseline), which is subject to a linear reduction trajectory, declining by an average of 4.9% per year through 2030. Facilities that emit below their designated baseline are issued Safeguard Mechanism Credits (SMCs), which they may sell. Conversely, facilities that emit above their baseline must either purchase SMCs on the market or purchase and surrender Australian Carbon Credit Units(ACCUs) to meet their compliance obligations. To mitigate the risk of an excessive economic burden on covered facilities, the government has introduced a price ceiling mechanism; starting at 75 dollars per ton in 2023–2024, the price cap is annually adjusted in line with the Consumer Price Index(CPI). The Australian government plans to conduct a comprehensive review of the mechanism's operation in 2026–2027 to assess its effectiveness in reducing GHG emissions and its impact on industrial competitiveness.

〈Table Ⅰ-5〉 Emissions Trading Systems in Major Foreign Countries

Countries		EU	U.S.	Canada	China	Japan	Australia
Covered Regions		27 EU member states, Iceland, Liechtenstein, Norway, and Northern Ireland (for power generation)	California (CA) under WCI, Washington State (WA), and 11 states under RGGI	Quebec (QB) under WCI and other provinces including Alberta (AL), British Columbia (BC), and Ontario	Entire country	Saitama Prefecture and Tokyo	Entire country
Phase		Phase 4: 2021-2030	〈CA〉 Phase 5: 2024-2026 〈WA〉 Phase 1: 2023-2026 〈RGGI〉 Phase 6: 2024-2026	〈QB〉 Phase 5: 2024-2026	No specific phases planned	Phase 4: 2025-2029	2024-2025 (relaunched in 2023)
Cap		As of 2024, 1,386 Mt for the electricity and heat generation, industrial manufacturing, and maritime transport sectors and 27.6 Mt for the aviation sector; the cap will decrease annually by 4.3% over the period 2024-2027	〈CA〉 267.4 Mt as of 2025; the cap will decrease annually by 4% (to reach 200.5 Mt by 2030) 〈WA〉 53.8 Mt as of 2025 〈RGGI〉 69 Mt as of 2024	〈QB〉 50.3 Mt as of 2025; the cap will decrease annually by 2.2% (to reach 44.1 Mt by 2030)	China adopts a bottom-up approach under which the cap may be adjusted according to actual production levels (estimated cap for 2024 was 8,000 Mt)	〈Saitama Prefecture〉 6.3 Mt as of 2022 〈Tokyo〉 12.2 Mt as of 2024	138.70 Mt as of 2024; the cap will decrease annually by 4.9% (to reach 101.9 Mt by 2030)
Coverage	Sectors	Power, industry, aviation, maritime transport	〈WCI〉 Power (including fuel supply), industry, transport, buildings 〈RGGI〉 Power	〈QB〉 Power (including fuel supply), industry, transport, buildings	Power, industry (steel, cement, aluminum)	Industry, buildings	Mining, oil and gas, aviation, industry, waste, transport
	Gases	CO_2, N_2O, PFCs, HFCs	〈WCI〉 CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, NF_3, and other fluorinated GHGs 〈RGGI〉 CO_2	〈QB〉 CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, NF_3	CO_2, SF_6, PFCs	CO_2	CO_2, CH_4, N_2O, SF_6, HFCs, PFCs
	Threshold	Power, manufacturing, maritime transport, aviation *Specific thresholds vary according to the type of emission activity	〈WCI〉 Facilities with annual emissions of at least 25,000 t 〈RGGI〉 Fossil-fuel-fired power generators with a capacity of 25 MW or greater	〈QB〉 Facilities with annual emissions of more than 25,000 t or fuel distributors that distribute at least 200 L of fuel	Business establishments with annual emissions of at least 26,000 t	〈Saitama Prefecture〉 Facilities with annual energy consumption of at least 1,500 kL 〈Tokyo〉 Facilities with annual energy consumption of at least 1,500 kL	Facilities with annual emissions of at least 100,000 t
Allocation Methods		Sector-by-sector application of free allocation and auction (57% of allowances subject to auction)	〈WCI〉 Benchmarking-based free allocation, free allocation with consignment, auction 〈RGGI〉 Auction	〈QB〉 Sector-by-sector application of free allocation and auction(59% of allowances/ reserve were auctioned in 2024)	Benchmarking and grandfathering-based free allocation, auction	Benchmarking and grandfathering-based free allocation	Australian Carbon Credit Unit (ACCU) and Safeguard Mechanism Credit (SMC) mechanisms in operation
Flexibility Mechani-sms		Banking allowed, borrowing and use of offset credits not allowed	〈CA〉 Banking allowed, borrowing not allowed, use of offset credits permitted (up to 6% during 2026-2030) 〈RGGI〉 Banking allowed, borrowing not allowed, use of offset credits permitted (up to 3.3%)	〈QB〉 Banking allowed, borrowing not allowed, use of offset credits permitted (up to 8% as of 2025)	Use of offset credits permitted (up to 5%); rules on banking and borrowing have not been established	Banking allowed, borrowing not allowed, use of offset credits permitted	Banking allowed, borrowing not allowed, use of offset credits permitted
Average Carbon Prices (2024)		Auction: $82.38	〈CA〉 Auction: $35.21 〈RGGI〉 Auction: $18.06	〈QB〉 Auction: $35.21	$13.1	〈Tokyo〉 $3.96	$23.22 (Q1-Q3)

* Sources: Emissions Trading Worldwide: Status Report 2025 (International Carbon Action Partnership, 2025)
RGGI: (https://www.rggi.org/program-overview-and-design/elements, accessed on 12 Nov. 2025)
EU: EEX EUA Primary Market Auction Report 2025
China: materials from the Forum of Carbon Pricing Mechanism in China, Japan, and Korea
Japan: Saitama Emissions Trading Scheme (ETS) (IETA, 2025)
Japan: (icapcarbonaction.com.en/compare/84/51/43, accessed on 12 Nov. 2025)
Australia: (cer.gov.au/schemes/safeguard-mechanism, accessed on 12 Nov. 2025)
Australia: Quarterly Carbon Market Report Q1-Q3 (Clean Energy Regulator, 2025)

3.2. Trading Records for Emissions Trading Systems in Other Countries

Under the EU ETS, the world's largest carbon market in terms of trading volume, EU Allowances (EUAs) and EU Aviation Allowances (EUAAs) are traded through spot, futures, and OTC trading and through auctions. Of these, futures trading of EUAs accounts for most transactions. The average trading price for EUAs fell below 60 euros at the end of February 2022 due to Russia's invasion of Ukraine but subsequently increased in response to the rise in natural gas prices due to the effects of the war. In February 2023, the price of EUA futures surpassed 100 euros amid a sharp rise in energy prices. It gradually declined thereafter to below 60 euros by the fourth quarter of 2024, before stabilizing at around 70 euros during the third quarter of 2025.

In California, U.S., prices for emission allowances have been on the rise since 2023, reaching approximately 41.80 dollars in the first quarter of 2024. Allowance prices under the RGGI have also continued to increase, reaching the 25-dollar range in the third quarter of 2024. In China, trading is limited to the spot market. While prices initially hovered between 50 and 60 yuan, they began to rise steadily from the third quarter of 2023 and surpassed 95 yuan in the fourth quarter of 2024. Subsequently, prices declined to the mid-60 yuan range in the third quarter of 2025.

〈Table Ⅰ-6〉 Emissions Trading Records for Major Countries[1)]

(Unit for trading volume: Mt)

Category		'24 Q1	'24 Q2	'24 Q3	'24 Q4	'25 Q1	'25 Q2	'25 Q3
EU[2)]	Trading Volume	284.4	328.6	234.9	217.0	204.7	203.2	212.8
	Average Price (€)	58.9	67.9	67.7	58.2	74.0	69.2	72.4
		95,416 won	109,930 won	109,586 won	94,269 won	119,876 won	112,004 won	117,285 won
California[3)], U.S.	Trading Volume	58.4	58.8	58.4	59.8	58.3	57.9	58.7
	Average Price ($)	41.76	37.02	30.24	31.91	29.27	25.87	28.76
		57,849 won	51,283 won	41,891 won	44,204 won	40,547 won	35,837 won	39,841 won
RGGI[4)], U.S.	Trading Volume	24.3	16.1	15.9	15.9	15.4	15.2	15.2
	Average Price ($)	16.0	21.0	25.8	20.1	30.2	19.6	22.3
		22,164 won	29,132 won	35,671 won	27,775 won	41,840 won	27,193 won	30,822 won
China[5)]	Trading Volume	8.6	13.4	17.2	149.4	6.0	30.1	59.4
	Average Price (元)	78.1	93.2	92.0	95.5	86.2	73.0	65.6
		15,125 won	18,037 won	17,797 won	18,487 won	16,678 won	14,134 won	12,693 won

1) Values in Korean won were calculated by applying the average exchange rates for the third quarter of 2025 as published by the Bank of Korea: 1,619.25 per euro, 1,385.28 won per U.S. dollar(base rate), and 193.54 won per Chinese yuan(base rate).
Source: Economic Statistics System(ECOS), Bank of Korea (https://ecos.bok.or.kr, accessed on 1 Nov. 2025)

2) Trading volumes and average prices are based on spot and futures trading and auctions of EUAs conducted on the European Energy Exchange(EEX). Actual aggregate trading volumes and average prices may therefore differ.
Source: European Energy Exchange(EEX) (as of 1 Nov. 2025)

3) Trading volumes and average prices are based on emission permits awarded through auctions conducted on the Western Climate Initiative(WCI) auction platform. Actual aggregate trading volumes and average prices may therefore differ.
Source: Western Climate Initiative(WCI) auction platform (as of 1 Nov. 2025)

4) Trading volumes and average prices are based on emission allowances auctioned under the RGGI. Actual aggregate trading volumes and average prices may therefore differ.
Source: RGGI website(www.rggi.org, accessed on 1 Nov. 2025)

5) Source: Tianjin Climate Exchange(www.chinatcx.com.cn, accessed on 1 Nov. 2025)

II

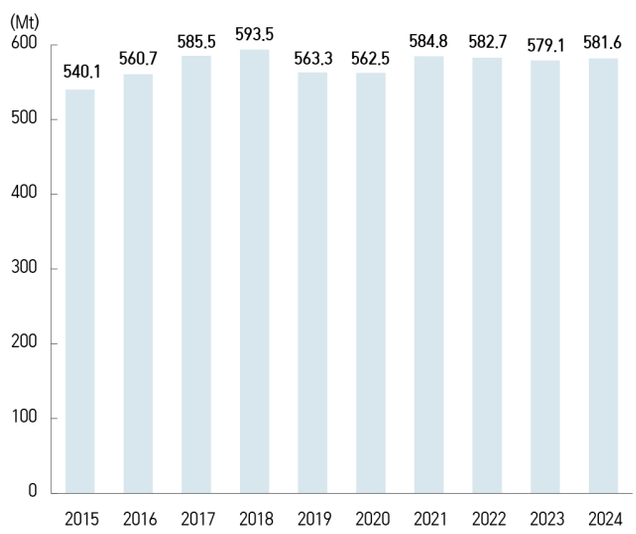
K-ETS Operational Results

1. Allocation of Emission Permits
2. Certification and Surrender of Emissions Permits

1 Allocation of Emission Permits

When entities designated as covered entities submit their allocation application to the government four months prior to the commencement of a phase, the government issues a notification of the allocated amount, which is referred to as the pre-allocation amount. From 2021, with the commencement of Phase III, the share of allowances allocated through actioning was raised, with 10% of the total allocation for covered entities that are eligible for auctions deducted and set aside for purchase through auctions in the emissions trading market.

In the 2024 compliance year, the emission permits set for pre-allocation amounted to 544.1 Mt, while the final allocation amount, which reflected a number of changes that occurred during the compliance year (e.g., additional allocation, allocation revocation, and the succession of rights and obligations), was 581.6 Mt (780 entities). In 2021, which was the first compliance year of Phase III, the final allocation amount increased by 4.0% compared to the previous year due to the expansion of covered entities and emission activities subject to management under the K-ETS. The final allocation amount for the 2022 compliance year decreased by 0.4% compared to the previous year due to an increase in the amount of emission permits whose allocation was revoked, which led to a decrease in the amount of allocation changes. The final allocation for the 2023 compliance year decreased by 0.6% compared to the previous year, which was due to a reduction in the total volume of valid bids, which in turn led to a decrease in allocation changes after the pre-allocation of emission allowances. The final allocation for the 2024 compliance year increased by 0.4% year-over-year. This increase was driven by a 168.7% rise in new entry allocation and an 18.1% growth in additional allocation compared to the previous year.



〈Figure Ⅱ-1〉 Final Allocation by Compliance Year

〈Table Ⅱ-1〉 Final Allocation and Entities by Compliance Year

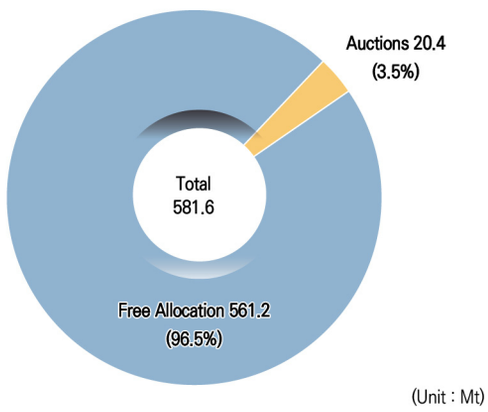
(Unit : Mt)

Phase	Year	Final allocation	Annual change	Entities
I	2015	540.1	-	522
	2016	560.7	3.8%	564
	2017	585.5	4.4%	592
II	2018	593.5	1.4%	587
	2019	563.3	-5.1%	611
	2020	562.5	-0.2%	637
III	2021	584.8	4.0%	687
	2022	582.7	-0.4%	714
	2023	579.1	-0.6%	735
	2024	581.6	0.4%	780

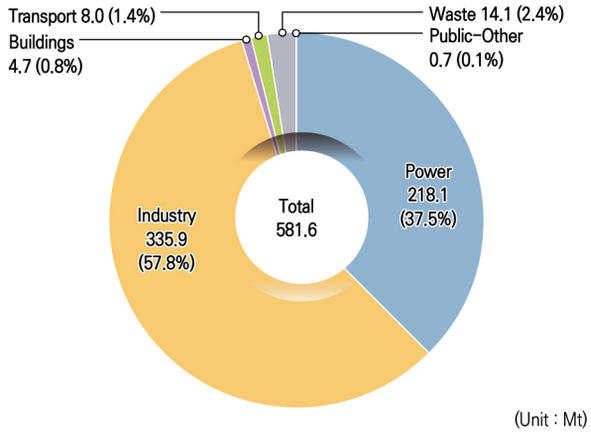
* (Source) ETRS Database (as of Sep. 2025)

For the 2024 compliance year, 544.1 Mt of emission allowances were originally pre-allocated to 684 entities, but the number of entities increased to 780 due to new entries and the succession of rights and obligations between existing covered entities (some businesses that took over the rights and obligations of existing covered entities as a result of, for example, the splitting of covered entities, were newly designated as covered entities). Broken down by sector, the final allocation was 335.9 Mt for industry (57.8%), 218.1 Mt for power (37.5%), 14.1 Mt for waste (2.4%), 8.0 Mt for transport (1.4%), 4.7 Mt for buildings (0.8%), and 0.7 Mt for public services/other (0.1%).

The difference between the final allocation and pre-allocation amount was higher for the waste sectors (25.1%) than for other sectors (11.7% for power, 10.2% for buildings, 3.9% for transport, 3.4% for industry, and 0.8% for public services/other).



〈Figure Ⅱ-2〉 Free Allocation and Auctions in the 2024 Compliance Year



〈Figure Ⅱ-3〉 Final Allocation by Sector in the 2024 Compliance Year

〈Table Ⅱ-2〉 Difference between Pre-allocation and Final Allocation for the 2024 Compliance Year

(Unit : Mt)

Sector	Pre-allocation	Final allocation	Change
Total	544.1	581.6	6.9%
Power	195.3	218.1	11.7%
Industry	324.8	335.9	3.4%
Buildings	4.3	4.7	10.2%
Transport	7.7	8.0	3.9%
Waste	11.3	14.1	25.1%
Public/Other	0.668	0.674	0.8%

1.1. Designation of Covered Entities

According to Article 8 of the Act, entities whose annual average amount of GHG emissions produced during the immediately preceding three years is no less than 125,000 tCO_2eq or entities with at least one business establishment whose annual average amount of GHG emissions produced during the immediately preceding three years is no less than 25,000 tCO_2eq are designated as covered entities. The number of covered entities for Phases I–III is presented in 〈Table II-3〉.

The government must, pursuant to Article 8 of the Act, designate covered entities no later than five months prior to the commencement of each phase. In addition, the government designates entities that fall under the application of Article 8 during a phase as a result of the establishment, alteration, or expansion of their facilities as "new entrants," evaluates their application for emission permit allocation, and notifies them of their pre-allocated amount.

The number of covered entities for each phase or compliance year may change when new covered entities are designated or designations are canceled following new entries, allocation revocation, or the succession of rights and obligations. In the 2024 compliance year, the number of entities subject to the pre-allocation of emission permits was 684, while the number of covered entities subject to final allocation was 780.

〈Table Ⅱ-3〉 Number of Covered Entities under the K-ETS

(Unit : entities)

Phase	Compliance year	Pre-allocation	New entry	Additional allocation	Allocation revocation	Succession of Rights and Obligations		Re-allocation[1]	Free allocation	Auction[2]	Final allocation	Certified emissions[3]
						Transfer	Acquisition					
I	2015	525	-	63	211	23	24	-	522	-	522	522
	2016	525	44	161	249	35	36	-	564	-	564	560
	2017	525	78	337	269	56	54	434	592	-	592	591
II	2018	591	-	242	224	17	19	-	587	116	587	586
	2019	587	18	266	250	39	46	-	611	125	611	610
	2020	604	21	232	300	64	72	-	637	136	637	636
III	2021	684	-	220	166	33	34	-	687	192	687	687
	2022	684	22	254	225	52	54	-	714	204	714	713
	2023	684	45	282	254	79	86	-	735	257	735	733
	2024	684	88	301	292	91	106	-	780	260	780	776

1) Considering the reduction targets for 2030 and the means of reduction presented in the Basic Roadmap for Achieving 2030 National GHG Reduction Targets established in December 2016, the total emissions allowances were recalculated and reallocated for the 2017 compliance year
(Source: the draft amendment to the Allocation Plan for the Third Compliance Year of Phase Ⅰ (January 2017))
2) Number of covered entities from sub-sectors eligible for auctions
3) Number of entities holding the obligation to surrender emission permits, excluding entities that merged due to the transfer of rights and obligations

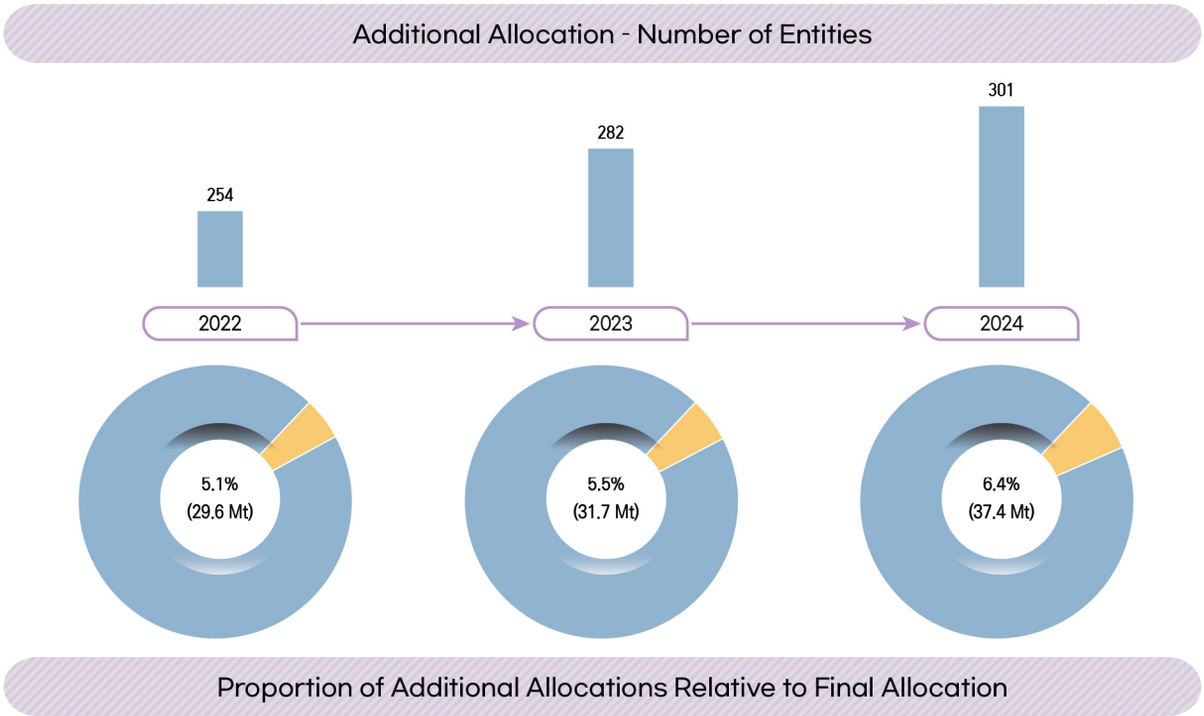
1.2. Additional Allocation

According to Article 16 of the Act, in the event that the amount of GHG emissions increases in a compliance year for reasons such as the opening of a business establishment or the establishment or expansion of facilities within a business establishment, or in the event the amount of GHG emissions of a covered entity increases due to the covered entity's compliance with obligations under other laws or engagement in activities contributing to the achievement of national GHG reduction targets during a phase, the government may additionally allocate emission allowances to the covered entity.

In the 2024 compliance year, additional allocation amounting to 37.4 Mt was approved for 301 covered entities. Over the past three years, the proportion of additional allocation in relation to the final allocation has increased (〈Figure II-4〉). In the 2021 compliance year, the proportion was approximately 3.0%. It increased by 2.0%p in the 2022 compliance year, 0.4%p in the 2023 compliance year and 1.0%p in the 2024 compliance year compared to the previous years. The two main reasons for this increase in additional allocation appear to be (i) the significant increase in additional allocation within the power and industry sectors compared to the previous year, which was driven by factors such as constrained-on generation, the construction and expansion of facilities, and obligations for community energy supply, and (ii) the expansion of additional allocation for high GHG efficiency facilities following the adoption of the improvement plan for the K-ETS (November 2022).[13)]

The reasons for the covered entities applying for additional allocation were similar to those given in other compliance years, which included the expansion of facilities (69.0%), the establishment of new facilities (27.1%), an increase in the amount of constrained-on generation due to the unexpected operation of the power system (1.7%), the use of combustible waste (1.3%), and observance of the obligation to supply integrated energy (0.9%). Other reasons included additional flight operations to ensure aviation safety, construction to improve public sewage treatment facilities, and expansion of public transportation services.

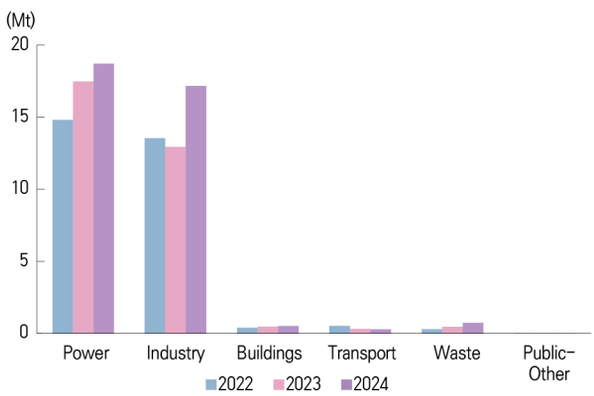
13) Emissions increased because of an increase in additional allocation for covered entities that have improved their emission efficiency by building or expanding more efficient facilities emitting less GHGs (with the best available techniques, top 10% in emission efficiency) or replacing old equipment.



〈Figure Ⅱ-4〉 Additional Allocation and the Number of Entities Subject to Additional Allocation in the 2022-2024 Compliance Years

In the power sector, additional allocation increased by 18.1% compared to the previous year in 2023 and by a further 7.0% in 2024, with 19 entities receiving an additional allocation of 18.7 Mt of emission permits. In the industry sector, additional allocation decreased by 4.5% compared to the previous year in 2023 and decreased by 32.6% compared to the previous year in 2024, with 180 entities receiving an additional allocation of 17.2 Mt of emission permits for reasons such as the establishment or expansion of new facilities.

〈Figure Ⅱ-5, Table Ⅱ-4〉 Additional Allocation in the 2022-2024 Compliance Years by Sector



(Unit : Mt)

Sector	2022	2023	2024
Power	14.8	17.5	18.7
Industry	13.5	12.9	17.2
Buildings	0.4	0.5	0.5
Transport	0.5	0.3	0.3
Waste	0.3	0.5	0.7
Public/Other	0.004	0.004	0.006
Total	29.6	31.7	37.4

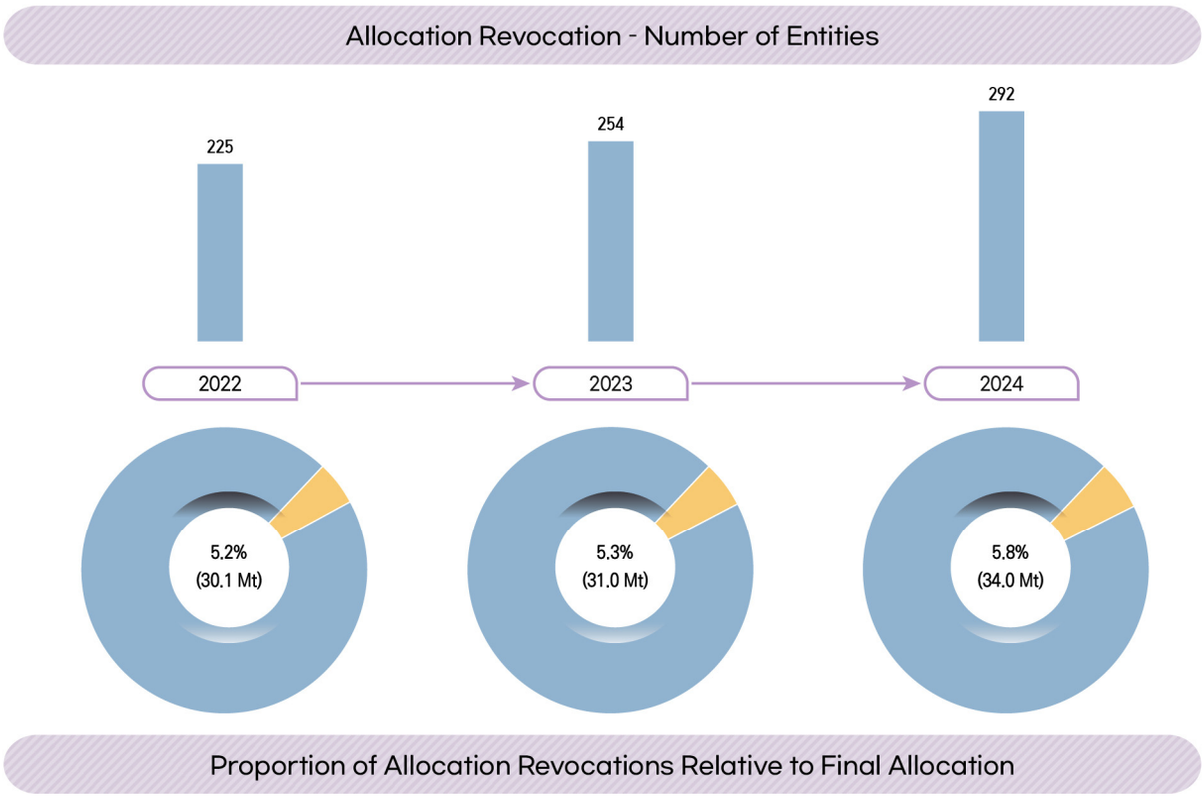
1.3. Allocation Revocation

According to Article 17 of the Act, in the event of a covered entity closing all or part of its business establishments, the amount of GHG emissions from the facilities of a covered entity's business establishment decreasing by more than a certain extent due to the suspension of their operation, or the discovery that emission allowances were applied for or allocated or additionally applied for or additionally allocated based on false information, the government may revoke all or part of the emission allowances allocated or additionally allocated free-of-charge for the covered entity.

In the 2024 compliance year, a total of 34.0 Mt of allocations was revoked for 292 entities. These revoked allocations accounted for approximately 5.8% of the final allocation and were 3.5 Mt lower than the amount additionally allocated. The most common reasons for allocation revocation were that the GHG emissions in the compliance year were less than 50% of the allocated emission allowances, and the closure of all or part of business establishments.

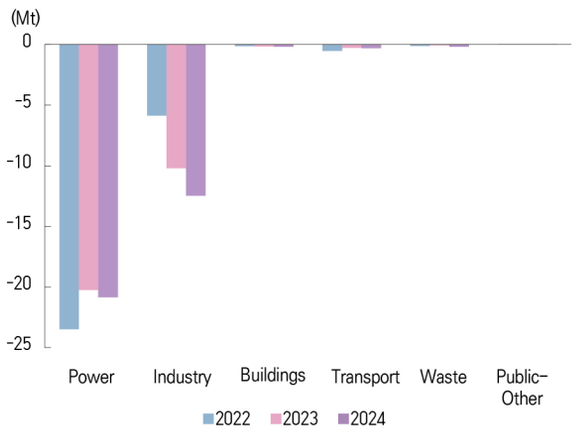
Broken down by sector, revoked emission permits amounted to 20.8 Mt for power (61.4%), 12.5 Mt for industry (36.7%), 0.3 Mt for transport (0.9%), 0.18 Mt for buildings (0.5%), 0.17 Mt for waste (0.5%), and 0.0001 Mt for public services/other (0.0%), meaning that the power and industry sectors experienced the highest allocation revocation. In the public services/other sector, 52 t of allocated emission permits were revoked for one entity.

The amount of revoked allocations for the power sector increased by 0.6 Mt (3.0%) compared to the previous year. The reasons for this increase included temporary and intermittent suspension of facility operations in business establishments. In the industry sector, the amount of revoked allocations for the entire sector increased by 2.3 Mt (22.2%) compared to the 2023 compliance year. This increase was led mainly by the petrochemicals, steel, cement and semiconductor sub-sectors.



〈Figure Ⅱ-6〉 Allocation Revocation and the Number of Entities Subject to Allocation Revocation in the 2022-2024 Compliance Years

〈Figure Ⅱ-7, Table Ⅱ-5〉 Allocation Revocation in the 2022-2024 Compliance Years by Sector



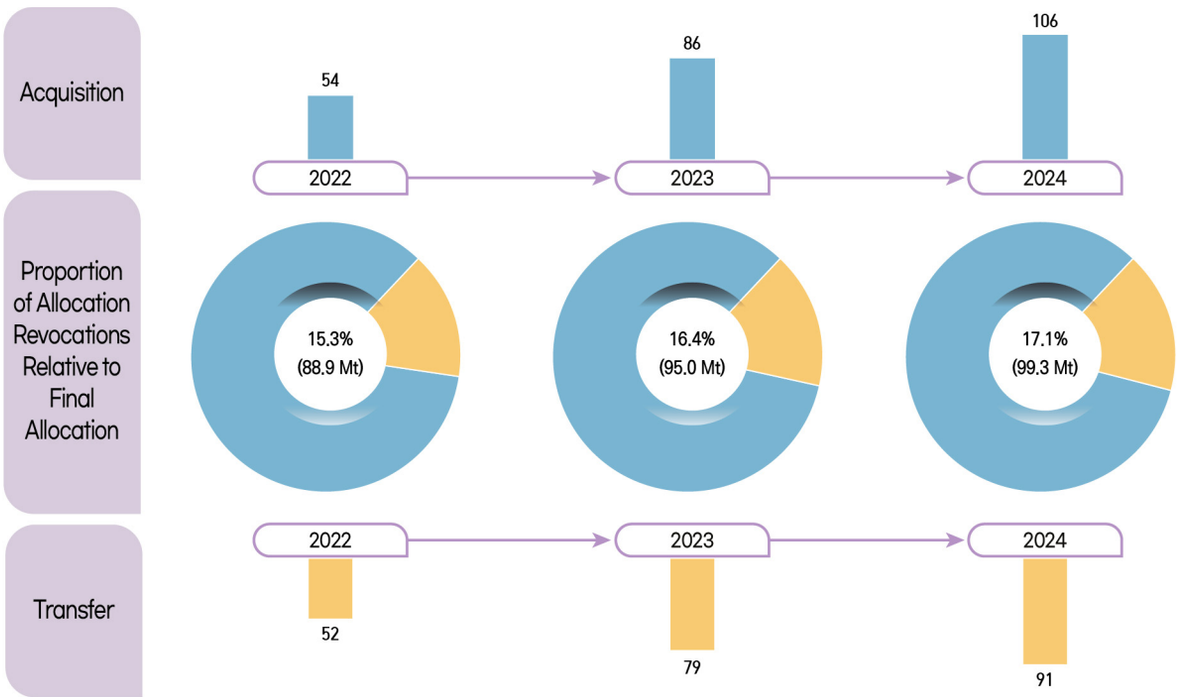
(Unit : Mt)

Sector	2022	2023	2024
Power	-23.5	-20.2	-20.8
Industry	-5.9	-10.2	-12.5
Buildings	-0.14	-0.16	-0.18
Transport	-0.5	-0.3	-0.3
Waste	-0.12	-0.06	-0.17
Public/Other	-0.0001	-0.0001	-0.0001
Total	-30.1	-31.0	-34.0

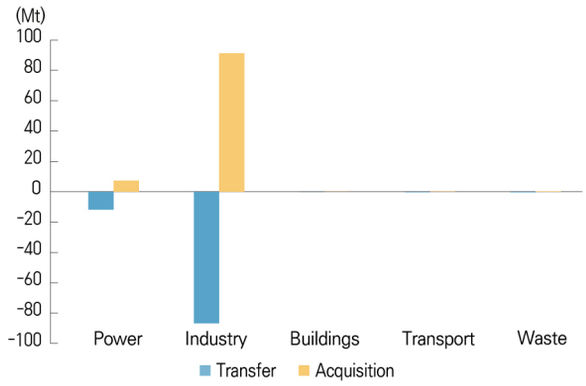
1.4. Succession of Rights and Obligations

According to Article 8-2 of the Act and Article 11 of the Enforcement Decree, in the event of a covered entity merging with another entity or splitting, transferring, or leasing part of its business establishment or facilities to another entity, the rights and obligations of the covered entity are transferred. If the entity that succeeds the rights and obligations from a covered entity is not a covered entity, it will be deemed as having been designated as one at the time the rights and obligations were handed over.

In the 2024 compliance year, a total of 91 covered entities (8 entities from the power sector, 66 entities from industry, 3 entities from buildings, 10 entities from transport, and 4 entities from waste) transferred 99.3 Mt of KAU24, and, as a result, a total of 106 covered entities (7 entities from the power sector, 77 entities from industry, 5 entities from buildings, 12 entities from transport, and 5 entities from waste) took over the rights and obligations. Emission permits transferred as a result of the succession of rights and obligations for the industry and power sectors accounted for 87.4% and 12.0%, respectively. Similar to the previous year, a vast majority of successions occurred in the industry sector, and the amount of emission permits transferred reached a record high. This was due to the transfer of a large amount of KAUs via mergers between the affiliates of covered entities and the splitting and establishment of covered entities.



〈Figure Ⅱ-8〉 Proportion of Emission Permits Transferred as a Result of the Succession of Rights and Obligations and the Number of Relevant Entities in the 2022-2024 Compliance Years



〈Figure Ⅱ-9〉 2024 Succession of Rights and Obligations by Sector

〈Table Ⅱ-6〉 2024 Succession of Rights and Obligations and the Number of Relevant Entities by Sector

(Unit : entities, Mt)

Sector	Transfer		Acquisition	
	No. of Entities	No. of Emission Permits	No. of Entities	No. of Emission Permits
Power	8	-11.9	7	7.4
Industry	66	-86.8	77	91.3
Buildings	3	-0.003	5	0.031
Transport	10	-0.2	12	0.2
Waste	4	-0.4	5	0.4
Total	91	-99.3	106	99.3

1.5. Final Allocation

1.5.1. Free Allocation

The sub-sectors subject to free allocation in Phase III were determined by categorizing them based on the groups listed under the Korea Standard Industrial Classification (KSIC) and selecting entities from these sub-sectors whose production cost incurrence rate[14] multiplied by their trade intensity[15] was no less than 0.002 (0.2%). In Phase III, 28 of 69 sub-sectors were designated as sub-sectors subject to free allocation.

The amount of free allocation is calculated by first determining the pre-allocation amount and then reflecting changes (e.g., new entries, additional allocation, allocation revocation, the succession of rights and obligations) in the allocated amount for each covered entity that occur during the relevant compliance year.

The amount of free allocation in the 2024 compliance year was 561.2 Mt, including a pre-allocation amount of 544.1 Mt and allocation changes of 17.1 Mt. Allocation changes were the result of the succession of rights and obligations (99.3 Mt, transferred by 91 entities and acquired by 106 entities), additional allocation (37.4 Mt, 301 entities), and allocation revocation (34.0 Mt, 292 entities).[16] Broken down by sector, the amount for free allocation was 335.9 Mt for industry, 197.8 Mt for power, 14.1 Mt for waste, 8.0 Mt for transport, 4.7 Mt for buildings, and 0.7 Mt for public services/other.

14) [Annual average GHG emissions from the relevant sub-sector for the base period (tCO2eq/year) × average market price for emission permits for the base period (won/tCO2eq)] / annual average value-added production volume of the relevant sub-sector for the base period (won/year).

15) [Annual average exports of the relevant sub-sector for the base period (won/year) + annual average imports of the relevant sub-sector for the base period (won/year) / [annual average sales of the relevant sub-sector for the base period (won/year) + annual average imports of the relevant sub-sector for the base period (won/year)].

16) Discrepancies may arise between the amount of allocated emission allowances and the amount of certified emissions due to subsequent occurrences such as allocation revocations resulting from administrative dispositions.

1.5.2. Auctions

In accordance with the Allocation Plan for Phase III, covered entities[17] from a total of 41 sub-sectors were categorized as covered entities subject to auctions, and 10% of the Total Emission Allowances (82.0 Mt) were deducted for these auctions. Subsequently, 48.1 Mt of emission allowances[18] were added after reflecting factors such as new entrants and additional allocations. In turn, a total of 130.0 Mt of emission allowances were transferred to the auction account[19] for Phase III. In the 2024 compliance year, as the second-step allocation was applied and the remaining preliminary allocation for the power generation sector was allocated, the volume of allowances in the auction account increased significantly.

Starting in 2024, the government revised its approach to auctioning allowances by conducting auctions on a flexible monthly basis, taking market conditions into account. Prior to each auction, the volume of allowances to be auctioned was announced through a public bidding notice. For compliance year 2024, a total of 22.3 Mt of allowances were planned for auctioning. The first auction for KAU24 took place in July 2024. A total of 9 auctions were conducted, as no auction was held in January, February and April 2025 pursuant to Article 7 of the Regulations for the Additional Allocation of Emission Permits for Auctions and Market Stabilization Measures. The bidding dates and sizes of bids are presented in 〈Table II-7〉. Emission allowances not sold at an auction may be added to the subsequent auction as remaining allowances.[20] The total amount of emission allowances auctioned in the 2024 compliance year was 20.4 Mt (12 entities), which accounted for 3.5% of the final allocation amount (581.6 Mt)[21].

17) For the 2024 compliance year, a total of 260 covered entities were selected for auctions, including 68 entities from the power sector, 143 entities from industry, 20 entities from buildings, 26 entities from transport, 1 entity from waste, and 2 entities from public services/other.

18) With respect to those covered entities belonging to the sub-sectors subject to auctions, even in the case of additional allocation, 10% of the additionally allocated emission allowances are deducted and transferred to the auction account.

19) An auction account registered in the Emissions Trading Registry in accordance with the Notification on GHG Emission Permits Trading (Ministry of Environment, partially amended in 2018) is an emissions trading account specified in Article 32 of the Enforcement Decree and is used as an intermediary account until the auctioned emission permits are transferred to the relevant entity account pursuant to Article 12(3) of the Act.

20) If the total volume of valid bids is lower than the total volume of bids made at an auction, the amount of remaining bids may be added to the subsequent auction (Art. 6 of the Regulations for the Additional Allocation of Emission Permits for Auctions and Market Stabilization Measures).

21) In terms of the revenue generated from the auctions, the total payments for emission permits, excluding transaction fees for the KRX, are returned to the government.

〈Table Ⅱ-7〉 KAU24 Auction Volume

Year	Auction Date	Bid Size[1]		Valid Bids	
		Implementation	Amount Registered	Size of Valid Bids	No. of Valid Bids
2024	10 Jul. (Wed)	1,000,000t	1,000,000t	1,000,000t	4
	14 Aug. (Wed)	1,000,000t	1,000,000t	610,000t	3
	11 Sep. (Wed)	3,500,000t	3,500,000t	3,500,000t	4
	16 Oct. (Wed)	3,500,000t	3,500,000t	3,500,000t	5
	13 Nov. (Wed)	5,000,000t	5,000,000t	5,000,000t	6
	11 Dec. (Wed)	5,000,000t	5,000,000t	3,512,300t	6
2025	12 Mar. (Wed)	1,250,000t	1,250,000t	1,250,000t	6
	14 May. (Wed)	1,000,000t	1,000,000t	1,000,000t	4
	11 Jun. (Wed)	1,000,000t	1,000,000t	1,000,000t	4
Total	9[2]	22,250,000t	22,250,000t	20,372,300t	42

1) Notice on the 2024 Auction Plan for Emission Allowances (Ministry of Environment Notice No. 2024-11, 3 January 2024), Revised Notice on the 2024 Auction Plan for Emission Allowances (Ministry of Environment Notice No. 2024-198, 14 March 2024, Ministry of Environment Notice No. 2023-284, 26 April 2023), Revised Notice on the 2024 Auction Plan for Emission Allowances (Ministry of Environment Notice No. 2024-427, 3 July 2024), Notice on the 2025 Auction Plan for Emission Allowances (Ministry of Environment Notice No. 2024-813, 27 December 2024), and Revised Notice on the 2025 Auction Plan for Emission Allowances (Ministry of Environment Notice No. 2025-456, 3 July 2025)

2) Auction adjustment pursuant to Article 7 of Regulations for the Additional allocation of emission permits for auctions and market stabilization measures (October 2025)

1.5.3. Final Allocation

Information on the sector-specific final allocation of emission allowances for the 2024 compliance year is provided in 〈Table II-8〉. The final allocation amount (581.6 Mt) consisted of 561.2 Mt of free allocation (96.5%) and 20.4 Mt of auctioned allowances (3.5%). The amount provided for free allocation included a pre-allocation amount of 544.1 Mt (97.0%) and allocation changes of 17.1 Mt (3.0%), which resulted from additional allocation, allocation revocation, and the succession of rights and obligations.

The overall rate of change between the pre-allocation and final allocation amount for all covered entities was 6.9%. Broken down by sector, the rate of change was 25.1% for waste, 11.7% for power, 10.2% for buildings, 3.9% for transport, 3.4% for industry and 0.8% for public services/other.

〈Table Ⅱ-8〉 Final Allocation by Sector for the 2024 Compliance Year

(Unit: Mt, entities)

Sector	Final allocation(E=C+D)										Change (E-A)/A
		Free allocation(C=A+B)								Auctions (D)	
			Pre-allocation (A)	Allocation changes (B)							
					New entry	Additional	Revocation	Succession of Rights & Obligations			
								Transfer	Acquisition		
Power	218.1	197.8	195.3	2.5	9.1	18.7	-20.8	-11.9	7.4	20.3	11.7%
Industry	335.9	335.9	324.8	11.1	1.9	17.2	-12.5	-86.8	91.3	0.02	3.4%
Buildings	4.7	4.7	4.3	0.4	0.03	0.5	-0.2	-0.003	0.03	0.04	10.2%
Transport	8.0	8.0	7.7	0.3	0.3	0.3	-0.3	-0.2	0.2	-	3.9%
Waste	14.1	14.1	11.3	2.8	2.3	0.7	-0.2	-0.4	0.4	-	25.1%
Public /Other	0.7	0.7	0.7	0.006	-	0.006	-0.0001	-	-	-	0.8%
Total	**581.6**	**561.2**	**544.1**	**17.1**	**13.6**	**37.4**	**-34.0**	**-99.3**	**99.3**	**20.4**	**6.9%**
Entities	780	780	684	878	88	301	292	91	106	12	14.0%

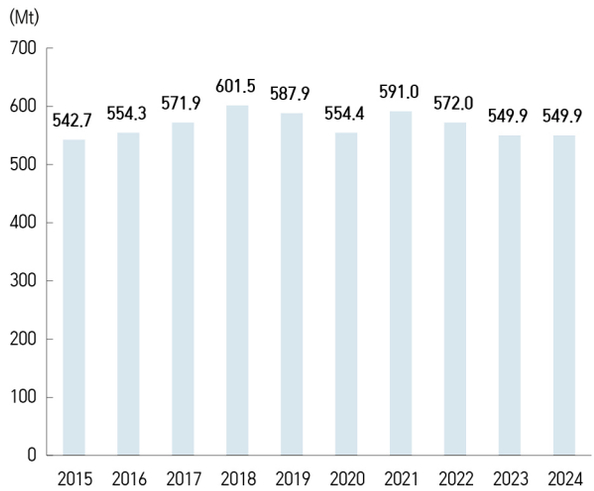
1) Pre-allocation allowances were allocated to 684 covered entities, but the number of covered entities at the time of final allocation increased to 780 due to changes (e.g., allocation revocation, succession of rights and obligations) that occurred during the compliance yea (Source: ETRS Database, as of September 2025)

2) Discrepancies may arise between the amount of allocated emission allowances and the amount of certified emissions due to the rounding of decimal places during data aggregation and subsequent occurrences such as allocation revocations resulting from administrative dispositions.

2 Certification and Surrender of Emission Permits

2.1. Certification of Emissions

According to the results of the government's verification of emissions reports submitted by 780 entities to which emission permits were finally allocated in the 2024 compliance year, the certified emissions amounted to 549.9 Mt, which was 0.004% (0.02 Mt) higher than the previous year. By sector, certified emissions decreased by 2.01 Mt in the power, industry, and transport sectors, while certified emissions increased by 2.03 Mt in the buildings, waste, and public and other sectors.



〈Figure Ⅱ-10〉 Certified Emissions by Compliance Year

〈Table Ⅱ-9〉 Certified Emissions and Entities by Compliance Year

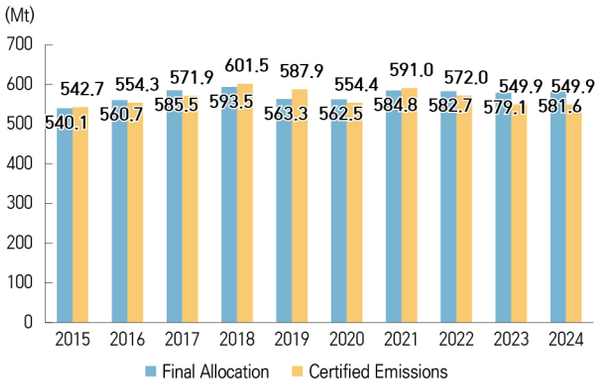
(Unit: Mt, entities)

Phase	Year	Certified emissions	Annual change	No. of Entities
I	2015	542.7	-	522
	2016	554.3	2.2%	560
	2017	571.9	3.2%	591
II	2018	601.5	5.2%	586
	2019	587.9	-2.3%	610
	2020	554.4	-5.7%	636
III	2021	591.0	6.6%	687
	2022	572.0	-3.2%	713
	2023	549.9	-3.9%	733
	2024	549.9	0.004%	776

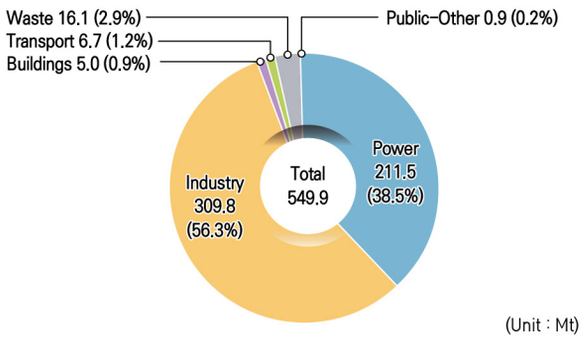
* (Source) ETRS Database (as of Sep. 2025)

〈Figure Ⅱ-10〉 shows the results of the comparison between the final allocation amount and the amount of certified emissions for each compliance year. In the 2024 compliance year, the certified emissions fell short of the final allocation by 31.6 Mt. This was due to an increase in carbon-free power generation, influenced by the government's energy policies, and a reduction in production caused by a slowdown in GHG-intensive industries.

Broken down by sector, the amount of certified emissions for the 2024 compliance year from the industry sector was 309.8 Mt (56.3%), compared to 211.5 Mt (38.5%) from the power sector, 16.1 Mt (2.9%) from waste, 6.7 Mt (1.2%) from transport, 5.0 Mt (0.9%) from buildings, and 0.9 Mt (0.2%) from public services/other.



〈Figure Ⅱ-11〉 Final Allocation and Certified Emissions by Compliance Year



〈Figure Ⅱ-12〉 Certified Emissions by Sector in the 2024 Compliance Year

2.2. Surrender of Emission Permits

Covered entities must surrender emission permits to the government in an amount equivalent to the amount of certified emissions within eight months from the date of completion of each compliance year. Emission permits can be surrendered using the KAUs allocated for the relevant compliance year, KCUs converted from KOCs, and other permits either banked from the previous compliance year (KAUs and KCUs) or borrowed from the next compliance year (KAUs). These surrender methods ensure flexibility so that covered entities can surrender emission permits through various methods other than emissions trading. In addition, the government has introduced market-maker trading and proprietary trading by securities companies to ensure the liquidity of the emissions trading market. Consequently, covered entities are able to secure additional emission permits not only through exchange trading but also with OTC trading, including swap or repo trading.

For the 2024 compliance year, a total of 549.9 Mt of emissions produced by 776 entities was certified. Broken down by the type of emission permits surrendered, KAUs accounted for 549.8 Mt (99.99%) and KCUs for 0.1 Mt (0.01%), which indicates that most of the permits surrendered were KAUs. The amount of KCUs surrendered decreased by 1.0 Mt compared to the previous year. In addition, 70.0 Mt (540 entities) of the emission permits banked from the 2023 compliance year were used in the trading and surrender in the 2024 compliance year and, after their surrender, 102.2 Mt (560 entities) of the permits were carried over to the following compliance year. Additionally, 0.2 Mt (34 entities) of the permits borrowed from the 2025 compliance year were used for the surrender.

In the 2024 compliance year, a total of 775 entities surrendered emission permits due to the succession of rights and obligations. Surplus emission permits for 13 entities amounting to 0.13 Mt (the amount not carried over[22]) expired.

〈Table Ⅱ-10〉 Surrender Results by Sector in the 2024 Compliance Year

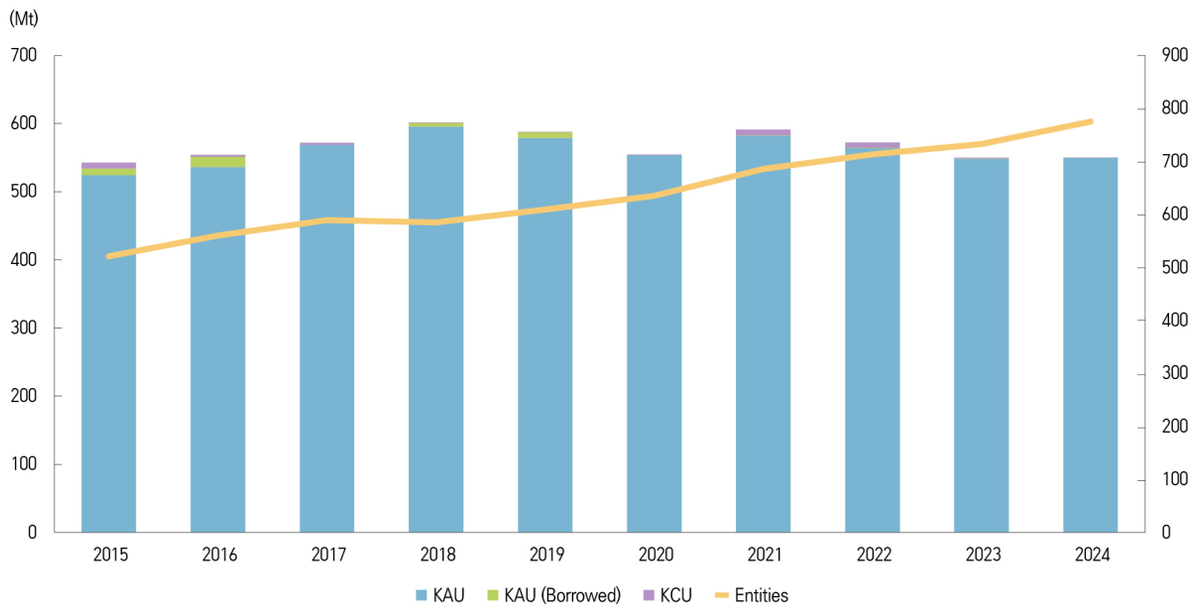
(Unit : Mt)

Sector	Certified		Banking ('22→'23)	Borrowing ('23→'22)	KOC → KCU	KAU Traded[1)]		Surrendered				Not Surrendered	Not Banked	Banking ('23→'24)		
	Emission	Entitiy				Sold	Purchased	Total	KAU	KAU (Borrowed)	KCU			Total	KAU	KCU
Power	211.5	65	23.4	0.01	0.01	-10.0	18.9	211.5	211.5	0.01	0.01	-	-	38.8	38.8	0.0
Industry	309.8	480	36.9	0.2	0.03	-16.4	3.3	309.7	309.5	0.2	0.03	-0.01	0.1	49.8	49.8	0.01
Buildings	5.0	41	0.1	0.002	-	-0.02	0.3	5.0	5.0	0.002	-	-	0.0	0.2	0.2	-
Transport	6.7	67	1.6	0.001	-	-0.8	0.1	6.7	6.7	0.001	-	-	0.02	2.2	2.2	-
Waste	16.1	121	1.0	0.02	0.03	-0.2	2.4	16.1	16.0	0.02	0.03	-	0.0	1.2	1.2	0.003
Public/Other	0.9	2	-	-	-	-	0.2	0.9	0.9	-	-	-	-	-	-	-
Market maker	-	-	4.9	-	-	-4.9	6.3	-	-	-	-	-	-	7.1	7.1	-
Securities	-	-	2.1	-	-	-0.2	1.0	-	-	-	-	-	-	3.0	3.0	-
Total	**549.9**	**776**	**70.0**	**0.2**	**0.1**	**-32.6**	**32.6**	**549.9**	**549.6**	**0.2**	**0.1**	**-0.01**	**0.1**	**102.2**	**102.2**	**0.01**
Entities	776	-	540	34	9	480	338	775	775	34	11	1	4	560	560	4

1) The entries are based on the trading volume registered in the ETRS, which might be different from the trading volume specified under Part III (based on KRX data)

2) Market makers and securities companies are not counted as covered entities.

(Source: ETRS Database (as of Sep. 2025))



〈Figure Ⅱ-13〉 Surrendered Emission Permits by Compliance Year

22) The amount of emission permits not carried over to the next compliance year by covered entities after meeting their obligation to surrender or the amount remaining after the emission permits are carried over to the next compliance year to the fullest possible extent.

2.3. Flexibility Mechanisms

Flexibility mechanisms are a means to ensure flexibility in the surrender of emission permits by covered entities that minimize the cost of reducing GHG emissions. These flexibility mechanisms allowed by the government for the surrender of emission permits include the use of KCUs obtained from the conversion of KOCs and the banking (KAUs and KCUs) and borrowing (KAUs) of emission permits.

2.3.1. Use of KOCs and KCUs

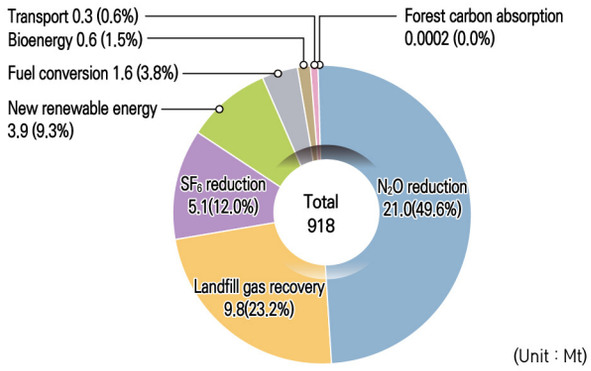
From 2015 to August 2025, a total of 56.0 Mt[23] of KOCs obtained from domestic (42.3 Mt, 75.5%) and overseas (13.7 Mt, 24.5%) external offset projects were registered. From September 2024 to August 2025, a total of 4.0 Mt of KOCs were registered, with 3.7 Mt from domestic and 0.2 Mt from overseas offset projects, which was higher compared to the same period in the previous year (1.4 Mt). Both KOCs issued from domestic and overseas offset projects decreased. In particular, KOCs issued from overseas offset projects, which had continuously increased since their introduction in the 2020 compliance year (1.0 → 5.4 → 5.8 Mt), have shown a gradual downward trend starting from the 2023 compliance year (1.3 → 0.2 Mt).

A total of 1,526 projects were approved as external offset projects, of which 918 were domestic and 608 were overseas. In terms of domestic projects, the largest amount of certified reductions was achieved via projects related to technologies used to reduce N_2O emissions in the process of manufacturing petrochemical products, followed by those obtained from projects related to landfill gas recovery technologies (the waste sector), technologies used to reduce SF_6 emissions in the process of manufacturing semiconductors, and projects related to new renewable energy generation, such as tidal and wind power. In terms of overseas projects, fuel conversion projects, including those involving the distribution of clean energy devices, accounted for the largest share, followed by renewable energy generation projects such as hydro power and solar power, and CH_4 emission reduction projects through the prevention of gas pipeline leakages.

23) 56.0 Mt = 22.5 Mt from Phase I (1 Jan. 2015–9 Aug. 2018) + 10.3 Mt from Phase II (10 Aug. 2018–9 Aug. 2021) + 23.3 Mt from Phase III (10 Aug. 2021–31 Aug. 2025).

〈Table Ⅱ-11〉 Projects and Certified Reductions (Domestic)

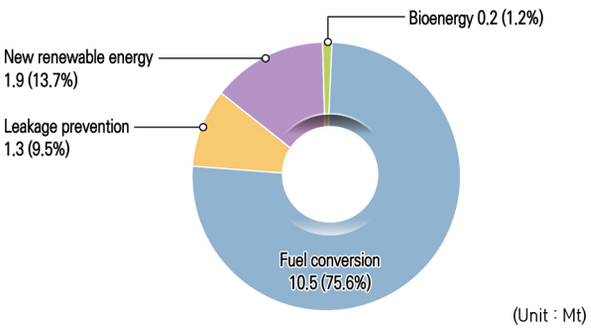
Project type	No. of Projects	Certified (Mt)
Total	918	42.3
N_2O reduction	185	21.0
Landfill gas recovery	73	9.8
SF_6 reduction	49	5.1
New renewable energy	200	3.9
Fuel conversion	343	1.6
Bioenergy	62	0.6
Transport	5	0.3
Forest carbon absorption	1	0.0002



〈Figure Ⅱ-14〉 Proportion of Certified Reductions (Domestic)

〈Table Ⅱ-12〉 Projects and Certified Reductions (Overseas)

Project type	No. of Projects	Certified (Mt)
Total	608	13.7
Fuel conversion	565	10.4
Leakage prevention	8	1.3
New renewable energy	28	1.9
Bioenergy	7	0.2



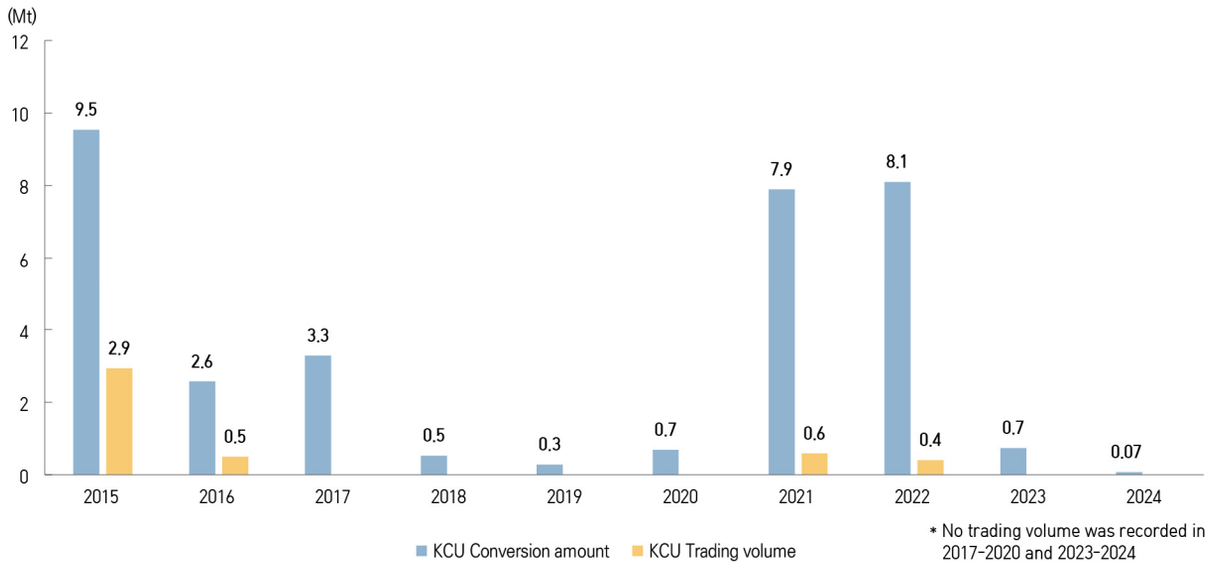
〈Figure Ⅱ-15〉 Proportion of Certified Reductions (Overseas)

To date, a total of 33.7 Mt[24] has been converted from KOCs into KCUs by covered entities to be used for the surrender of emission permits. The amount converted into KCUs in the 2024 compliance year was 0.07 Mt, with 0.04 Mt from domestic projects and 0.03 Mt from overseas projects, which was significantly lower for both types of project compared to the amount converted in the 2023 compliance year (0.7 Mt; 0.5 Mt from domestic projects and 0.2 Mt from overseas projects). The amount of KCUs converted from KOCs, which was less than 1 Mt during Phase II, increased sharply to over 7 Mt in Phase III but has since returned to the Phase II level in the 2023 compliance year and recorded its lowest level in the 2024 compliance year. This appears to be due to the exhaustion of KCUs converted from KOCs, the volume of which had increased after restrictions on the KOC conversion and trading period were relaxed, which was implemented after the amendment[25] of the guidelines for GHG offset projects.

24) 33.7 Mt = 15.4 Mt from Phase I + 1.5 Mt from Phase II + 16.8 Mt from Phase III.

25) Guidelines for the Feasibility Assessment of Offset Projects and the Certification of Reductions (partially amended and entered into force on 9 Nov. 2023).

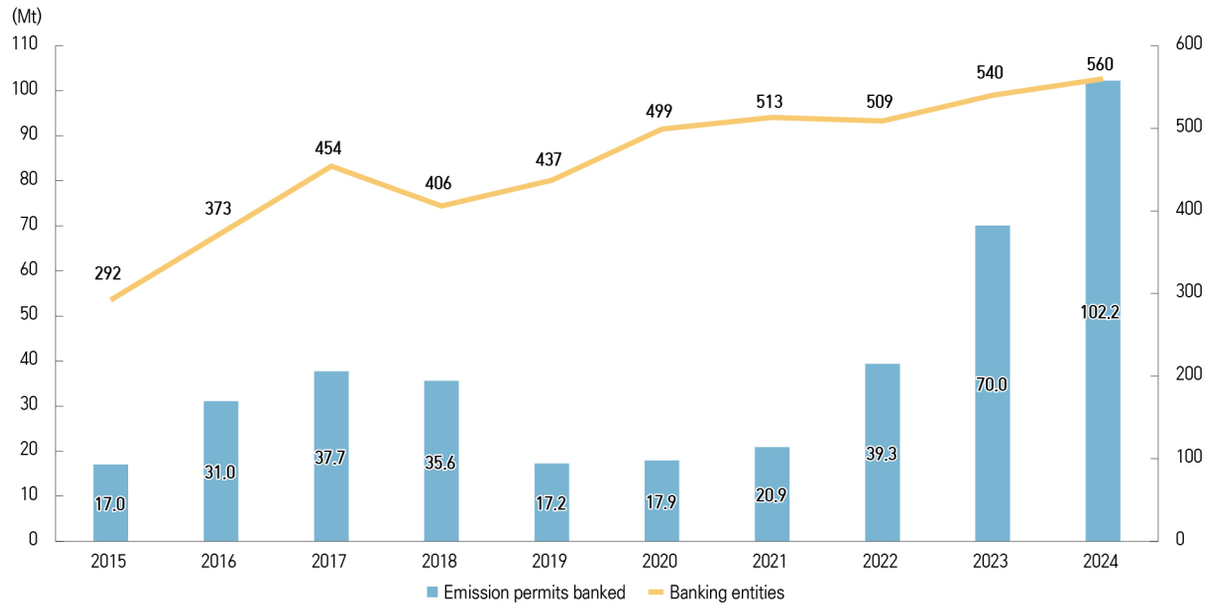
In the 2024 compliance year, a total of 0.08 Mt of KCU24 was surrendered by 11 entities (accounting for 0.01% of all permits surrendered). This consisted of 0.07 Mt converted from KOCs and 0.1 Mt of KCU23 banked from the previous year. The remaining 0.01 Mt was carried over to the 2025 compliance year. After the 2024 compliance year, 22.3 Mt of KOCs remained unconverted into KCUs as of September 2025.



〈Figure Ⅱ-16〉 KCUs Converted and Traded by Compliance Year

2.3.2. Banking of Emission Permits

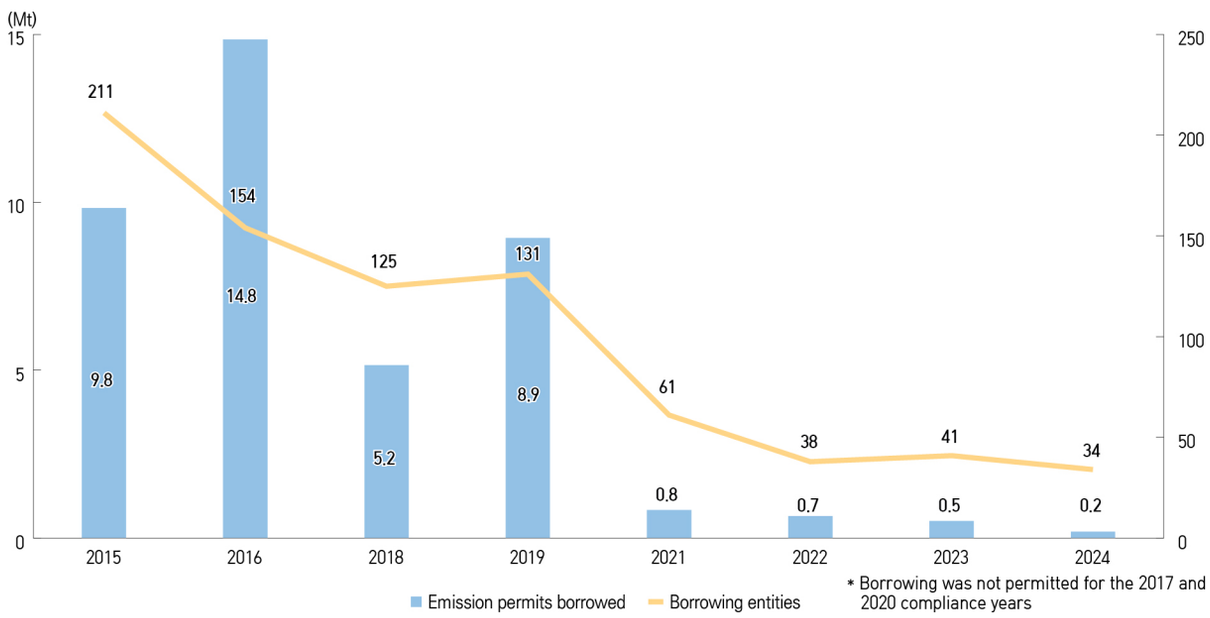
A total of 70.0 Mt of emission allowances were carried over from the 2023 compliance year to 2024, all of which were utilized for trading and compliance purposes. For the 2024 compliance year, a total of 102.2 Mt were carried over to 2025, representing a 45.9% increase from the previous year. This included 102.2 Mt of KAU and 0.01 Mt of KCU carried over by 560 entities. During the 2016–2018 compliance years, more than 30 Mt of allowances were carried over annually. However, with the introduction of banking restrictions through the amended Allocation Plan during Phase II, the banking volume was reduced by half in 2019. Since then, the banking amount has shown an increasing trend, influenced by the easing of banking restrictions under the revised Allocation Plan for Phase III. In the 2024 compliance year, the banking volume resulting from proprietary trading by securities companies amounted to 3.0 Mt (13 institutions), while the volume carried over by market makers was 7.1 Mt (8 institutions).



〈Figure Ⅱ-17〉 Banking of Emission Permits by Compliance Year

2.3.3. Borrowing of Emission Permits

The emission permits borrowed from the 2025 compliance year for the 2024 compliance year amounted to 0.2 Mt (34 entities), representing 0.2% of the total amount of emission permits surrendered. While the number of entities that borrowed emission permits remained similar to the previous year (41 entities), the amount of emission permits borrowed for the 2024 compliance year decreased by 60.8% compared to the previous year (0.5 Mt). It appears that covered entities have primarily utilized flexibility mechanisms, such as banking from the previous compliance year and the conversion of KOCs to KCUs, and auctions to prepare for a possible supply shortage of emission permits in the future.



〈Figure Ⅱ-18〉 Borrowing of Emission Permits by Compliance Year

〈Table Ⅱ-13〉 Legal Grounds and Standards for the Flexibility Mechanisms in Phase III

Type	Legal Grounds	Methods and Standards
Use of KCUs	Art. 29 of the Act Art. 47 of the Enforcement Decree	• If a covered entity possesses or acquires GHG reduction credits generated outside the scope of business operations monitored by the K-ETS in a manner consistent with international standards, it may convert them into KCUs for the trading and surrendering of emission permits, etc. • The maximum number of KCUs that may be used for the surrender of emission permits shall be determined in accordance with an allocation plan within 10% of the total amount of emission permits the covered entity is required to surrender.
Borrowing	Art. 28 of the Act Art. 45 of the Enforcement Decree	• When the amount of emission permits held by a covered entity is less than the amount it must surrender, a portion of allocated emission permits from a different compliance year within the same phase may be borrowed. 〈Borrowing Limits in Phase III〉 - 1st compliance year: (no more than) emission permits to be surrendered × 15% - 2nd-4th compliance year: (no more than) emission permits to be surrendered × {borrowing limit in the immediately preceding compliance year − (ratio of borrowed emission permits in the immediately preceding compliance year × 0.5)} - 5th compliance year: borrowing from the subsequent phase is not allowed.
Banking	Art. 28 of the Act Allocation Plan	• A covered entity may carry over emission permits in its possession to the next compliance year within the same phase or to the first compliance year in the subsequent phase provided that it banks KAUs and KCUs of less than 100 t regardless of the standards specified below. 〈Banking within a Single Phase〉 - 1st-2nd compliance years: twice the net amount of KAUs/KCUs sold* by the covered entity in each (first and second) compliance year. - 3rd compliance year: three times the net amount of KAUs/KCUs sold* by the covered entity in the compliance year. - 4th compliance year: five times the net amount of KAUs/KCUs sold* by the covered entity in the compliance year. * Amount of KAUs/KCUs sold − amount of KAUs/KCUs purchased until the day before the covered entity applied for banking to the next compliance year, excluding the amount exchanged (KAU, KCU ↔ KAU, KCU, KOC) and auctioned. 〈Banking across Phases〉 - Five times the annual average net amount of KAUs/KCUs sold* by the covered entity in the fifth compliance year of Phase III. * Amount of KAUs/KCUs sold − amount of KAUs/KCUs purchased until the day before the covered entity applied for banking for Phase IV, excluding the amount exchanged (KAU21-25, KCU21-25 ↔ KAU, KCU, KOC from another phase) and auctioned.
		• Emission permit holders other than covered entities may carry over permits to the next compliance year within the same phase or to the first compliance year in the subsequent phase. 〈Banking within a Single Phase〉 - Emissions trade brokerage companies and third-party participants: KAUs and KCUs within the maximum holding limit for each compliance year. - Market makers: all KAUs and KCUs in their possession. 〈Banking across Phases〉 - Emissions trade brokerage companies and third-party participants: KAU25 and KCU25 within the maximum holding limit for each compliance year. - Market makers: all KAUs and KCUs in their possession.

* Source : Act on the Allocation and Trading of Greenhouse-Gas Emission Permits (Ministry of Climate, Energy and Environment, Office for Government Policy Coordination, and Ministry of Economy and Finance; partially amended on 29 November 2025)
Enforcement Decree of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits (Ministry of Climate, Energy and Environment, Office for Government Policy Coordination, and Ministry of Economy and Finance; amended on 1 October 2025 due to the revision of another statute)
Revised Allocation Plan for Phase III (2021-2025) (Ministry of Climate, Energy and Environment, November 2025)

III

Analysis of the Emissions Trading Market

1. Trading Records for 2015-2025
2. Trading Records for the 2024 Compliance Year of Phase III

1 Trading Records for 2015-2025

Emission permits can be traded through the exchange and OTC markets. The tradable permits are KAUs, KCUs, and KOCs. Exchange trading commences with the listing of tradable permits on the emission permit exchange[26] and ends with the delisting of these emission permits; accordingly, different trading periods are applied to each type of permit in exchange trades. On the other hand, for OTC trading, emission permits are traded based on contracts directly entered into between covered entities.

In Part III, trading records for KAUs (KAU15–KAU25), KCUs (KCU15–KCU25), and KOCs (KOC20–22–KOC25–30) traded during Phases I, II, and III (January 2015–August 2025) are analyzed. The analysis of KAUs is based on records of exchange and OTC transactions and auction results, while the analysis of KCUs and KOCs is based on records of exchange and OTC transactions.

1.1. Trading Volume and Price Trends by Year[27]

From the commencement of Phase I to the end of the 2024 compliance year in Phase III (August 2025), the total trading volume for all types of emission permit (KAUs, KCUs, and KOCs) was 513.3 Mt, the total payments were 8,868 billion won, and the average trading price was 17,277 won per ton. The yearly trading volume increased at an average annual rate of 103% from 5.7 Mt in 2015 to 12.0 Mt in 2016, 26.3 Mt in 2017, and 47.5 Mt in 2018. Subsequently, it fluctuated, with 38.1 Mt in 2019, 44.0 Mt in 2020, 54.7 Mt in 2021, 39.1 Mt in 2022, 89.9 Mt in 2023, and 111.2 Mt in 2024. The trading volume reached 44.7 Mt as of August 2025, representing a decrease (21.1 %) compared to the same period in the previous year (56.7 Mt).

Broken down by market type, the trading volume was 347.7 Mt (67.7 %) in the exchange market and 165.6 Mt (32.3 %) in the OTC market. In terms of the type of emission permit, the total trading volume for KAUs was 462.0 Mt, which accounted for 90.0% of the total trading volume for emission permits, indicating that most of the emission permits traded were KAUs. The total trading volume for KCUs was 4.4 Mt and that for KOCs was 46.9 Mt, accounting for 0.9% and 9.1% of the total trading volume, respectively.

The average trading price for all emission permits per year increased significantly at an average annual rate of 22.5% from 11,013 won in 2015 to 30,411 won in 2020. Since then, due to damage caused by

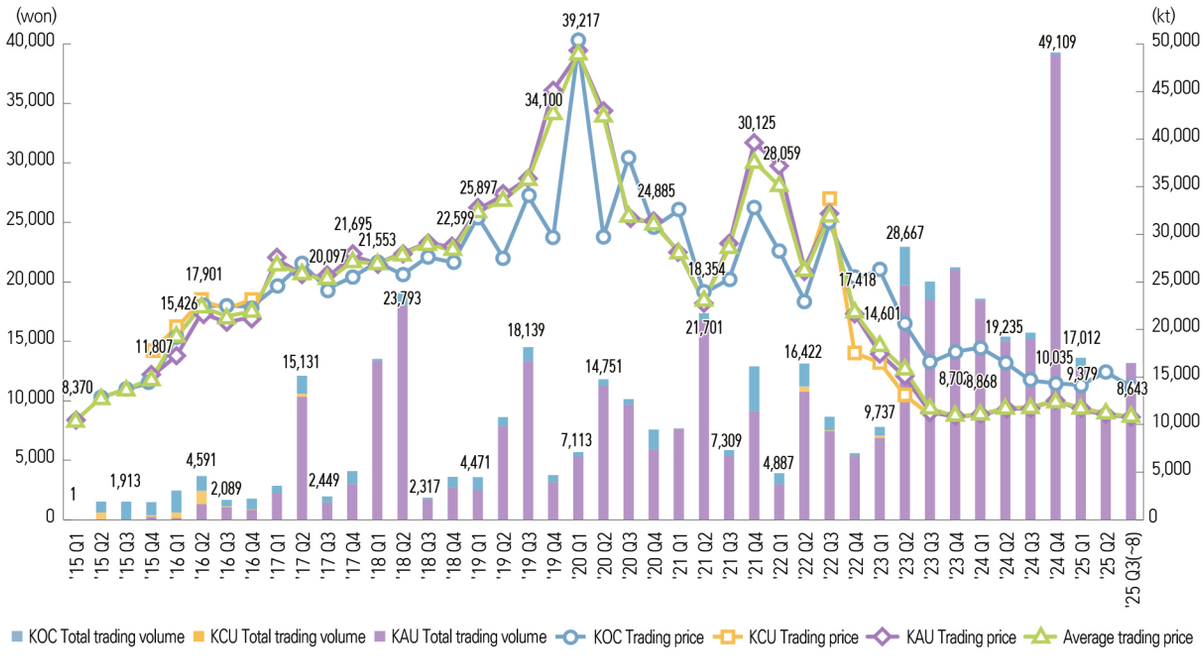
26) In accordance with Article 22 of the Act and Article 34 of the Enforcement Decree, the KRX was designated as the emission permit exchange (Jan. 2014) and has been in operation since the introduction and implementation of the K-ETS (since Jan. 2015).

27) The amount of emission permits that must be surrendered is determined based on the amount of certified emissions for each compliance year (1 Jan.–31 Dec.), but emission permits can be traded from the date of the listing of emission permits on the KRX (exchange trading) or the date of the allocation of emission permits (OTC trading) until the date of the surrender of those emission permits (e.g., KAU24 was traded between 4 Jan. 2021 and 29 Aug. 2025).

Typhoon Hinnamno and reduced production activity resulting from the global economic slowdown, the price declined to 23,149 won in 2021, 22,370 won in 2022, 10,772 won in 2023, 9,575 won in 2024, and 8,998 won in 2025 (as of August). The average trading price for Phases I, II, and III (until August 2025) was 17,277 won.

Broken down by the type of emission permit, the average trading price was 19,952 won for KOCs, 19,058 won for KAUs, and 16,774 won for KCUs. The average trading price for KAUs, which accounted for 88% of the total trading volume for emission permits, rose from 12,044 won in 2015 to 30,713 won in 2020 and fell to 22,943 won in 2021, 22,574 won in 2022, 10,316 won in 2023, and 9,536 won in 2024. As of August 2025, the average 2025 trading price for KAUs was 8,912 won, which was 7.6% lower than the previous year. The average trading price for KOCs, the second-most traded emission permit, exhibited a similar trend of fluctuations to KAUs. It rose from 10,962 won in 2015 to 27,176 won in 2020 and fell to 24,821 won in 2021, 21,202 won in 2022, 16,066 won in 2023, and 12,449 won in 2024 . It then fell again to 11,591 won in 2025, which was 22.5% lower than the previous year. The average trading price for KCUs was 10,889 won in 2015, 17,747 won in 2016, and 20,622 won in 2017, but there was no record of KCU trading between 2018 and 2021. The trading of KCUs resumed in 2022 with an average trading price of 21,436 won. The average trading price for KCUs was 12,722 won in 2023, but no transactions had been recorded as of August 2025.

The continuous increase in the trading volume and average trading price from 2015 led to an increase in total payments from 62.4 billion won in 2015 to 1,338.5 billion won in 2020. Subsequently, they continued to decline to 1,266.6 billion won in 2021, 875.6 billion won in 2022, 968.8 billion won in 2023, and 1,065.2 billion won in 2024. The total payments for emission permits for 2025 (until August) were 402.6 billion won, 25.5% lower than that for the previous year.



〈Figure Ⅲ-1〉 Trends in the Total Trading Volume and Price by Emission Permits

〈Table Ⅲ-1〉 Trends in Trading Records by Trading Type

Type			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025*
Trading volume (kt)	Exchange	Real-time	51	2,062	4,640	4,814	4,636	8,263	13,574	11,174	69,876	81,018	33,165
		Block	1,191	2,771	10,094	8,351	4,373	4,520	1,119	1,120	1,034	841	704
		Auction	-	274**	-	4,665**	7,950	8,171	11,177	13,642	7,888	17,949	6,550
	OTC		4,421	6,861	11,530	29,677	21,125	23,059	28,846	13,205	11,138	11,432	4,326
	Total		**5,663**	**11,969**	**26,264**	**47,507**	**38,084**	**44,013**	**54,716**	**39,140**	**89,936**	**111,239**	**44,746**
Trading Price (won/t)	Exchange	Real-time	12,208	17,953	21,315	22,271	29,414	28,785	20,981	20,711	9,992	9,246	8,887
		Block	11,140	17,728	21,064	22,127	28,254	29,802	23,011	20,431	12,373	10,049	9,114
		Auction	-	16,221**	-	22,500**	29,238	30,385	26,373	23,243	10,672	10,355	8,980
	OTC		10,965	16,549	20,706	22,034	27,965	31,122	22,926	23,037	15,584	10,649	9,860
	Total		**11,013**	**17,056**	**20,951**	**22,120**	**28,440**	**30,411**	**23,149**	**22,370**	**10,772**	**9,575**	**8,998**
Payments (100 million won)	Exchange	Real-time	6	370	989	1,072	1,364	2,378	2,848	2,314	6,982	7,491	2,947
		Block	133	491	2,126	1,848	1,236	1,347	257	229	128	85	64
		Auction	-	44**	-	1,050**	2,324	2,483	2,948	3,171	842	1,859	588
	OTC		485	1,135	2,387	6,539	5,908	7,176	6,613	3,042	1,736	1,217	427
	Total		**624**	**2,041**	**5,503**	**10,509**	**10,831**	**13,385**	**12,666**	**8,756**	**9,688**	**10,652**	**4,026**

* Trading records until August 2025

** The amount auctioned from the reserve for market stabilization measures to address the imbalance in the supply and demand for emission permits in the 2015 and 2017 compliance years, not the amount allocated for auctions that were introduced in Phase II

〈Table Ⅲ-2〉 Trends in Trading Volume by Emission Permit

(Unit : kt)

Type			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025*
KAU	Exchange	Real-time	13	918	3,641	4,588	4,485	8,073	12,101	11,025	69,222	80,649	33,155
		Block	308	1,370	10,067	8,278	3,343	4,490	641	484	92	778	588
		Auction	-	274**	-	4,665**	7,950	8,171	11,177	13,642	7,888	17,949	6,550
	OTC		8	1,631	7,504	27,307	17,742	19,523	24,787	8,055	5,433	10,371	3,024
	Total		**329**	**4,193**	**21,212**	**44,838**	**33,520**	**40,257**	**48,707**	**33,205**	**82,635**	**109,747**	**43,317**
KCU	Exchange	Real-time	38	482	296	-	-	-	-	5	7	-	-
		Block	883	1,401	27	-	-	-	-	585	266	-	-
	OTC		-	296	-	-	-	-	-	105	20	-	-
	Total		**921**	**2,180**	**323**	**-**	**-**	**-**	**-**	**695**	**293**	**-**	**-**
KOC	Exchange	Real-time	-	662	703	226	151	190	1,473	144	647	369	10
		Block	-	-	-	73	1,030	30	477	51	676	63	117
	OTC		4,413	4,934	4,026	2,370	3,383	3,536	4,059	5,044	5,685	1,061	1,303
	Total		**4,413**	**5,596**	**4,729**	**2,670**	**4,565**	**3,756**	**6,009**	**5,240**	**7,008**	**1,492**	**1,429**

* Trading records until August 2025

** The amount auctioned from the reserve for market stabilization measures to address the imbalance in the supply and demand for emission permits in the 2015 and 2017 compliance years, not the amount allocated for auctions that were introduced in Phase II

〈Table Ⅲ-3〉 Trends in Average Trading Price by Emission Permit

(Unit : won/t)

Type			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025*
KAU	Exchange	Real-time	10,998	17,712	21,314	22,208	29,384	28,633	19,887	20,639	9,986	9,238	8,887
		Block	12,073	17,366	21,065	22,105	28,780	29,733	16,339	20,495	10,875	9,972	8,797
		Auction	-	16,221**	-	22,500**	29,238	30,385	26,373	23,243	10,672	10,355	8,980
	OTC		12,700	16,169	20,867	22,139	28,653	31,935	23,059	24,215	13,988	10,405	9,069
	Total		**12,044**	**16,901**	**21,038**	**22,178**	**28,902**	**30,713**	**22,943**	**22,574**	**10,316**	**9,536**	**8,912**
KCU	Exchange	Real-time	12,637	18,173	20,605	-	-	-	-	14,000	7,938	-	-
		Block	10,815	18,082	20,813	-	-	-	-	20,501	12,971	-	-
	OTC		-	15,471	-	-	-	-	-	27,000	11,105	-	-
	Total		**10,889**	**17,747**	**20,622**	**-**	**-**	**-**	**-**	**21,436**	**12,722**	**-**	**-**
KOC	Exchange	Real-time	-	18,127	21,617	23,530	30,302	35,266	29,962	26,457	10,660	11,004	8,425
		Block	-	-	-	24,636	26,549	40,013	31,979	19,014	12,343	11,000	10,709
	OTC		10,962	16,739	20,405	20,826	24,358	26,633	22,114	21,074	17,124	13,036	11,695
	Total		**10,962**	**16,903**	**20,585**	**21,160**	**25,049**	**27,176**	**24,821**	**21,202**	**16,066**	**12,449**	**11,591**

* Trading records until August 2025

** The amount auctioned from the reserve for market stabilization measures to address the imbalance in the supply and demand for emission permits in the 2015 and 2017 compliance years, not the amount allocated for auctions that were introduced in Phase II

〈Table Ⅲ-4〉 Trends in Payments by Emission Permit

(Unit : 100 million won)

Type			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025*
KAU	Exchange	Real-time	1	163	776	1,019	1,318	2,311	2,407	2,275	6,913	7,451	2,946
		Block	37	238	2,121	1,830	962	1,335	105	99	10	78	52
		Auction	-	44**	-	1,050**	2,324	2,483	2,948	3,171	842	1,859	588
	OTC		1	264	1,566	6,046	5,083	6,235	5,716	1,951	760	1,079	274
	Total		**40**	**709**	**4,463**	**9,944**	**9,688**	**12,364**	**11,175**	**7,496**	**8,524**	**10,466**	**3,861**
KCU	Exchange	Real-time	5	88	61	-	-	-	-	1	1	-	-
		Block	95	253	6	-	-	-	-	120	35	-	-
	OTC		-	46	-	-	-	-	-	28	2	-	-
	Total		**100**	**387**	**67**	**-**	**-**	**-**	**-**	**149**	**37**	**-**	**-**
KOC	Exchange	Real-time	-	120	152	53	46	67	441	38	69	41	1
		Block	-	-	-	18	273	12	153	10	83	7	12
	OTC		484	826	821	494	824	942	898	1,063	973	138	152
	Total		**484**	**946**	**973**	**565**	**1,143**	**1,021**	**1,491**	**1,111**	**1,126**	**186**	**166**

* Trading records until August 2025

** The amount auctioned from the reserve for market stabilization measures to address the imbalance in the supply and demand for emission permits in the 2015 and 2017 compliance years, not the amount allocated for auctions that were introduced in Phase II

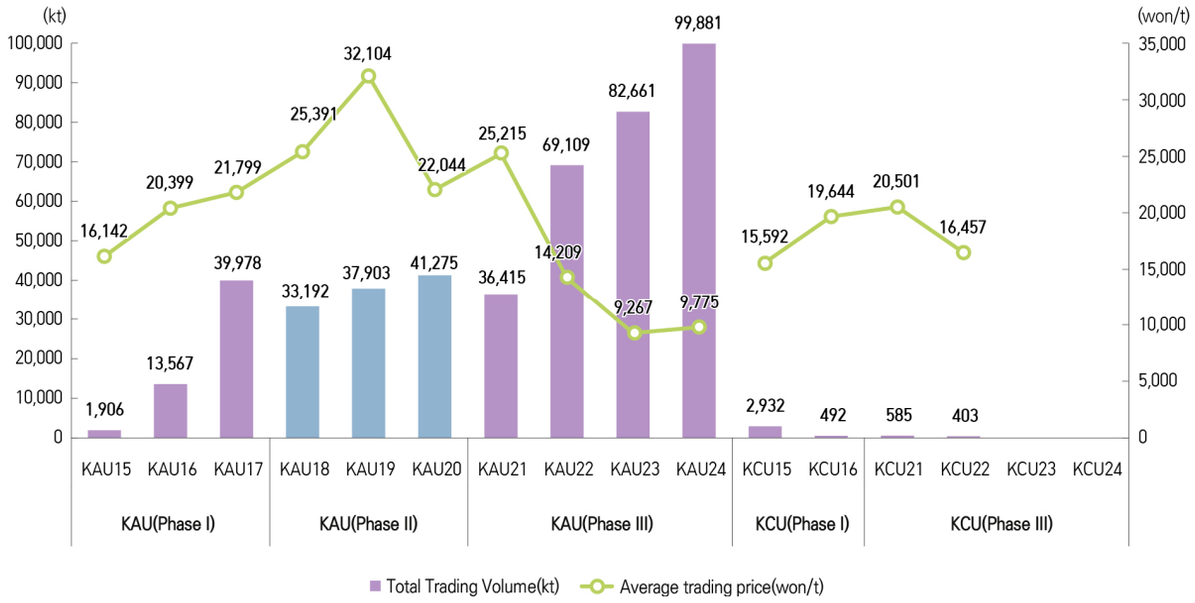
1.2. Trading Volume and Price Trends by Type of Emission Permit

In this section, the trading volume and price for each type of emission permit (KAU, KOC, and KCU) are analyzed for each compliance year. The results of the analysis in this section differ from the results of the analysis of the yearly trading volume in the previous section because different trading periods apply to each compliance year.[28)]

During Phase I, the trading volume for KAUs rose sharply at an average annual rate of 350% to 1.9 Mt (KAU15), 13.6 Mt (KAU16), and 40.0 Mt (KAU17). The trading volume for KAUs also increased during Phase II from 33.2 Mt (KAU18) to 37.9 Mt (KAU19) and 41.3 Mt (KAU20). During Phase III, the trading volume for KAU21, KAU22 and KAU23 amounted to 36.4 Mt , 69.1 Mt, and 82.7Mt respectively, and that for KAU24 increased to 99.9 Mt, which was approximately 21% higher than the previous year. The average trading price for KAUs continuously rose from 16,142 won (KAU15) to 32,104 won (KAU19). Since then, due to the impact of COVID-19, damage caused by Typhoon Hinnamno, and reduced production activity resulting from the global economic slowdown, the trading price has experienced sharp fluctuations, including both declines and increases, to 22,044 won (KAU20), 25,215 won (KAU21), 14,209 won (KAU22), and 9,267 won (KAU23). The average trading price for KAU24 was 9,775 won, 5.5% higher than the previous year.

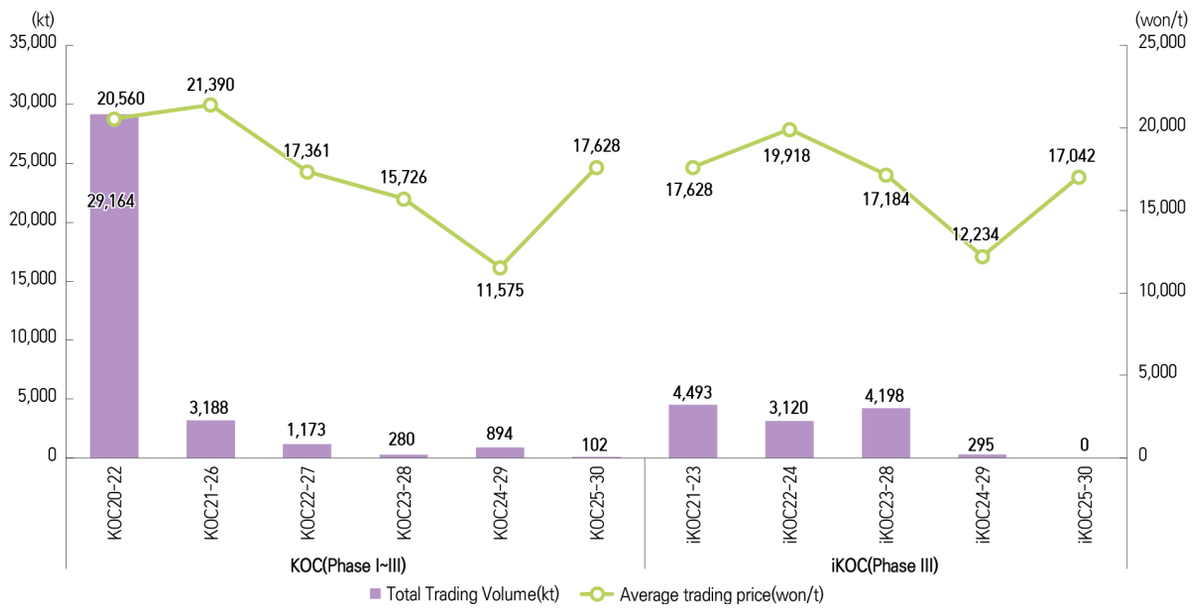
During Phase I, 2.9 Mt of KCU15 and 0.5 Mt of KCU16 were traded. There was no record of the trading of KCUs during Phase II. The trading of KCUs resumed in Phase III, during which 0.6 Mt of KCU21 and 0.4 Mt of KCU22 were traded. The highest average trading price for KCUs was 20,501 won for KCU21, while the average trading price for KCU22 was 16,457 won, 19.7% lower than the previous year. No transactions were recorded for KCU24 and KCU25.

28) KAU24 refers to KAUs allocated for the 2024 compliance year, and, in the exchange market, they can be traded from the date of their listing on the KRX until the date of their surrender. Accordingly, KAU24 was traded from 4 January 2021 to 29 August 2025.



〈Figure Ⅲ-2〉 Total Trading Volume and Average Trading Price(KAU, KCU)

Unlike KAUs and KCUs, KOCs are not used for the surrender of emission permits and can be traded by entities other than covered entities. Trends in the trading of KOCs could not be determined because, since June 2021, KOCs have been renamed[29] so their trades are subject to fixed trading periods. Nevertheless, of note is that the trading volume for iKOCs (certified reductions from overseas offset projects) often exceeds the trading volume for KOCs (certified reductions from domestic offset projects) and it is notable that iKOCs have generally been traded at higher prices than KOCs, expect for KOC21-26.



〈Figure Ⅲ-3〉 Total Trading Volume and Average Trading Price(KOC)

29) KOCs issued prior to the revision of the guidelines for KOC certification (2015-2021) were renamed KOC20-22.

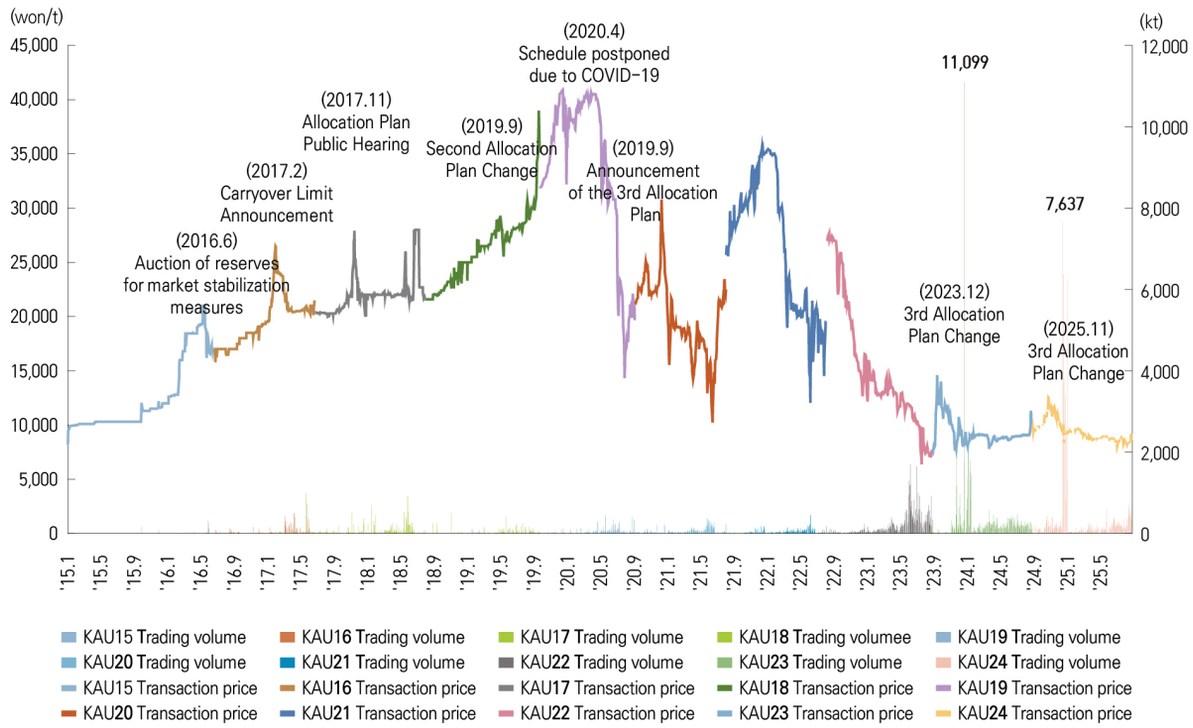
1.3. Changes in the Trading Records for Each Phase

In the K-ETS, the operational procedures and schedule often tend to serve as an incentive for the trading of emission permits. Covered entities determine their amount of GHG emissions by submitting emissions reports to the government by the end of March every year. It has been observed that covered entities tend to commence emission permit trading from this point on and trade emission permits most actively during a period of one to three months before completion of the surrender of emission permits. In addition, trading volumes and prices have tended to fluctuate in response to policy changes. In this section, factors contributing to changes in the exchange trading records for KAUs for each phase are analyzed.

The price for KAUs, which was 8,640 won on the first trading day of Phase I, exhibited an overall upward trajectory during this phase. It fluctuated sharply around the time emission permits from the reserve for market stabilization measures were auctioned (May 2016) and restrictions on the banking of emission permits were announced (February 2017) but stabilized thereafter. Ultimately, the price rose to reach 21,600 won on the last trading day (9 August 2018), representing a 2.5-fold increase compared to the price on the first trading day.

During Phase II, the trading volume and trading price for KAUs rose until the first quarter of 2020 due to increased demand for emission permits. The price temporarily declined after sub-sector meetings were held (May 2019) and the Allocation Plan was amended (September 2019) to reflect the amended Roadmap specifying the updated NDC. However, the price for KAUs continued to rise steadily until April 2020 to reach the 40,500 won range. Subsequently, it sharply decreased due to the impact of COVID-19, reaching 22,500 won on the last trading day of Phase II (11 August 2021).

At the beginning of Phase III, the price rose again to reach the 35,000 won range in early 2022. However, it steadily declined thereafter to reach 9,632 won on the last trading day of the 2024 compliance year (29 August 2025).



Note: For convenience, only the price and trading volume of the index emission permits for the corresponding periods are used. For example, although the trading of KAU21 began in 2020, the above graph is based the amount of KAU21 traded only in the 2021

〈Figure Ⅲ-4〉 Trading Price and Volume for KAU15-KAU24 in the Exchange Market

2 Trading Records for the 2024 Compliance Year of Phase Ⅲ

During the period in which KAU24 was listed on the KRX (January 2021–August 2025)[30], KAU20–25, KCU21–24, and KOCs were traded in the exchange and OTC markets. In this section, trading records for KAU24 and KCU24 used for the surrender of emission permits for the 2024 compliance year and KOCs[31] are analyzed, for which the total trading volume was 121.1 Mt.

2.1. Analysis of the Trading Volume

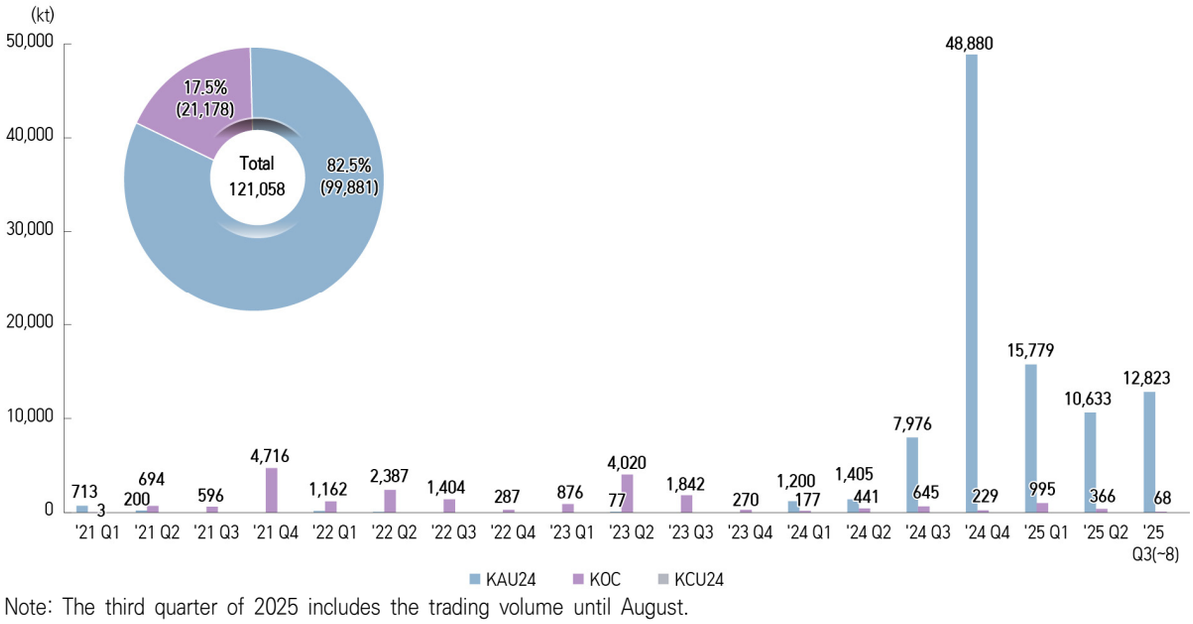
In the 2024 compliance year, the trading volume was 99.9 Mt for KAU24 and 21.2 Mt for KOCs, while no transactions were recorded for KCU24. These accounted for 82.5%, 17.5%, and 0% of the total trading volume, respectively.

The trading of KAU24 began in January 2021 but, until March 2024, KAU24 was traded sporadically only in the OTC market without any notable trends. In the first quarter of 2024, 1.2 Mt was traded, followed by 1.4 Mt in the second quarter. Full-scale trading of KAU24 commenced after the trading of KAU23 ended. In the third quarter of 2024, 8.0 Mt of KAU24 were traded, and the trading volume increased sharply in the fourth quarter of 2024, reaching a quarterly peak of 48.9 Mt, which accounted for 48.9% of the total trading volume for KAU24. In the first quarter of 2025, 15.8 Mt were traded, which accounted for 15.8% of the total trading volume for KAU24. Subsequently, 10.6 Mt was traded in the second quarter and 12.8 Mt in the third quarter before the 2024 compliance year ended on 28 August 2025.

The trading volume for KOCs significantly increased in the fourth quarter of 2021, which was due to the fact that Certified Emission Reductions (CERs) issued in the past were only allowed to enter the K-ETS beginning in 2021. However, the trading volume for KOCs fell dramatically in the first to third quarters of 2024 compared to the same period in the previous year. This appears to be due to the exhaustion of KCUs converted from KOCs, the volume of which had increased following the imposition of restrictions on the KOC conversion and trading period, which was implemented after the amendment[32] of the guidelines for GHG offset projects.

30) KAU24 and KCU24 were traded from 4 January 2021 to 29 August 2025 and 20 April 2024 to 29 August 2025, respectively.
31) KOCs include KOC20-22, KOC21-26, KOC22-27, KOC23-28, KOC24-29, KOC25-30, iKOC21-26, iKOC22-27, iKOC23-28, and iKOC24-29, iKOC25-30.
32) Guidelines for the Feasibility Assessment of Offset Projects and the Certification of Reductions (partially amended and entered into force on 9 Nov. 2023).

The trading volume for KOCs did not demonstrate any notable trends because KOCs consist of emission permits from different trading periods. The trading volume for KOCs reached a quarterly record of 4.7 Mt in the fourth quarter of 2021, which accounted for 22.3% of the total trading volume for KOCs. From the first to third quarters of 2022, it remained in the range of 1.2 Mt to 2.4 Mt. The trading volume for KOCs fell dramatically to 1.0 Mt in the fourth quarter of 2022 and the first quarter of 2023 and increased to 4.0 Mt in the second quarter and 1.8 Mt in the third quarter of 2023. Subsequently, from the fourth quarter of 2023 to the third quarter of 2025, it remained in the range of 0.1 Mt to 0.9 Mt.



Note: The third quarter of 2025 includes the trading volume until August.

〈Figure Ⅲ-5〉 Quarterly Trading Volume by Emission Permit

The emissions trading market is largely divided into the exchange market and the OTC market. On the exchange market, emission permits are traded via real-time trading and block trading,[33] which can be used by all covered entities, or via auctions.

33) **Regulations on the Emissions Trading Market Operation Article 44 (Real-Time Trading as a Principle)** (1) In the emissions trading market, emission permits shall be traded independently through competitive real-time trading, which can be divided into real-time trading with a single price and real-time trading with multiple prices. (2) The priority of asking and bidding prices in real-time trading shall be as follows:

1. Selling orders with a lower asking price shall take precedence over selling orders with a higher asking price, and buying orders with a higher bidding price shall take precedence over buying orders with a lower bidding price;
2. Regarding orders with the same price, the order that was submitted earlier shall take precedence over the order that was submitted later.

Article 47 (Block Trading) (1) Notwithstanding the provisions of Articles 44 to 46, the Exchange may allow general members and external members who are GHG reduction specialists to trade emission permits based on the conditions they have agreed on with other parties in terms of their type, price, and quantity. (2) The price at which the trading under paragraph 1 may be conducted shall not exceed the upper or lower price limits of the day the trading is to be conducted. (3) The time of submission of the order, the quantity of the order, and other necessary matters pertaining to block trading shall be provided for in the detailed rules.

Of the 99.9 Mt of KAU24 traded, 92.5 Mt was traded in the exchange market and 7.4 Mt was traded in the OTC market, accounting for 92.6% and 7.4%, respectively. Specifically, the amount of KAU24 traded via real-time exchange trading was 71.1 Mt, which accounted for the highest proportion of the trading volume for KAU24, followed by the amount traded via auction (20.4 Mt), OTC trading (7.4 Mt), and block exchange trading (1.0 Mt). Of note was that the proportion of exchange trading for KAU24 has grown compared to KAU23 (89.4% for the exchange market and 10.6% for the OTC market) due to a sharp increase in real-time exchange trading.

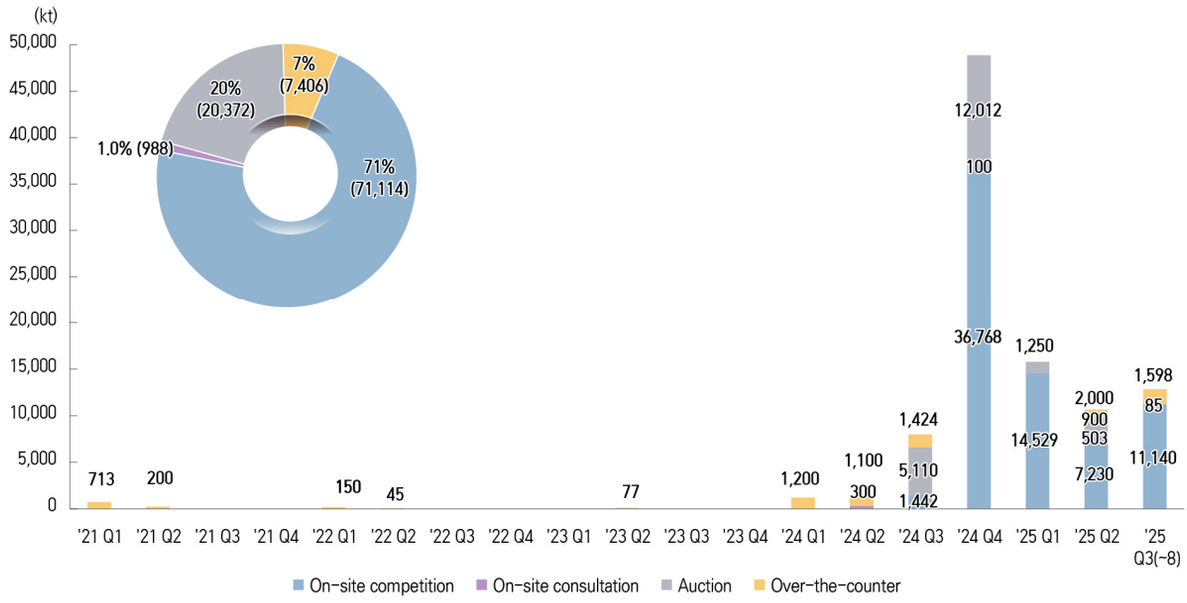
Full-scale real-time trading of KAU24 began in the third quarter of 2024 (1.4 Mt) and continued to increase thereafter. The real-time trading volume for KAU24 reached a quarterly record of 36.8 Mt in the fourth quarter of 2024. The real-time trading volume was 14.5 Mt in the first quarter, 7.2 Mt in the second quarter, and 11.1 Mt in the third quarter of 2025 (as of August).

Auctions for KAU24, which began in July 2024, exhibited a trend similar to that observed for the real-time trading of KAU24. The volume for valid bids was 5.1 Mt in the third quarter and 12.0 Mt in the fourth quarter of 2024 but fell sharply starting in the first quarter of 2025. The volume of valid bids was 1.3 Mt in the first quarter and 2.0 Mt in the second quarter of 2025. Auctions scheduled for January, February and April were canceled following the adjustment of bids pursuant to Article 7[34] of the Regulations for the Additional Allocation of Emission Permits for Auctions and Market Stabilization Measures. Ultimately, while the total volume of bids made for KAU24 was 22.3 Mt, the total volume of valid bids was 20.4 Mt, representing 91.6% of the total volume of bids made.

The OTC trading volume for KAU24 was 0.07 Mt in the second quarter of 2023 without any particular trends. Subsequently, 1.2 Mt were traded in the first quarter of 2024, followed by 1.1 Mt in the second quarter and 1.4 Mt in the third quarter. After a period of no trading activity until the first quarter of 2025, 0.9 Mt were traded in the second quarter of 2025, and the volume rose again to reach 1.6 Mt by August in the third quarter.

The trading volume for KOCs was 17.2 Mt (81.0%) in OTC trading, 2.6 Mt (12.5%) in real-time exchange trading, and 1.4 Mt (6.5%) in block exchange trading, which indicates that most KOCs were traded in the OTC market. The trend in the OTC trading of KOCs was the same as that in the overall KOC trades.

34) **Article 7 (Adjustment or Cancellation of Bids)** The Minister of Environment may adjust or cancel bids in any of the following cases:
1. When the bidding rate is significantly low;
2. When the bid price is excessively high or low;
3. When it is difficult to set a fair auction price;
4. When it is deemed difficult to conduct normal bidding due to reasons such as market conditions, etc.



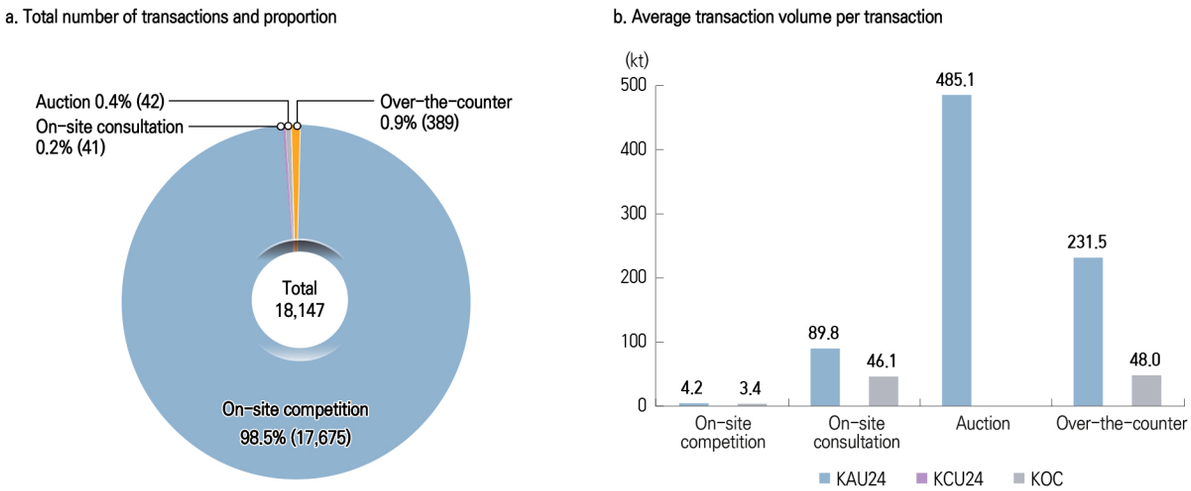
Note: The third quarter of 2025 includes the trading volume until August.

〈Figure Ⅲ-6〉 Quarterly Trading Volume of KAU24 by Market Type

Generally, many small trades occur in the exchange market, while fewer but larger trades occur in the OTC market. In particular, real-time exchange trading involves trades by an unspecified number of entities, including covered entities, market makers, and securities companies. Therefore, the number of emission permit trades conducted via real-time exchange trading tends to far exceed the number of block exchange and OTC trades, which involve one-on-one trades between specific entities, or auctions, which can only be used by covered entities from sub-sectors eligible for auctions, while the average trading volume per trade is the lowest in real-time exchange trading.

Accordingly, a total of 18,714 trades were conducted in the exchange and OTC markets, including 17,758 trades in the exchange market and 389 trades in the OTC market. In the exchange market, 17,675 trades were made via real-time trading, 41 were via block trading, and 42 were via auction. Broken down by the type of emission permit, there were 16,992 trades for KAU24, 0 trades for KCU24, and 1,155 trades for KOCs. In the fourth quarter of 2024 and the second quarter of 2025, a sharp increase in the exchange trading volume for KAU24 led to an increase in the number of KAU24 trades.

The average trading volume for KAU24 per trade was 231.5 kt in OTC trading, 471.4 kt in auctions, 89.8 kt in block exchange trading, and 4.2 kt in real-time exchange trading. Compared to KAU23, the average trading volume per trade has increased in auctions and decreased in real-time trading.



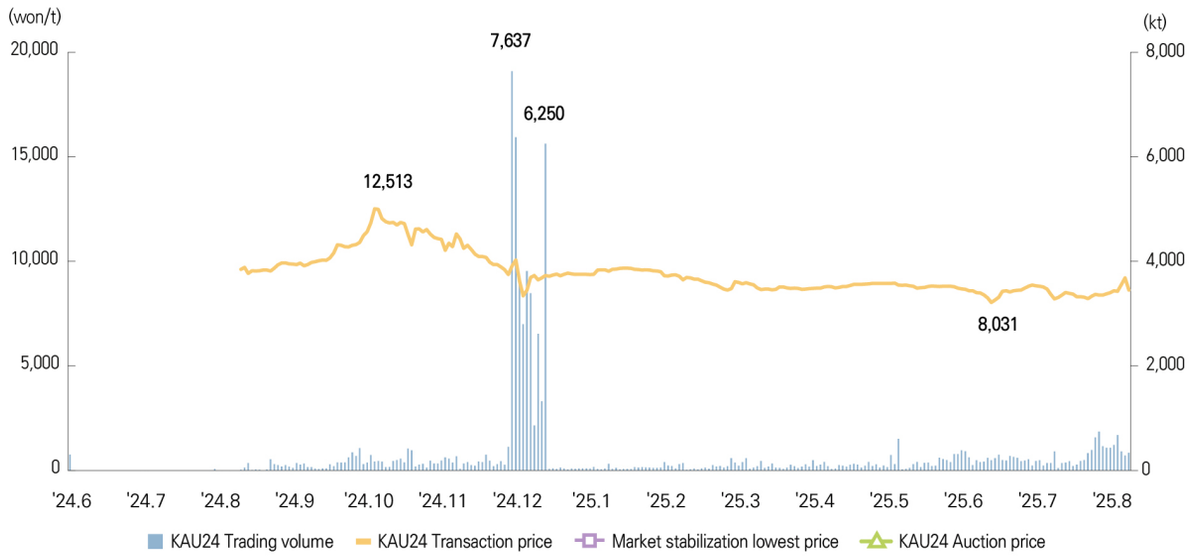
〈Figure Ⅲ-7〉 Number of Trades and Average Trading Volume by Market in the 2024 Compliance Year

2.2. Analysis of the Trading Prices for KAUs

The exchange trading price of KAU24 ranged between 8,030 and 12,510 won. The monthly average trading price remained at the 8,900 won level from June to July 2024, but increased to 9,276 won in August, 9,733 won in September, 11,026 won in October, and 11,193 won in November. Subsequently, it decreased to 9,424 won in December.

In 2025, the average exchange trading price for KAU24 ranged between 8,400 won and 9,200 won from January to August. The average trading price on 8 July 2025 was 8,031 won, which was the lowest average exchange trading price for KAU24 during the exchange trading period. Ultimately, the average exchange trading period for KAU24 was 9,349 won.

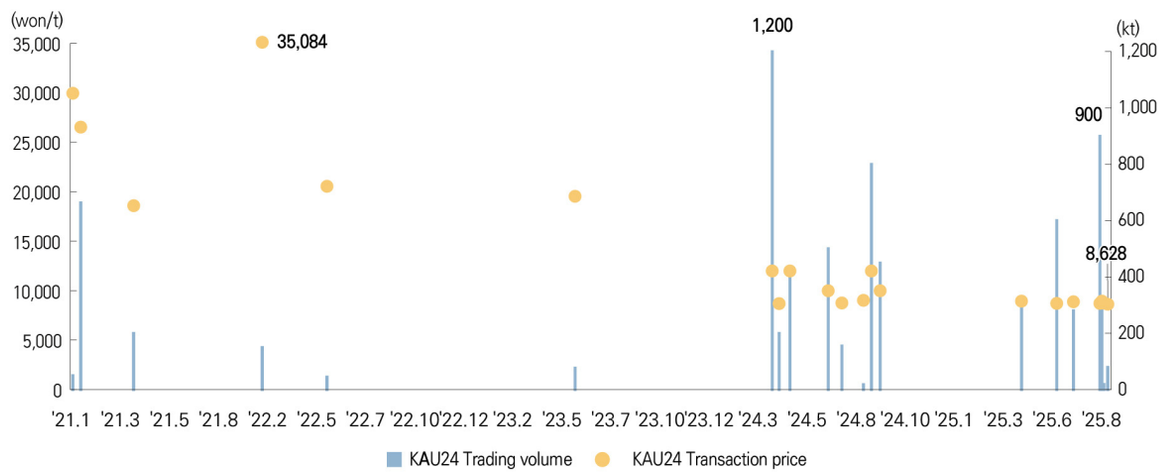
The auction price for KAU24 was 9,000 won in July 2024 when the auctions began, reaching 9,000 won in August and 9,600 won in September. The price began to rise from October, reaching 10,600 won and 11,600 won in November. However, it began to fall to 10,100 won in December and 9,100 won in March 2025. It remained within the range of 8,790 won to 8,900 won between May and June. The average auction price for KAU24 was 10,197 won.



Note: The KAU24 price is weighted average on each trading day. In the absence of trading, the KRX closing price on the trading day was applied.

〈Figure Ⅲ-8〉 Trading Volume and Price for KAU24 in the Exchange Market

OTC trading of KAU24 began on 6 January 2021. Until April 2021, trading occurred sporadically in a price range of 18,500 won to 29,900 won. The trading price of 35,084 won in February 2022 was the highest OTC trading price for KAU24. Subsequently, no transactions were recorded from July 2023 to February 2024. Although the price remained in the 12,000 won range in March 2023, it sharply fell to an average range of 8,700 won to 8,900 won between April and August 2025. The 2024 compliance year ended after a single transaction was recorded in August 2025 at 8,628 won, the lowest OTC trading price for KAU24. Ultimately, the average OTC trading price for KAU24 was 14,679 won, which was 57.0% higher than its average exchange trading price.



Note: The KAU24 price is weighted average on each trading day when trading was occurred in the OTC market.

〈Figure Ⅲ-9〉 Trading Volume and Price for KAU24 in the Over-The-Counter Market

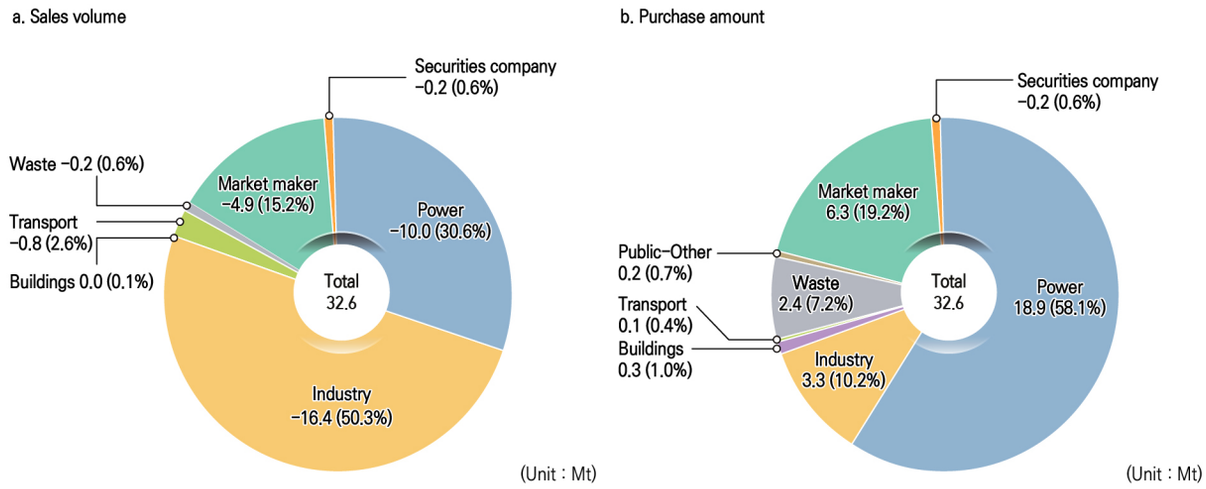
2.3. Analysis of Trading Records by Sector[35)]

In this section, KAU24 and KCU24 traded in the exchange and OTC markets (excluding the amount auctioned) are analyzed for each sector. Of the total trading volume of 32.6 Mt (32.6 Mt of KAU24 and 0 Mt of KCU24), 25.2 Mt was traded in the exchange market and 7.4 Mt was traded in the OTC market, accounting for 77.3% and 22.7% of the total trading volume, respectively. Broken down by sector, the proportion of emission permits sold was highest in the industry sector and the proportion of emission permits purchased was highest in the power sector, while the proportion of power sector and market-maker trades was second highest for sales and purchases, respectively.

Specifically, 16.4 Mt (50.3%) of KAU24 and KCU24 was sold by the industry sector, 10.6 Mt (30.6%) by power, 4.9 Mt (15.2%) by market makers, 0.8 Mt (2.6%) by transport, 0.2 Mt (0.6%) by securities companies, 0.2 Mt (0.6%) by waste, and 0.02 Mt (0.1%) by buildings. In addition, 18.9 Mt (58.1%) of KAU24 and KCU24 was purchased by the power sector, 6.3 Mt (19.2%) by market makers, 3.3 Mt (10.1%) by industry, 2.4 Mt (7.2%) by waste, 1.0 Mt (3.1%) by securities companies, 0.3 Mt (1.0%) by buildings, 0.2 Mt (0.7%) by public services/other, and 0.1 Mt (0.4%) by transport.

Compared to previous compliance years, in the industry sector, the amount of KAU24 and KCU24 sold for the 2024 compliance year was 7.7% lower compared to the amount sold for the 2023 compliance year (17.2 Mt), and the proportion of KAU24 and KCU24 sold from the total sales of KAU24 and KCU24 also decreased (51.9% → 50.3%). Conversely, the purchase volume and proportion for KAU24 and KCU24 in the industry sector decreased (6.6 Mt [20.1%] in 2023 → 3.3 Mt [10.2%] in 2024). In the power sector, the amount of KAU24 and KCU24 sold for the 2024 compliance year was 35.7% higher compared to the amount sold for the 2023 compliance year (6.6 Mt), and the proportion of KAU24 and KCU24 sold from the total sales of KAU24 and KCU24 also increased (20.2% in 2023 → 30.6% in 2024). In the power sector, the amount of KAU24 and KCU24 purchased for the 2024 compliance year was 33.6% higher compared to the amount purchased for the 2023 compliance year (19.0 Mt), and the proportion of KAU24 and KCU24 purchased from the total purchases of KAU24 and KCU24 also increased (57.3% → 58.1%). Compared to the 2023 compliance year, the sales volume and proportion for market makers decreased (7.0 Mt [21.3%] in 2023 → 4.9 Mt [15.2%] in 2024), while their purchase volume and proportion increased (4.7 Mt [14.2%] in 2023 → 6.3 Mt [19.2%] in 2024). In the case of securities companies, the sales volume and proportion decreased (0.7 Mt [2.2%] in 2023 → 0.2 Mt [0.6%] in 2024), while the purchase volume and proportion significantly increased (0.3 Mt [1.0%] in 2023 → 1.0 Mt [3.1%] in 2024). The trading records for market makers and securities companies are analyzed separately in Sections 2.5 and 2.6, respectively.

35) This analysis was conducted based on the trading volume registered in the ETRS because the KRX does not provide data specific to each sector. The trading records provided in this section may thus be different from those provided in "2.1. Analysis of the Trading Volume."



〈Figure Ⅲ-10〉 Sales and Purchase Volume by Sector in the 2024 Compliance Year

2.4 Analysis of Trading Records by Sub-Sector[36)]

In this section, KAU24 and KCU24 traded in the exchange and OTC markets (excluding the amount auctioned) are analyzed for each sub-sector.[37)] Of the total trading volume of 32.6 Mt, 6.6 Mt was sold by power generation/energy sub-sector, which accounted for the highest proportion (20.3%) of the total sales volume for KAU24 and KCU24, followed by 4.9 Mt sold by market makers (15.2%), 3.6 Mt by cement(11.2%), 3.4 Mt by integrated energy (10.3%), 2.9 Mt by steel (8.8%), and 2.4 Mt by petrochemicals (7.5%).

The amount of KAU24 and KCU24 purchased by the power generation/energy sub-sector was 15.0 Mt, which accounted for the highest proportion (45.9%) of the total purchase volume for KAU24 and KCU24, followed by 6.3 Mt purchased by market makers (19.2%), 4.0 Mt by integrated energy (12.2%), 2.4 Mt by waste (7.2%), 1.0 Mt by securities companies (3.1%), and 0.9 Mt by oil refining (2.7%).

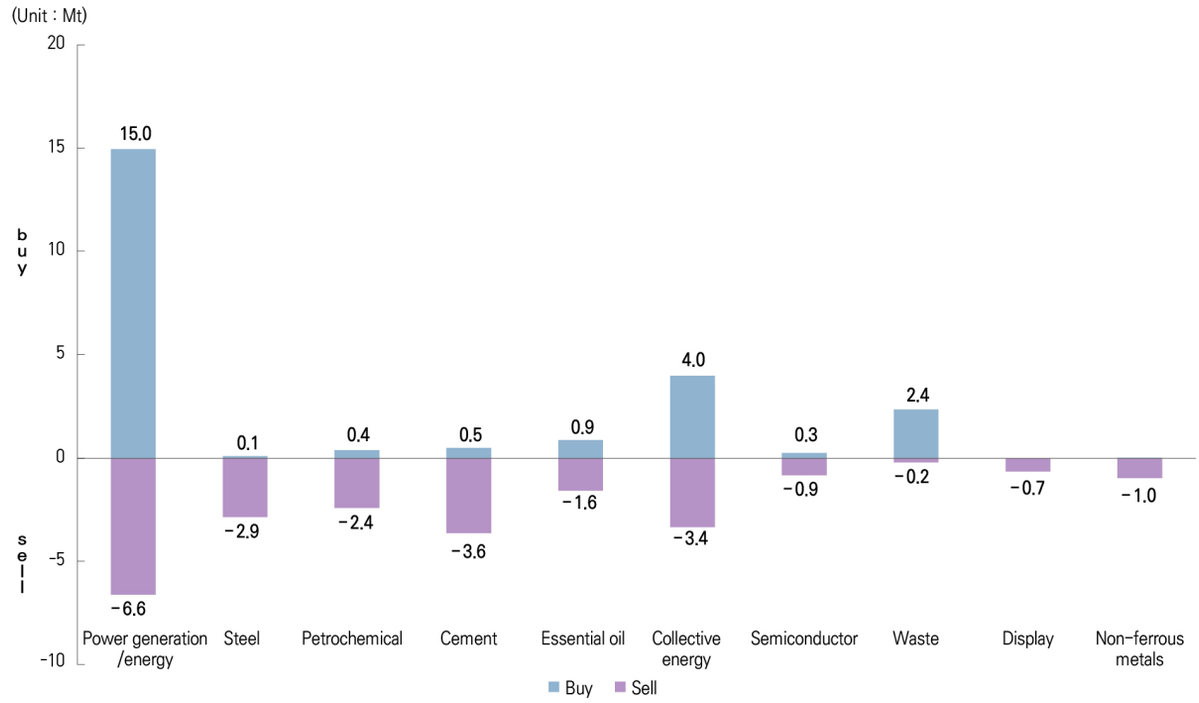
According to the analysis of the trading volume for the 10 sub-sectors[38)] with the highest certified emissions in the 2024 compliance year, it was confirmed that the power generation/energy, integrated energy, and waste sub-sectors were net buyers of emission permits. The net purchase of the power generation/energy, integrated energy, and waste sub-sectors was 8.3 Mt, 0.6 Mt, and 2.2 Mt, respectively; the covered entities in these sub-sectors purchased emission permits to make up for a deficit in their emission permits caused by excess certified emissions and thus comply with their

36) This analysis was conducted based on the trading volume registered in the ETRS because the KRX does not provide data specific to sub-sector trades. The trading records provided in this section may thus be different from those provided in "2.1. Analysis of the Trading Volume."

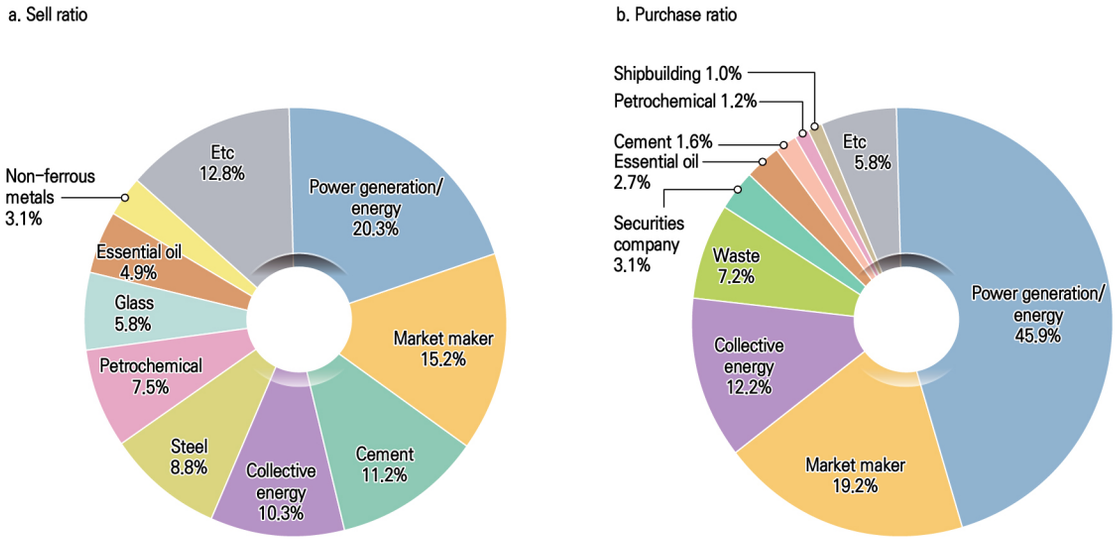
37) A total of 31 sub-sectors, market makers, and securities companies.

38) The amount of certified emissions was the highest in the power generation/energy sub-sector, followed by steel, petrochemicals, cement, oil refining, integrated energy, semiconductors, waste, displays, and nonferrous metals.

obligation to surrender emission permits. In the steel, petrochemical, and cement sub-sectors, which ranked second to fourth in terms of certified emissions, respectively, the amount of emission permits sold exceeded the amount of those purchased by 2.8 Mt, 2.0 Mt, and 3.1 Mt, respectively.



〈Figure Ⅲ-11〉 Sales and Purchases of the 10 Sub-Sectors with the Highest Certified Emissions in the 2024 Compliance Year



〈Figure Ⅲ-12〉 Proportion of Sales and Purchases by Sub-Sector in the 2024 Compliance Year

2.5. Analysis of the Trading Records for Market Makers[39)]

In accordance with Article 22-2 of the Act, the government introduced the market-making system in Phase II to revitalize emissions trading and ensure the stable operation of the emissions trading market. Under this system, the government lends emission permits to market makers every month from the reserve for market-making, and market makers are required to propose the asking or bidding price for emission permits in the exchange market and participate in emission permit transactions. In the 2018 and 2019 compliance years, the early stages of the introduction of the market-making system, two financial institutions were designated as market makers. The number of market makers participating in the system then increased to five in the 2020 compliance year, seven in the 2022 compliance year, and eight[40)] in the 2023 compliance year.[41)]

Market makers sold 4.9 Mt and purchased 6.3 Mt of KAU24. Unlike previous compliance years, the amount of KAUs purchased by market makers exceeded the amount of KAUs that they sold. The amount of KAU24 sold and purchased by market makers decreased and increased respectively, compared to that of KAU23 (7.0 Mt was sold and 4.7 Mt was purchased).

Between September 2024 and August 2025, during which KAU24 was traded as the primary type of emission permit, the proportion of market-maker trades from the total exchange trading volume for KAU24 (excluding the amount auctioned) was 19.9% for sales and 25.2% for purchases.

By month, January 2025 recorded highest share of sales by market makers, accounting for 70.4% (545.4 kt) of KAU24 trading volume on the exchange (774.5 kt). The maximum sales volume by market makers was recorded in December 2024 at 988.3 kt, representing 30.7% of the KAU24 exchange trading volume at that time. Conversely, the proportion of sales by market makers was lowest in June 2025, accounting for 7.7% (228.8 kt) of the total KAU24 exchange trading (2,961.0 kt). In terms of absolute volume, the smallest amount of allowances sold by market makers was recorded in May 2025 (131.4 kt).

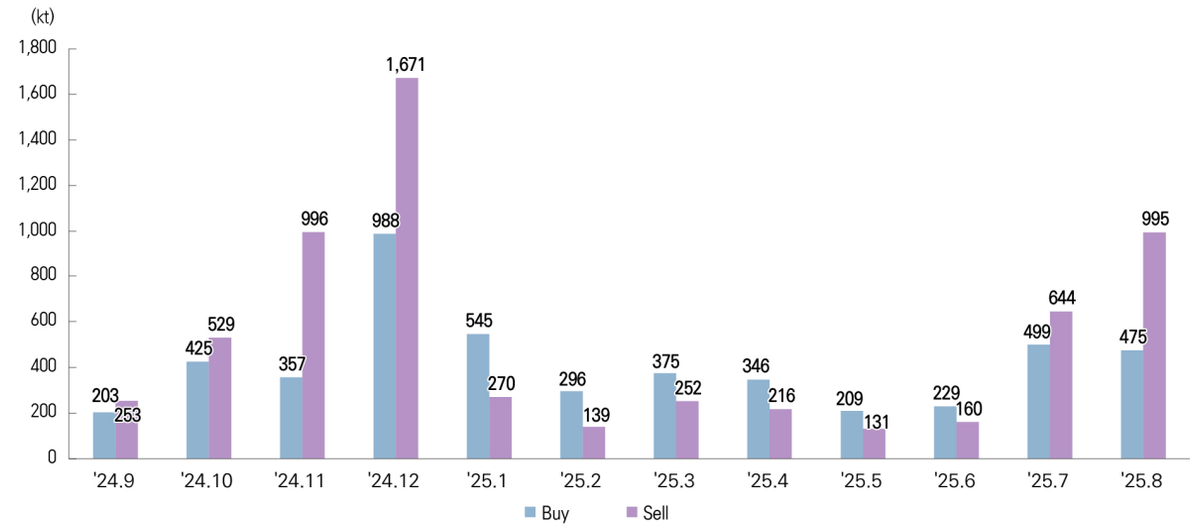
The highest volume of KAU24 purchases by market makers was 995.7 kt (November 2024), which accounted for 52.0% of the total trading volume for KAU24, representing the highest proportion obtained during the analysis period. The purchase volume for KAU24 was 160.1 kt in June 2025, which accounted

39) This analysis was conducted based on the trading volume registered in the ETRS. The trading records provided in this section may thus be different from those provided in "2.1. Analysis of the Trading Volume."

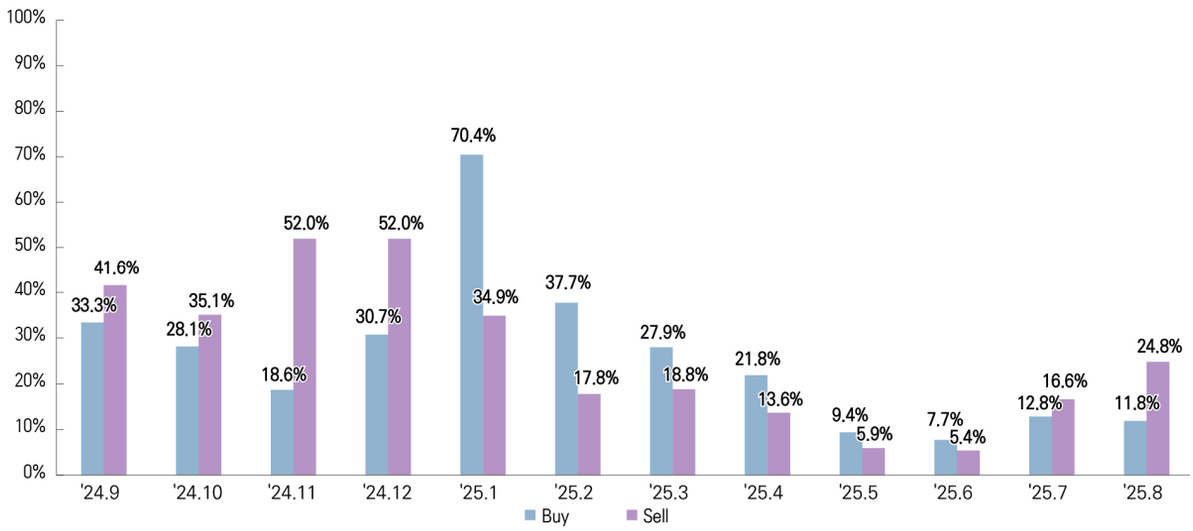
40) Before the 2023 compliance year, the designated market makers included the Korea Development Bank, the Industrial Bank of Korea, Hana Financial Investment, the Korea Investment & Securities, SK Securities, KB Securities, and Shinhan Securities. In the 2023 compliance year, NH Investment & Securities was also designated as a market maker.

41) In the 2025 compliance year, the number of market makers increased to a total of nine with the additional designation of the Export-Import Bank of Korea (Notice No. 2025-42 of the Ministry of Climate, Energy and Environment, Dec 02, 2025)

for 5.4% of the total exchange trading volume for KAU24, while the lowest purchase volume was recorded in May 2025 at 131.4 kt.



〈Figure Ⅲ-13〉 Trading Volume of Market Makers for KAU24



〈Figure Ⅲ-14〉 Proportion of Market Makers for KAU24 in the Exchange Market

2.6. Analysis of Proprietary Trading by Securities Companies[42)]

After the enactment and enforcement of the relevant notification[43)] in October 2021, 20 securities companies began to participate in the exchange emissions trading market from December 2021. In the 2024 compliance year, a total of 21 securities companies participated, selling 0.2 Mt and purchasing 1.0 Mt of KAU24. The trading volume for KAU24 has declined compared to KAU23 (0.34 Mt was sold and 0.35 Mt was purchased) while the purchase volume increased.

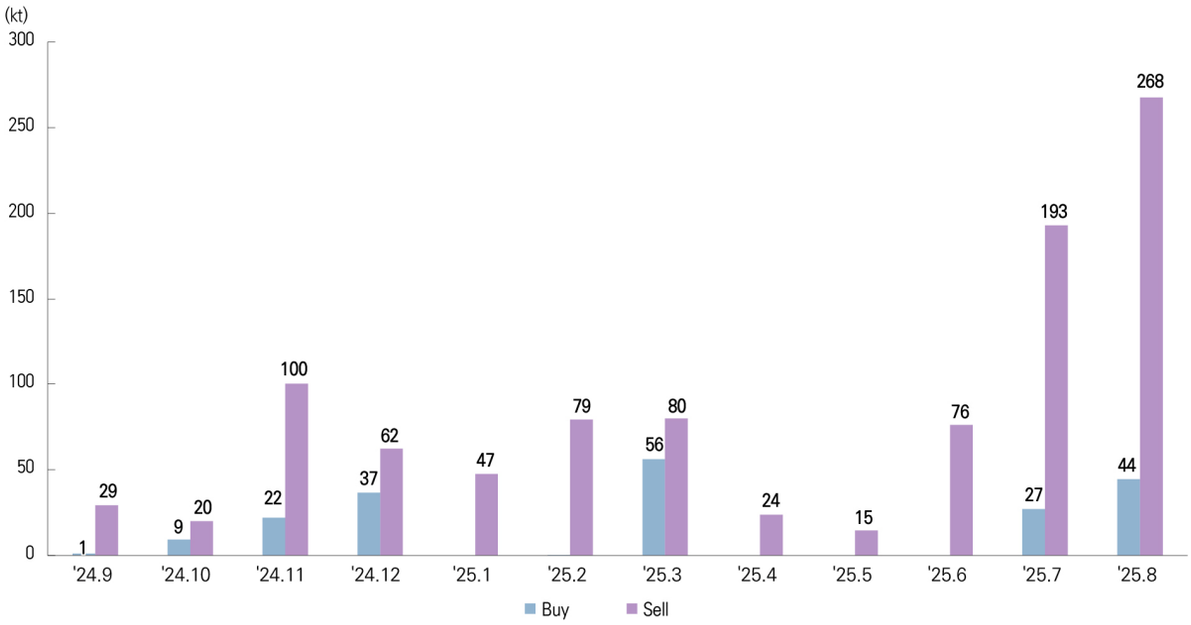
Between September 2024 and August 2025, during which KAU24 was traded as the primary type of emission permit, the proportion of securities company trades from the total exchange trading volume for KAU24 (excluding the amount auctioned) was 0.8% for sales and 4.0% for purchases. Considering that the proportion of securities company trades from the total KAU23 trading volume during the period when KAU23 was traded as the primary type of emission permit (September 2023–August 2024) was 1.4% for sales and 1.5% for purchases, the proportion of securities company trading in the exchange market increased.

By month, there were no sales recorded from April to June 2025. The highest volume of KAU24 sales by securities companies was 56.0 kt in March 2025, which accounted for 4.2% of the total exchange trading volume for KAU24.

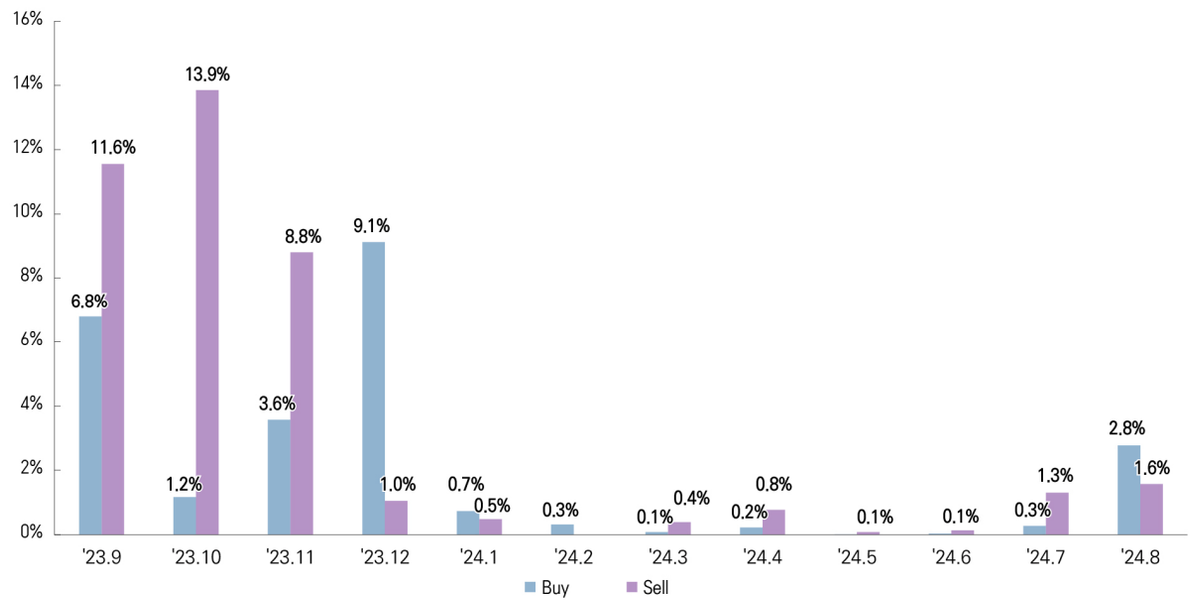
The highest purchase volume was recorded in August 2025 at 268.0 kt, accounting for 6.7% of the total KAU24 purchases, while the lowest purchase volume was 15.0 kt in May 2025, representing 0.7% of the total purchase volume.

42) This analysis was conducted based on the trading volume registered in the ETRS. The trading records provided in this section may thus be different from those provided in "2.1. Analysis of the Trading Volume."

43) Notification on Emissions Trade Brokerage Companies (Ministry of Environment Notification No. 2021-203, enacted and entered into force on 19 October 2021).



〈Figure Ⅲ-15〉 Trading Volume of Securities Companies for KAU24



〈Figure Ⅲ-16〉 Proportion of Securities Companies for KAU24 in the Exchange Market

2025

KOREAN EMISSIONS TRADING SYSTEM REPORT

Ⅳ

Survey

1. Overview of the Survey
2. Views on the K-ETS
3. Response to the K-ETS
4. GHG Emission Reduction Efforts and Performance
5. Support Required to Respond to the K-ETS

1 Overview of the Survey

A survey was conducted with covered entities participating in the K-ETS regarding their views of the K-ETS and emissions trading market, the implementation of the K-ETS, their GHG emission reduction efforts and performance, and the support required to respond to the K-ETS. The survey was conducted for 20 days from 12 November 2025 to 1 December 2025[44] with entities designated as covered entities for the 2024 compliance year. The total number of responses, excluding duplicates, was 461, with a response rate of 59.4%.[45] An analysis of the sectoral composition of responding entities revealed minor deviations from the distribution observed in the covered entities selected for the survey. The sectoral breakdown is as follows: power (selected: 8.4%, 65 entities; responded: 12.1%, 56 entities); industry (selected: 61.9%, 480 entities; responded: 59.7%, 275 entities), buildings (selected: 5.3%, 41 entities; responded: 8.9%, 41 entities), transport (selected: 8.6%, 67 entities; responded: 6.5%, 30 entities), waste (selected: 15.6% 121 entities; responded: 10.4%, 48 entities), and public services/other (selected: 0.3%, 2 entities; responded: 2.4%, 11 entities). In the power, buildings, and public services/other sectors, the distribution of responding entities was slightly higher than that of the selected entities. Conversely, in the industry, transport, and waste sectors, the distribution of selected entities was slightly higher than that of responding entities (〈Table IV-1〉).

〈Table Ⅳ-1〉 Responses from Covered Entities within Each Sector

Sector	Selected Covered Entities		Responding Covered Entities		Response Rate
	No. of Entities	Distribution	No. of Entities	Distribution	
Power	65	8.4%	56	12.1%	
Industry	480	61.9%	275	59.7%	
Buildings	41	5.3%	41	8.9%	
Transport	67	8.6%	30	6.5%	
Waste	121	15.6%	48	10.4%	
Public Services/Other	2	0.3%	11	2.4%	
Total	**776**	**100.0%**	**461**	**100.0%**	**59.4%**

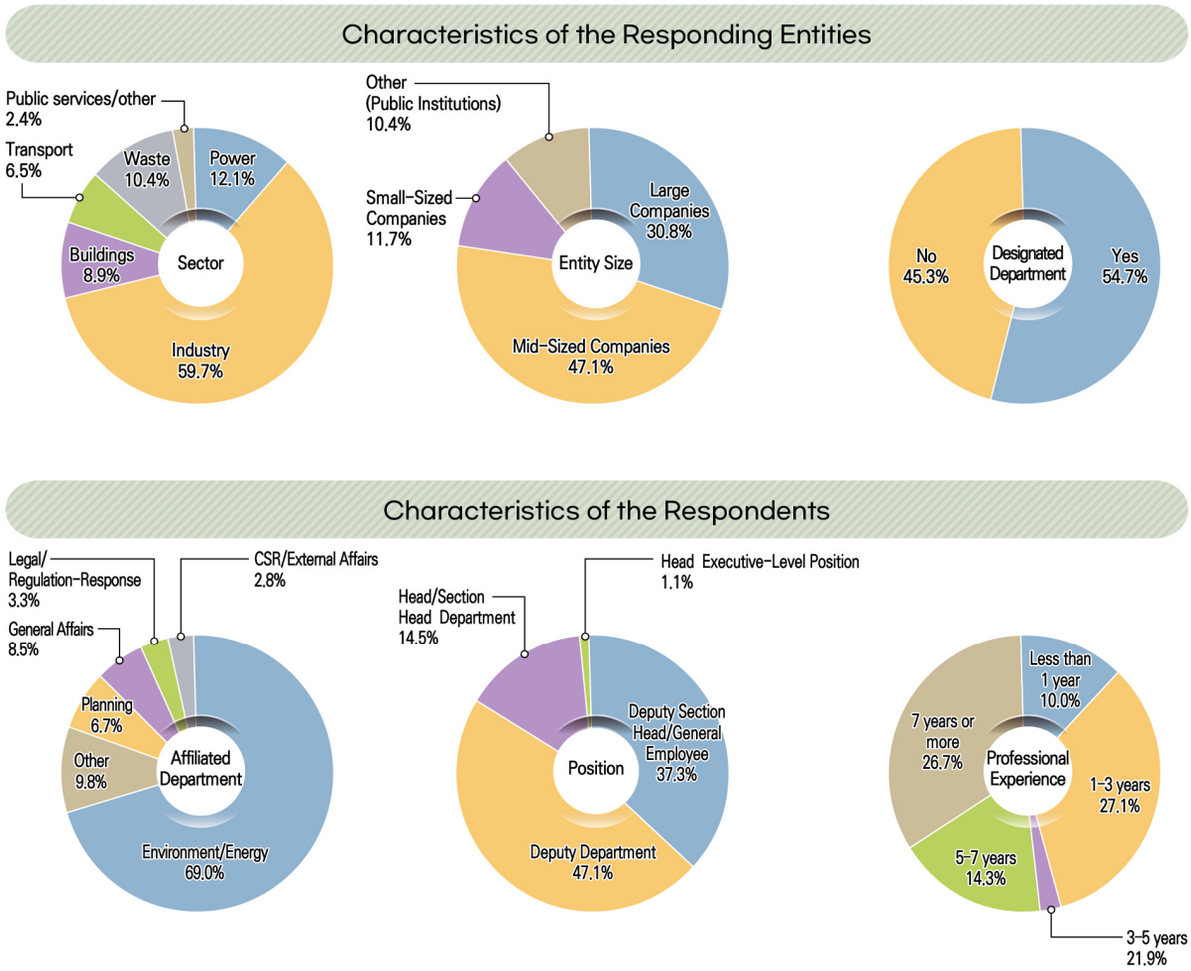
The general characteristics of the respondents are presented in 〈Figure IV-1〉. Broken down by sector, the proportion of responses was highest in the following order: industry (59.7%, 275 entities), power (12.1%, 56 entities), waste (10.4%, 48 entities), buildings (8.9%, 41 entities), transport (6.5%, 30 entities), and public services/other (2.4%, 11 entities). In terms of entity size, 142 (30.8%) of the responding entities were large companies, 217 (47.1%) were mid-sized companies, 54 (11.7%) were small-sized

44) The survey was conducted by distributing the questionnaire and a link to the online survey via email to the person-in-charge of the covered entities selected for the survey and by posting a notice regarding the survey on the NGMS notice page. In addition, a follow-up email and text messages were sent once during the survey period to encourage participation.

45) Because the survey was conducted concurrently through email distribution to the person-in-charge of the selected covered entities and through a notice posted on the NGMS website, there is a possibility that the survey respondents may not fully coincide with the individuals initially selected as survey targets (i.e., the person-in-charge of each entity).

companies, and 48 (10.4%) were other entities (public institutions). Therefore, the proportion of responses followed the order of mid-sized companies, large companies, small-sized companies, and other entities (public institutions). Among the covered entities that participated in the survey, 252 entities (54.7%) reported having a dedicated department responsible for responding to the K-ETS. The proportion of such responses was highest among large companies (68.3%, 97 responses), followed by other entities (public institutions) (62.5%, 30 responses), small-sized companies (48.1%, 26 responses), and mid-sized companies (45.6%, 99 responses). Regarding the affiliated department of the person in charge of responding to the K-ETS, the environment and energy department accounted for the largest proportion (69.0%, 318 responses), followed by general affairs (8.5%, 39 responses), planning (6.7%, 31 responses), legal and regulation-response (3.3%, 15 responses), and CSR and external affairs (2.8%, 13 responses). Other departments (9.8%, 45 responses) included production technology, occupational safety and health, public affairs, finance, and management support.

In terms of the positions held by the respondents, the largest proportion held a deputy department or section head position (47.1%, 217 responses), followed by deputy section head or general employee (37.3%, 172 responses), department head (14.5%, 67 responses), and executive-level position (1.1%, 5 responses). In terms of the respondents' experience in K-ETS-related tasks, the most common response was 1–3 years (27.1%, 125 responses), followed by 7 years or more (26.7%, 123 responses), 3–5 years (21.9%, 101 responses), 5–7 years (14.3%, 66 responses), and less than 1 year (10.0%, 46 responses). This indicates that the results of the present survey primarily reflect the perspectives of mid-ranking managers and working-level employees with diverse levels of professional experience in K-ETS-related tasks.



〈Figure Ⅳ-1〉 General Characteristics of the Responding Entities and Respondents

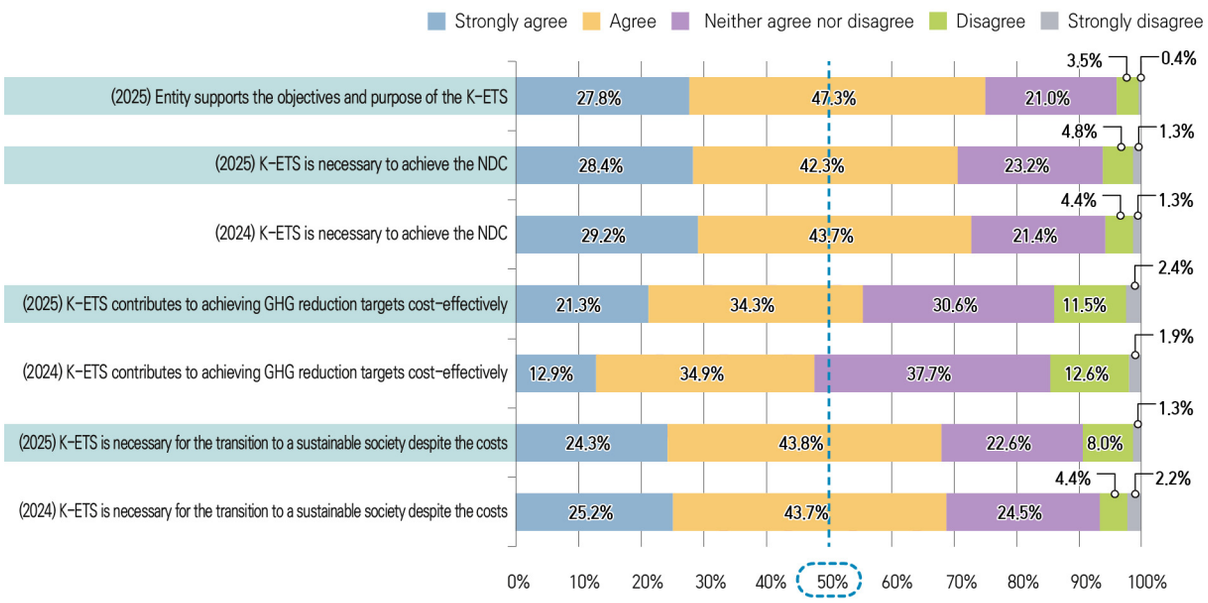
The survey questionnaire consisted of one common item addressing the support required to respond to the K-ETS and 22 items grouped primarily into three categories: (i) overall views on the K-ETS, (ii) responses to the K-ETS, and (iii) GHG emission reduction efforts and performance (〈Table Ⅳ-2〉). In consideration of continuity with previous surveys conducted by the Greenhouse Gas Inventory and Research Center of Korea (GIR), many of the existing survey items were retained. However, some questions were partially revised to reflect the timing of the current survey. The survey was developed with common items that were not limited to specific sectors or sub-sectors to ensure that all respondents answered the same set of questions. Some survey items were designed in a branching format so that respondents were directed to different follow-up questions based on their initial responses, allowing for the collection of opinions from multiple perspectives.

〈Table Ⅳ-2〉 List of Survey Items by Category

Category	Survey Items
Ⅰ. Overall Views on the K-ETS	① Views on the K-ETS
	② Impact of participation in the K-ETS on business operations
	③ Impact of participation in the K-ETS on GHG emission reduction activities
	④ Forecasts for the price of emission permits (KAUs) for 2026 and reasons for these price forecasts
	⑤ Forecasts for the price of emission permits (KAUs) for 2030
Ⅱ. Response to the K-ETS	⑥ Existence of a dedicated department responsible for responding to the K-ETS
	⑦ Positions of K-ETS decision-makers
	⑧ Strategies to comply with the surrender obligation by K-ETS decision-makers in Phase III
	⑨ Changes in the surrender obligation compliance strategies for Phase IV and the direction of such changes
	⑩ Methods for complying with the surrender obligation in the 2024 compliance year
	⑪ Presence of surplus emission permits in the 2024 compliance year and the preferred methods for dealing with them
	⑫ Strategies for dealing with surplus emission permits for Phase IV and reasons for preferring such methods
	⑬ Operational direction of banking restrictions for Phase V
	⑭ Number of emission permit transactions, trading periods, and primary trading methods in the 2024 compliance year
	⑮ Participation in emission allowance auctions in Phase IV and reasons for participation
	⑯ Utilization of consignment trading through emissions trade brokerage companies
	⑰ Utilization of revenue generated from emission allowance auctions
	⑱ Level of understanding of the K-ETS and associated systems used to respond to it
Ⅲ. GHG Emission Reduction Efforts and Performance	⑲ Internal reduction activities implemented during Phase III
	⑳ Implementation of internal reduction activities during Phase IV, reasons for implementation, and planned internal reduction activities
	㉑ External reduction projects implemented during Phase III and reasons for implementation
	㉒ Implementation of external reduction projects during Phase IV, reasons for implementation, and planned external reduction activities
Ⅳ. Common Item	㉓ Requests to government agencies for improving understanding of and response to the K-ETS

2 Views on the K-ETS

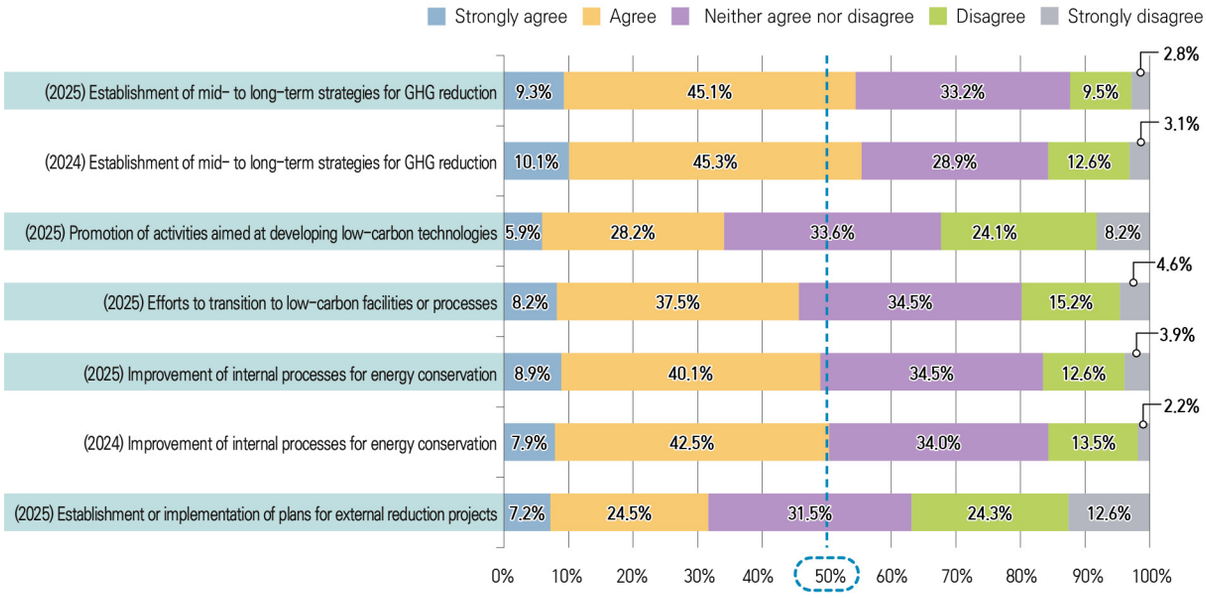
The views of covered entities on the K-ETS were analyzed. The survey results showed that covered entities were supportive of the objectives and purpose of the K-ETS (positive: 75.1%, 346 responses; negative: 3.9%, 18 responses). The proportion of responding entities saying that the K-ETS is necessary to achieve Korea's NDC (positive: 70.7%, 326 responses; negative 6.1%, 28 responses) and that the K-ETS is necessary for the transition to a sustainable society regardless of the costs of responding to it (positive: 68.1%, 314 responses; negative: 9.3%, 43 responses) was high. In particular, more than half of the respondents reported that the K-ETS contributes to achieving GHG reduction targets in a cost-effective manner (positive: 55.5%, 256 responses; negative: 13.9%, 64 responses), indicating that perceptions of the efficiency of the K-ETS have improved since the 2024 survey (positive: 47.8%, 152 responses; negative: 14.5%, 46 responses).



〈Figure Ⅳ-2〉 Overall Views on and Responses to the K-ETS

The impact of covered entities' participation in the K-ETS on their GHG emission reduction activities was analyzed, with the survey results showing that the proportion of positive responses was higher than the proportion of negative responses for several survey items. The responding entities reported that their participation in the K-ETS has contributed to the establishment of mid- to long-term strategies for GHG reduction (positive: 54.4%, 251 responses; negative: 12.4%, 57 responses), their efforts to transition to low-carbon facilities or processes (positive: 45.8%, 211 responses; negative: 19.7%, 91 responses), and the improvement of internal processes for energy conservation (positive: 49.0%, 226 responses; negative: 16.5%, 76 responses). However, compared to the previous year, the proportion of positive responses has slightly decreased for the contribution to the establishment of mid- to long-term strategies (previously, positive: 55.3%, 176 responses; negative: 15.7%, 50 responses) and internal process improvements (previously, positive: 50.3%, 160 responses; negative: 15.7%, 50 responses).

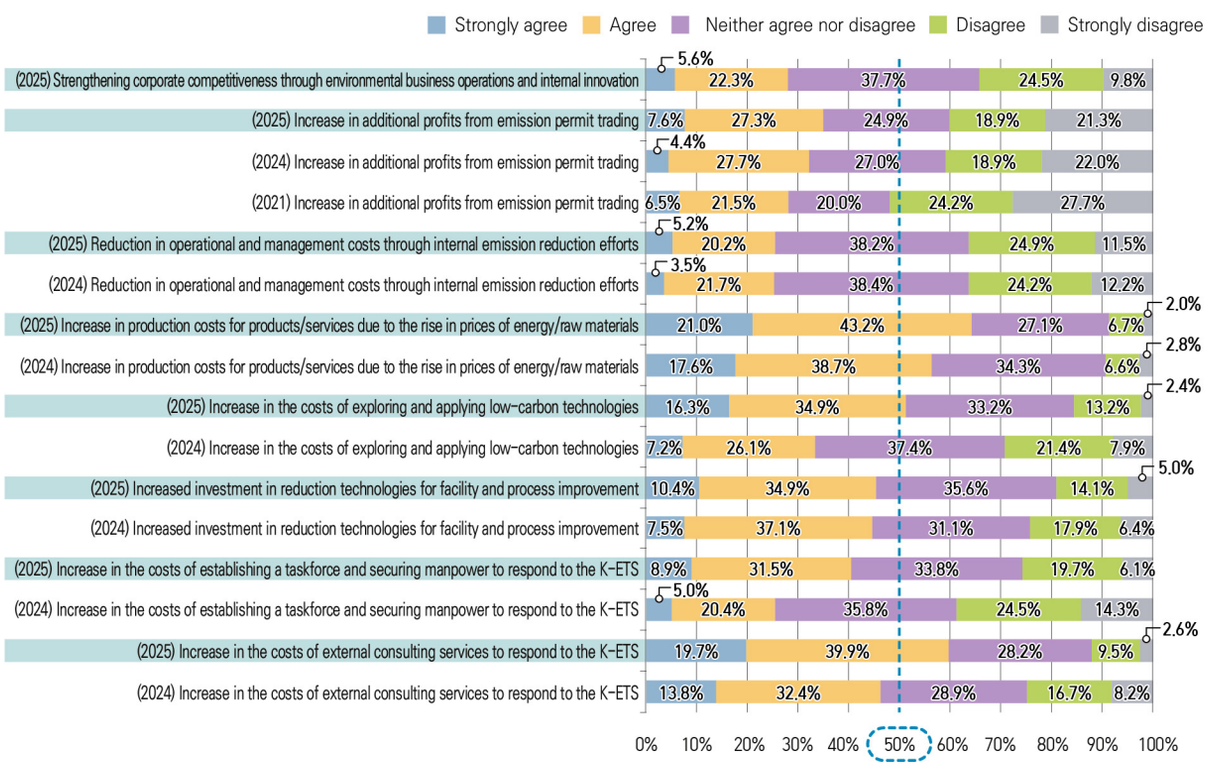
Regarding the promotion of activities aimed at developing low-carbon technologies, the proportion of positive responses (34.1%, 157 responses) was slightly higher than that of negative responses (32.3%, 149 responses). Conversely, the proportion of negative responses (36.9%, 170 responses) was higher than that of positive responses (31.7%, 146 responses) for the establishment or implementation of plans for external reduction projects. These results suggest that the responding entities have primarily focused on immediately applicable reduction activities, such as improving internal processes and transitioning to low-carbon facilities or processes, rather than pursuing the implementation of external reduction projects or the development of low-carbon technologies.



〈Figure Ⅳ-3〉 Impact of Participation in the K-ETS on GHG Emission Reduction Activities

Efforts to respond to the K-ETS and reduce GHG emissions do not appear to have strengthened corporate competitiveness or increased corporate profit. The proportion of negative responses was slightly higher than that of positive responses regarding the following survey items: an increase in additional profits from emission permit trading (positive: 34.9%, 161 responses; negative: 40.1%, 185 responses), a reduction in operational and management costs through internal emission reduction efforts (positive: 25.4%, 117 responses; negative: 36.4%, 168 responses), and the strengthening of product/service competitiveness against other products/services in the same industry through environmental business operations and internal innovation (positive: 28.0%, 129 responses; negative: 34.3%, 158 responses). However, in terms of the increase in additional profits from emission permit trading, the proportion of positive responses increased and that of negative responses decreased compared to the survey results for the 2021 compliance year (positive: 28.0%, 72 responses; negative: 51.9%, 135 responses).

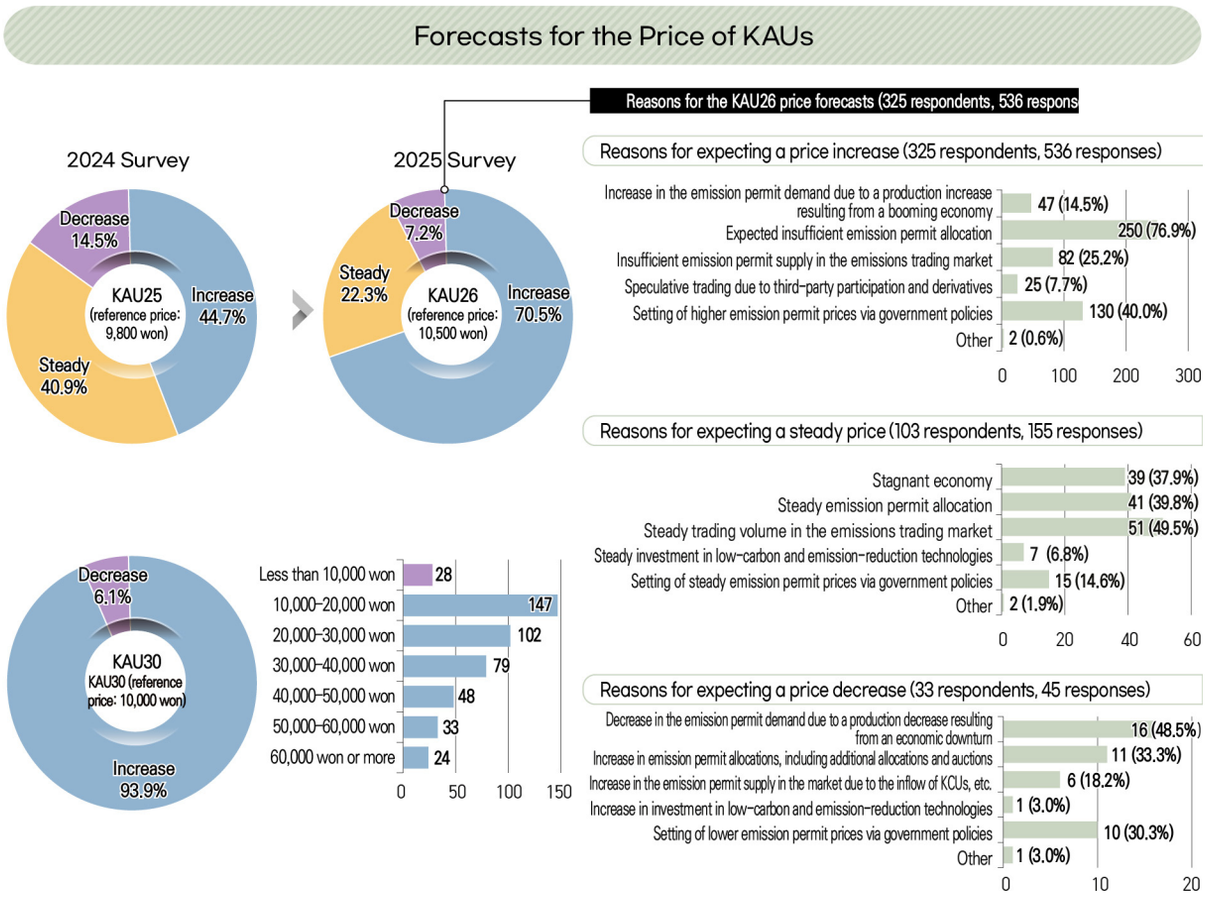
Questions on the impact of the K-ETS on the business operations of covered entities revealed that the positive response rate to an increase in production costs for products/services due to the rise in prices of energy/raw materials (positive: 64.2%, 296 responses; negative: 8.7%, 40 responses) exceeded 60%, indicating that a greater number of entities experienced the burden of increased production costs compared to the 2024 survey results (positive: 56.3%, 179 responses; negative: 9.4%, 30 responses). Regarding the investments and costs associated with GHG emissions reduction, the proportion of positive responses was higher than that of negative responses for an increase in the costs of exploring and applying low-carbon technologies (positive: 51.2%, 236 responses; negative: 15.6%, 72 responses) and increased investment in reduction technologies for facility and process improvement (positive: 45.3%, 209 responses; negative: 19.1%, 88 responses). Compared to the results of the previous year's survey, the proportion of positive responses has increased for all survey items and the proportion of negative responses has decreased for all survey items, indicating that the responding entities are making continuous efforts to reduce GHG emissions. In addition, compared to the previous year, the positive response rate has increased relatively significantly and the negative response rate has decreased for an increase in the costs of establishing a taskforce and securing manpower to respond to the K-ETS (positive: 40.3%, 186 responses; negative: 25.8%, 119 responses) and an increase in the costs of external consulting services to respond to the K-ETS (positive: 59.7%, 275 responses; negative: 12.1%, 56 responses).



〈Figure Ⅳ-4〉 Impact of the K-ETS on the Business Operations of the Covered Entities

In terms of forecasting the price for KAUs in 2026, with reference to the closing price for KAU25 on 7 November 2025 (10,500 won), most of the responding entities expected an increase (70.5%, 325 responses), followed by a steady price (22.3%, 103 responses) and a decrease (7.2%, 33 responses). Compared to the 2024 survey (reference price: 9,800 won), the proportion of respondents anticipating an increase in the price for KAUs in the following year increased by 25.8%p. This suggests that, with the transition from Phase III to Phase IV, a greater number of entities anticipate emission permit prices to increase. The main reasons for expecting an increase in emission permit prices were an expected insufficient emission permit allocation (76.9%, 250 responses) and the setting of higher emission permit prices via government policies (40.0%, 130 responses). However, it has been found that, while the responding entities anticipate an increase in emission permit prices, they do not expect prices to rise significantly during Phase IV. Specifically, 60.1% (277 responses) of all respondents expected the price of KAU in 2030 to remain below 30,000 won, and 77.2% (356 responses) anticipated the price to be below 40,000 won.

The most frequently cited reason for expecting steady KAU prices in 2026 was a steady trading volume in the emissions trading market (49.5%, 51 responses), followed by a steady emission permit allocation (39.8%, 41 responses) and a stagnant economy (37.9%, 39 responses). Other responses noted that, despite a reduction in emission permit allocations, declining business conditions in certain sub-sectors will lead to a decrease in production and will lower the demand for emission permits, which in turn will restrain potential price increases. The reasons for expecting a decrease in the price of KAUs included a decrease in the demand for emission permits due to a decrease in production as a result of an economic downturn (48.5%, 16 responses), an increase in emission permit allocations, including additional allocations and auctions (33.3%, 11 responses), and the setting of lower emission permit prices via government policies (30.3%, 10 responses).

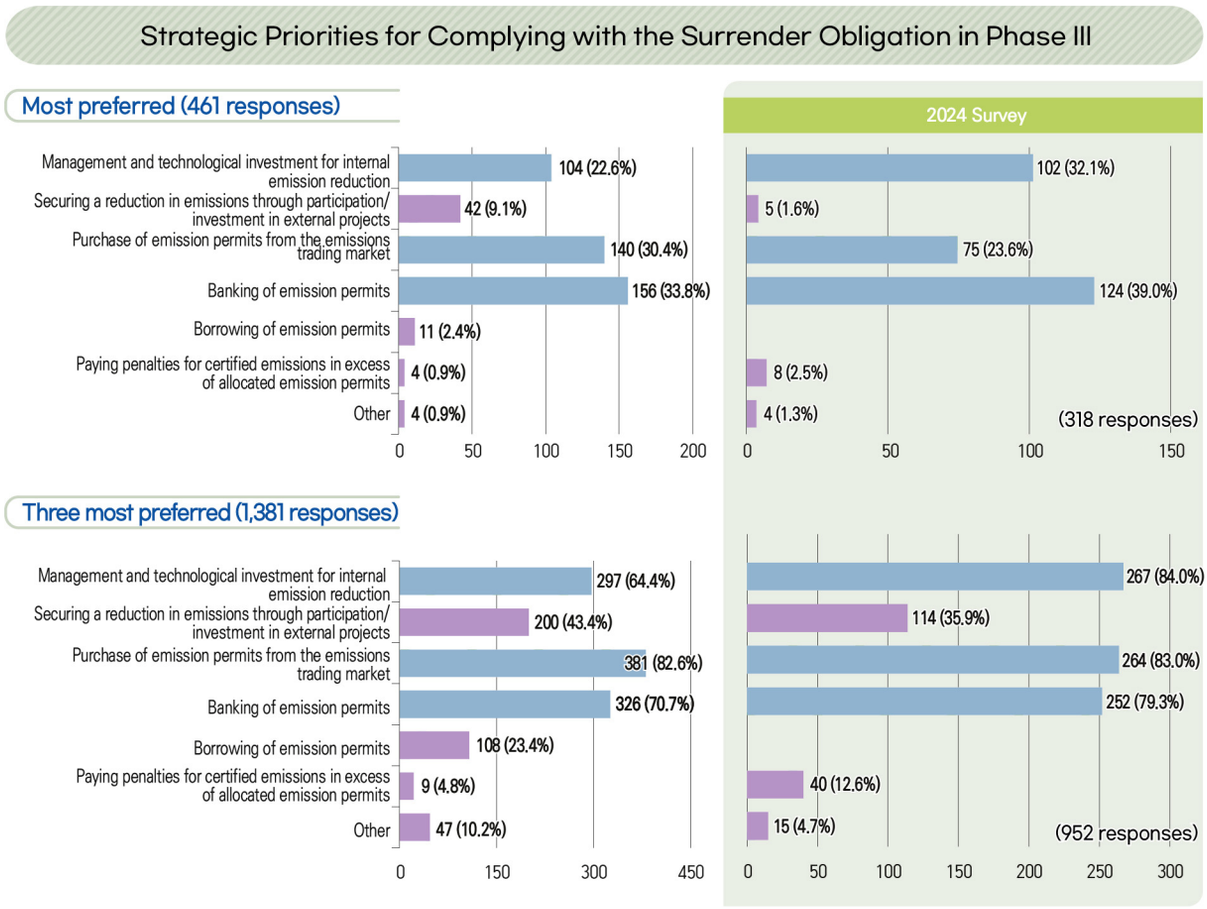


〈Figure Ⅳ-5〉 Forecasts for the Trading Price of Emission Permits

3 Response to the K-ETS

Regarding the positions held by employees within covered entities who have the authority to make decisions regarding the K-ETS, the largest proportion were those holding an executive-level position (36.4%, 168 responses), followed by the highest decision-makers (22.8%, 105 responses), department heads (20.4%, 94 responses), section heads or deputy department heads (15.0%, 69 responses), and deputy section heads or general employees (5.4%, 25 responses). These results indicate that those holding a department head position or higher (79.6%, 367 responses) are primarily responsible for making decisions regarding how their affiliated entity should respond to the K-ETS.

In terms of the most preferred strategy to comply with the obligation to surrender emission permits, these decision-makers chose the banking of emission permits (33.8%, 156 responses), the purchase of emission permits from the emissions trading market (30.4%, 140 responses), and management and technological investment for internal emission reduction (22.6%, 104 responses). However, in terms of the three most preferred strategies, the decision-makers chose the purchase of emission permits (82.6%, 381 responses), the banking of emission permits (70.7%, 326 responses), and management and technological investment for internal emission reduction (64.4%, 297 responses). These results differ from those of the 2024 survey. In the 2024 survey, regarding the most preferred strategy, the highest response rate was for the banking of emission permits (39.0%, 124 responses), followed by management and technological investment for internal emission reduction (32.1%, 102 responses) and the purchase of emission permits (23.6%, 75 responses). Regarding the three most preferred strategies, the highest response rate was for management and technological investment for internal emission reduction (84.0%, 267 responses), followed by the purchase of emission permits (83.0%, 264 responses) and the banking of emission permits (79.3%, 252 responses). In contrast, the results of the present survey indicate that a greater number of entities consider purchasing emission permits as a key strategy to comply with the surrender obligation. This change is likely due to the continued low prices of emission permits.



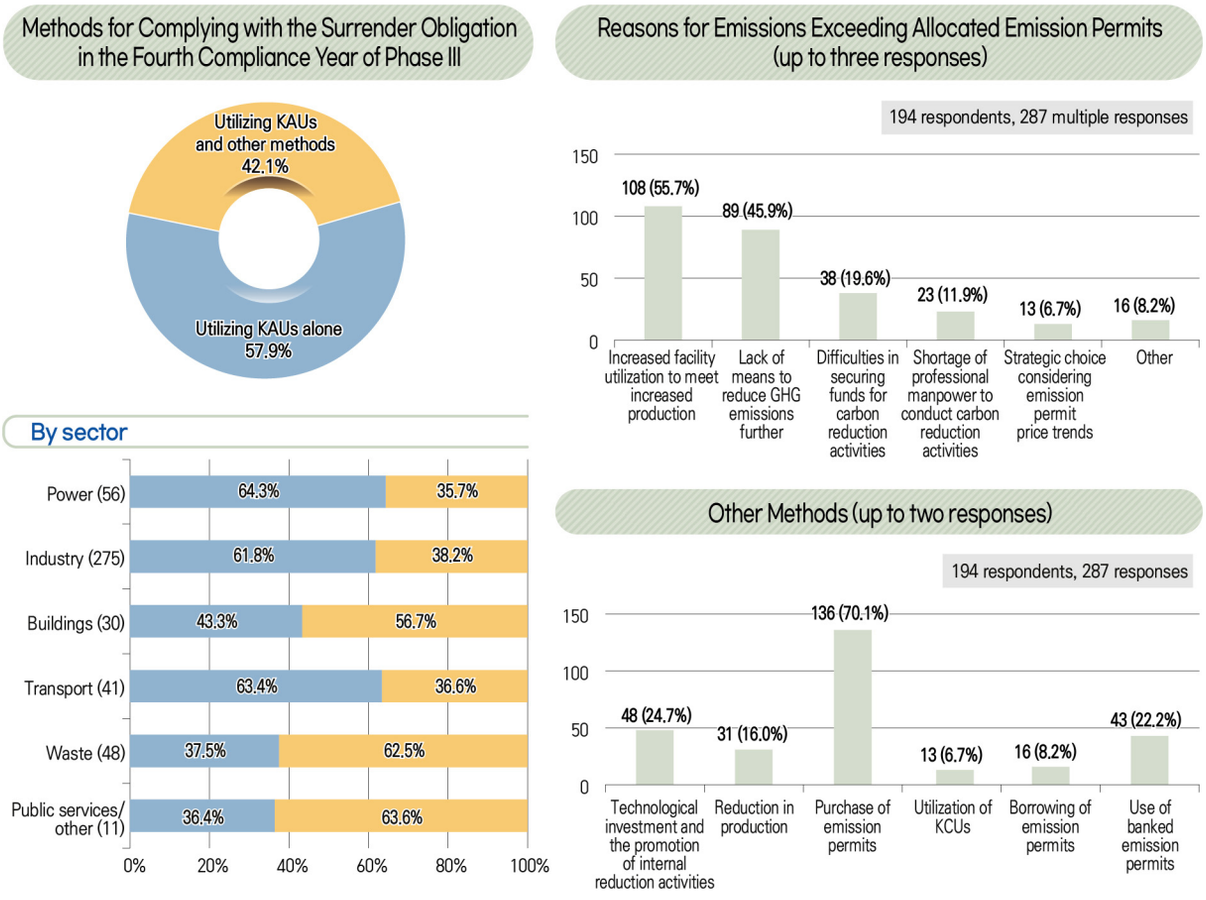
〈Figure Ⅳ-6〉 Strategies to Comply with the Surrender Obligation by K-ETS Decision-Makers in Phase III

With regard to the methods used by covered entities to surrender emission permits, 57.9% of the responding entities (267 responses) reported that they were able to meet their obligation to surrender emission permits using KAUs allocated for the 2024 compliance year alone, which was slightly higher than the proportion of entities that responded that they met their obligation using other methods (42.1%, 194 responses). Compared to the 2024 survey, in which 61.6% of respondents (196 responses) reported having met the surrender obligation using KAUs alone and 38.4% (122 responses) reported having used both KAUs and other methods, the gap between the two groups has narrowed. Broken down by sector, the proportion of respondents reporting to have met the surrender obligation using KAUs alone was the highest for the power sector (64.3%, 36 responses), followed by transport (63.4%, 26 responses), industry (61.8%, 170 responses), buildings (43.3%, 13 responses), waste (37.5%, 18 responses), and public services/other (36.4%, 4 responses).

When asked to select up to two reasons for the emission of GHGs in excess of the amount of emission permits allocated to them, the primary reasons identified by the responding entities that reported they had used additional methods other than using KAUs were increased facility utilization to meet increased

production (55.7%, 108 responses), the lack of means to reduce GHG emissions further (45.9%, 89 responses), and difficulties in securing funds for carbon reduction activities (19.6%, 38 responses).

Regarding methods other than using KAUs employed by covered entities to comply with the obligation to surrender emission permits, the purchase of emission permits was the most commonly used method (70.1%, 136 responses), followed by technological investment and the promotion of internal reduction activities (24.7%, 48 responses) and the use of banked emission permits (22.2%, 43 responses). These findings are in line with the results of the analysis of the strategies to comply with the surrender obligation by K-ETS decision-makers in Phase III (〈Figure Ⅳ-6〉). In both the 2023 and 2024 surveys, the purchase of emission permits was also the most commonly used additional method employed by the responding entities (2023: 74.8%, 83 responses; 2024: 78.7%, 96 responses). This suggests that the purchase of emission permits has consistently been the primary additional mechanism employed other than using KAUs to comply with the surrender obligation.



〈Figure Ⅳ-7〉 Methods for Complying with the Surrender Obligation in the Fourth Compliance Year of Phase III

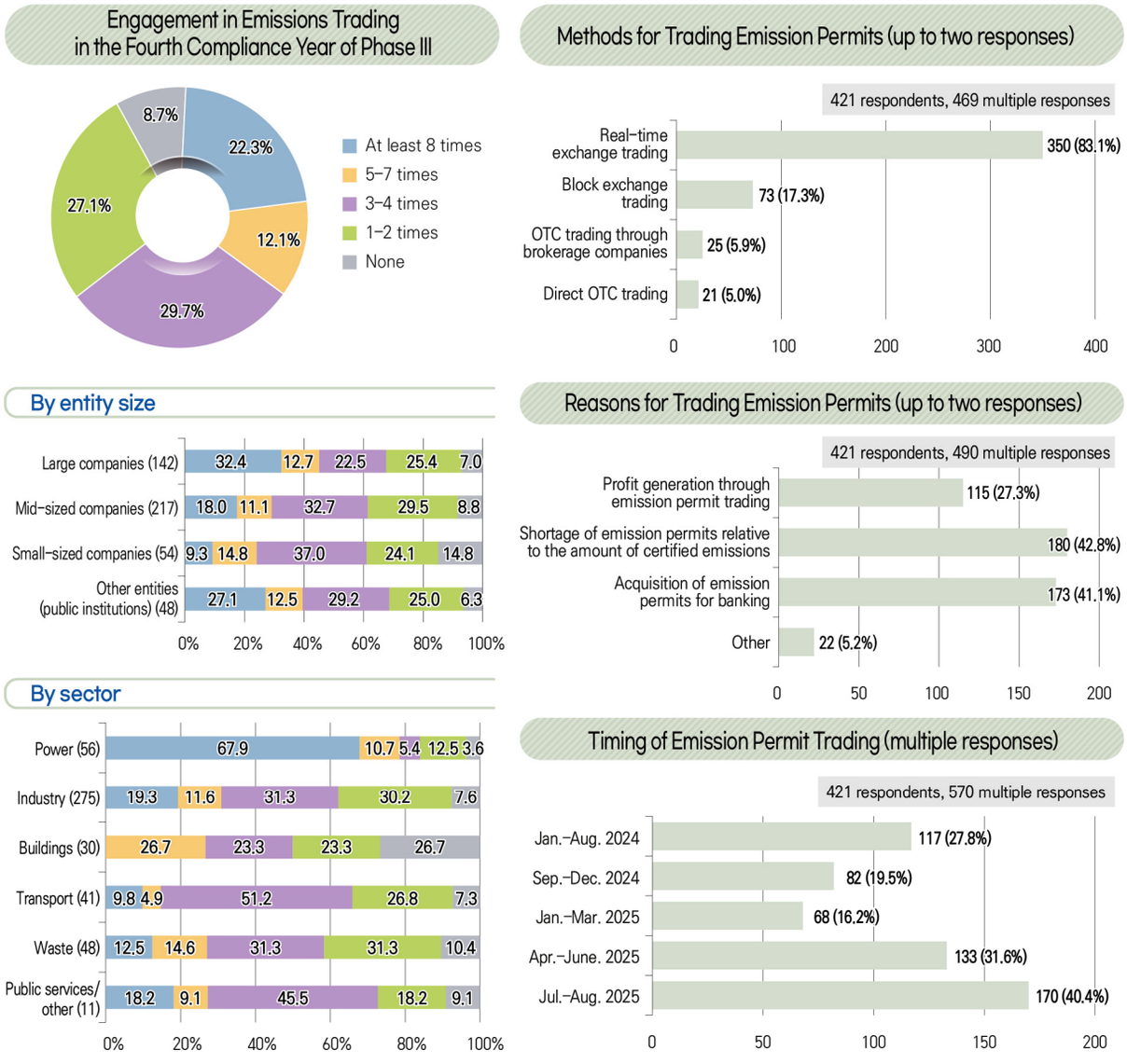
In the 2024 compliance year, only 8.7% of the responding entities (40 responses) reported that they had not engaged in emissions trading. In contrast, 22.3% of the responding entities (103 responses) reported that they had engaged in emissions trading at least 8 times, 12.1% (56 responses) 5–7 times, 29.7% (137 responses) 3–4 times, and 27.1% (125 responses) 1–2 times. Accordingly, the response rate was highest for engagement in emissions trading 3–4 times, followed by 1–2 times, at least 8 times, and 5–7 times.

Broken down by entity size, 14.8% (8 responses) of small-sized companies reported that they had not engaged in emissions trading, followed by mid-sized companies (8.8%, 19 responses), large companies (7.0%, 10 responses), and other entities (public institutions) (6.3%, 3 responses). The proportion of entities that had engaged in emissions trading at least 8 times was highest among large companies (32.4%, 46 responses), followed by other entities (public institutions) (27.1%, 13 responses), mid-sized companies (18.0%, 39 responses), and small-sized companies (9.3%, 5 responses). Similarly, the proportion of entities that had engaged in emissions trading at least 5 times was highest among large companies (45.1%, 64 responses), followed by other entities (public institutions) (39.6%, 19 responses), mid-sized companies (29.0%, 63 responses), and small-sized companies (24.1%, 13 responses). These results indicate that emission permit transactions have been particularly active among large companies and other entities (public institutions).

Broken down by sector, the proportion of entities that had not engaged in emissions trading was highest for the buildings sector (26.7%, 8 responses), followed by waste (10.4%, 5 responses), public services/other (9.1%, 1 response), industry (7.6%, 21 responses), transport (7.3%, 3 responses), and power (3.6%, 2 responses). The proportion of entities that had engaged in emissions trading at least 8 times was very high in the power sector (67.9%, 38 responses), followed by industry (19.3%, 53 responses), public services/other (18.2%, 2 responses), waste (12.5%, 6 responses), and transport (9.8%, 4 responses). No entity in the buildings sector reported having engaged in emissions trading 8 times or more. The proportion of entities that had engaged in emissions trading at least 5 times was highest in the power sector (78.6%, 44 responses), followed by industry (30.9%, 85 responses), buildings (26.7%, 8 responses), public services/other (27.3%, 3 responses), waste (27.1%, 13 responses), and transport (14.7%, 6 responses).

In terms of the methods for the trading of emission permits used primarily by covered entities in the fourth compliance year of Phase III, real-time trading through the exchange (83.1%, 350 responses) accounted for the largest proportion of responses, followed by block trading through the exchange (17.3%, 73 responses). These results are consistent with those of the previous year's survey, in which real-time trading through the exchange (87.5%, 259 responses) accounted for the largest proportion of responses, followed by block trading through the exchange (15.2%, 45 responses), direct OTC trading between entities without brokerage companies (7.1%, 21 responses), and OTC trading through brokerage companies (2.7%, 8 responses). The most frequently cited reason for using these methods was the speed of emissions trading (52.5%, 221 responses), followed by the ease of the emissions trading method (42.8%, 180 responses), the ease of securing the necessary quantity of emission permits for transactions (40.9%, 172 responses), and the ease of obtaining trading information (21.4%, 90 responses).

The responding entities reported that they had engaged in emissions trading primarily due to a shortage of emission permits relative to the amount of certified emissions (42.8%, 180 responses) or to acquire emission permits for the purpose of banking (41.1%, 173 responses). Some respondents reported that they sold emission permits to meet the criteria for the banking of emission permits. Regarding the timing of emission permit trading, transactions were found to be concentrated in the period from July to the end of August 2025 (40.4%, 170 responses) and in the period from April to the end of June 2025 (31.6%, 133 responses), the periods during which covered entities are required to surrender emission permits following the submission of emissions reports in March.

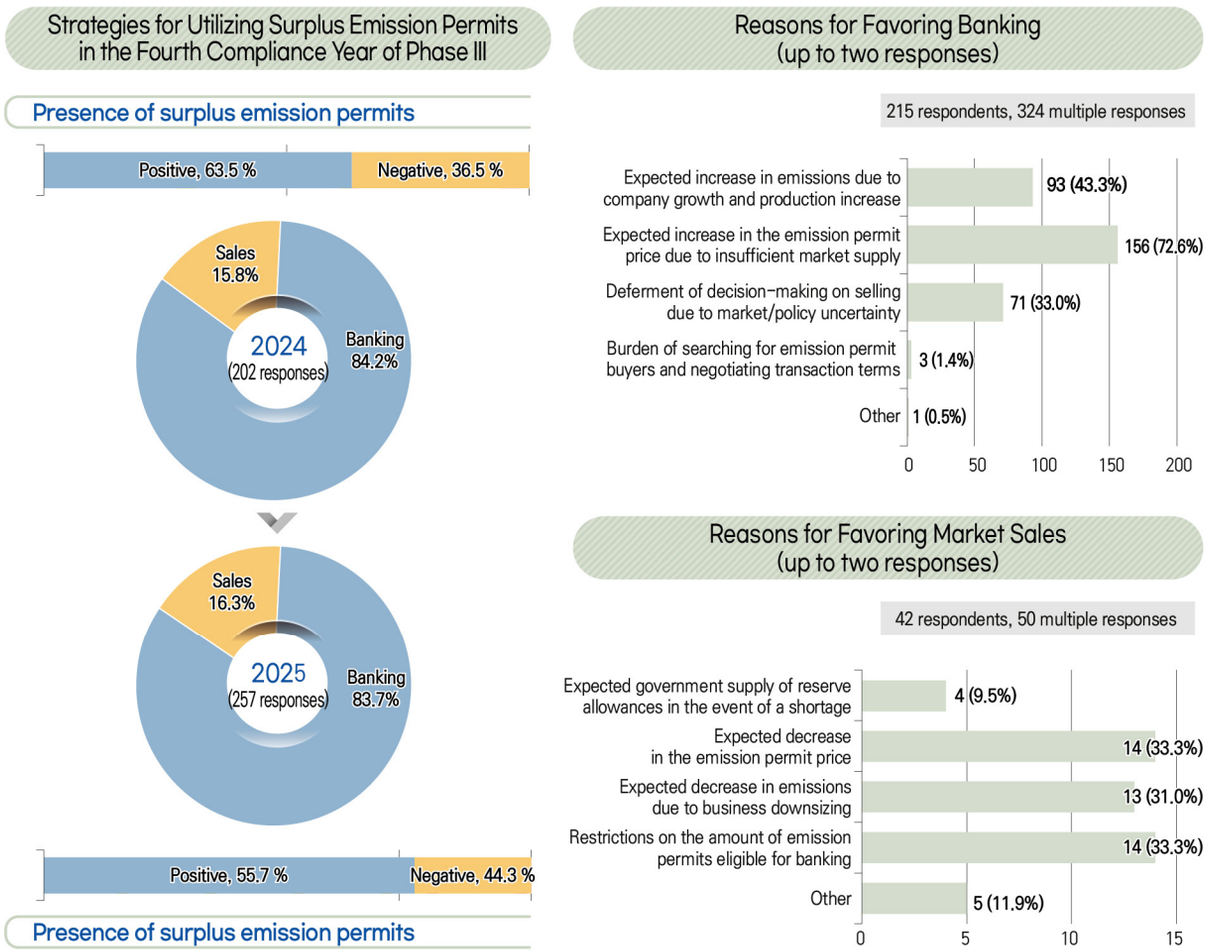


〈Figure Ⅳ-8〉 Engagement in and Methods for Emission Permit Trading in the Fourth Compliance Year of Phase III (2024 Compliance Year)

In the 2024 compliance year, 55.7% of the responding entities (257 responses) reported that they had surplus emission permits and 44.3% (204 responses) reported the opposite, indicating that the number of entities with surplus emission permits outnumbered the number of entities that did not. Broken down by sector, the proportion of entities that had surplus emission permits was higher than that proportion of entities that reported otherwise for the power (positive: 69.6%, 39 responses; negative: 30.4%, 17 responses), transport (positive: 61.0%, 25 responses; negative: 39.0%, 16 responses), and industry (positive: 60.0%, 165 responses; negative: 40.0%, 110 responses) sectors, while the opposite was true for the buildings (positive: 26.7%, 8 responses; negative: 73.3%, 22 responses), waste (positive: 31.3%, 15 responses; negative: 68.8%, 33 responses), and public services/other (positive: 45.5%, 5 responses; negative: 54.5%, 6 responses) sectors.

In terms of the methods for dealing with surplus emission permits, 83.7% (215 responses) of the entities that reported having surplus emission permits preferred banking the permits over to the subsequent compliance year as their primary option, while 16.3% (42 responses) preferred selling these permits. These findings indicate that the tendency of K-ETS decision-makers discussed earlier has affected the methods for dealing with surplus emission permits (〈Figure Ⅳ-6〉). These results are consistent with those of the 2024 survey, in which 84.2% of the respondents (170 responses) preferred banking while 15.8% (32 responses) preferred selling surplus emission permits.

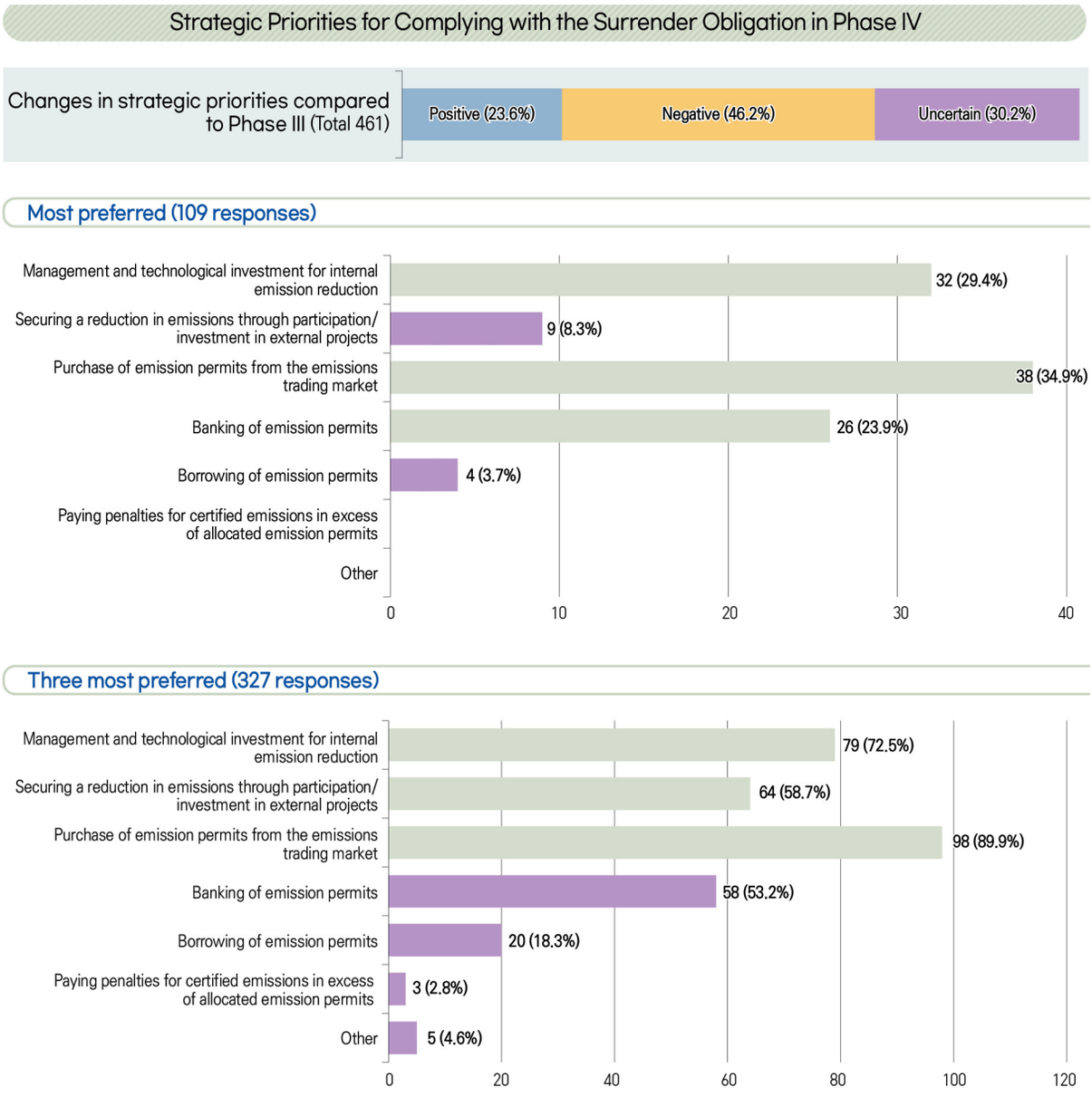
The reasons for favoring the banking of surplus emission permits over their sale in the exchange or OTC market included, in order of frequency, an expected increase in the emission permit price due to the insufficient market supply of emission permits (72.6%, 156 responses), an expected increase in emissions due to the growth of the company and an increase in production (43.3%, 93 responses), and the deferment of decision-making on selling due to uncertainty regarding the market and policy (33.0%, 71 responses). These results differ from those of the 2024 survey, in which the highest response rate was for an expected increase in emissions due to the growth of the company and an increase in production (40.0%, 66 responses), followed by the deferment of decision-making on selling due to uncertainty regarding the market and policy (36.4%, 60 responses) and an expected increase in the emission permit price due to a supply shortage of permits on the market (22.4%, 37 responses). The reasons for favoring the sale of surplus emission permits included an expected decrease in the emission permit price (33.3%, 14 responses), restrictions on the amount of emission permits eligible for banking (33.3%, 14 responses), and an expected decrease in emissions due to business downsizing (31.0%, 13 responses), with the top three responses exhibiting similar response rates. In the previous year's survey, an expected decrease in emissions due to business downsizing (37.5%, 12 responses) and restrictions on the amount of emission permits eligible for banking (34.4%, 11 responses) received higher response rates than an expected decrease in the emission permit price (15.6%, 5 responses). In contrast, the present survey is notable in that the price of emission permits was identified as one of the principal reasons for favoring the sale of surplus emission permits. Other reasons included the sale of emission permits due to financial difficulties.



〈Figure Ⅳ-9〉 Strategies for Utilizing Surplus Emission Permits in the Fourth Compliance Year of Phase III (2024 Compliance Year)

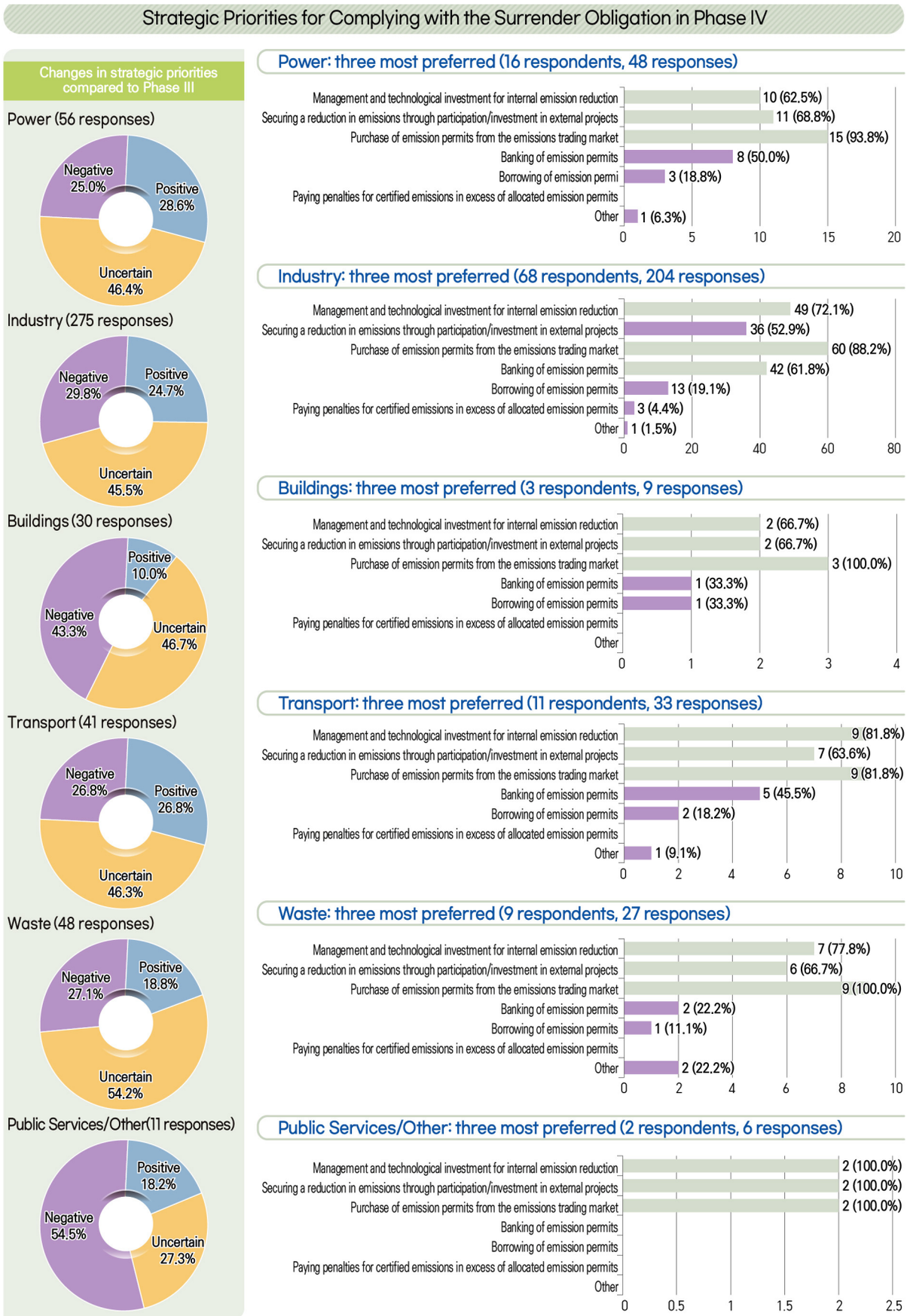
Regarding strategic priorities for complying with the obligation to surrender emission permits in Phase IV relative to Phase III, 23.6% of the responding entities (109 responses) anticipated that their strategic priorities would change in Phase IV, while 46.2% (213 responses) reported that their strategic priorities would remain unchanged and 30.2% (139 responses) reported that they were uncertain. Among respondents anticipating changes, the most preferred strategy was the purchase of emission permits from the emissions trading market (34.9%, 38 responses), followed by management and technological investment for internal emission reduction (29.4%, 32 responses) and the banking of emission permits (23.9%, 26 responses). In terms of the three most preferred strategies, the respondents chose the purchase of emission permits (89.9%, 98 responses), management and technological investment for internal emission reduction (72.5%, 79 responses), and securing a reduction in GHG emissions through participation in external projects and investment (58.7%, 64 responses). These findings suggest that, during Phase IV, some entities may more actively pursue GHG reduction through internal reduction activities and external projects while simultaneously expanding the use of the emissions trading market to respond cost-effectively to regulations. The reasons for such strategic adjustments included a reduction in

emission allowance allocations and an increase in the proportion of auctioned allowances, the resulting shortage of bankable emission permits, the need to secure emission permits in anticipation of rising emission permit prices, improving the profit structure through greater market activity and active emission permit trading, changes in internal perceptions regarding environmental responsibility, and client companies' demands for carbon neutrality.



〈Figure Ⅳ-10〉 Strategies to Comply with the Surrender Obligation by K-ETS Decision-Makers for Phase IV

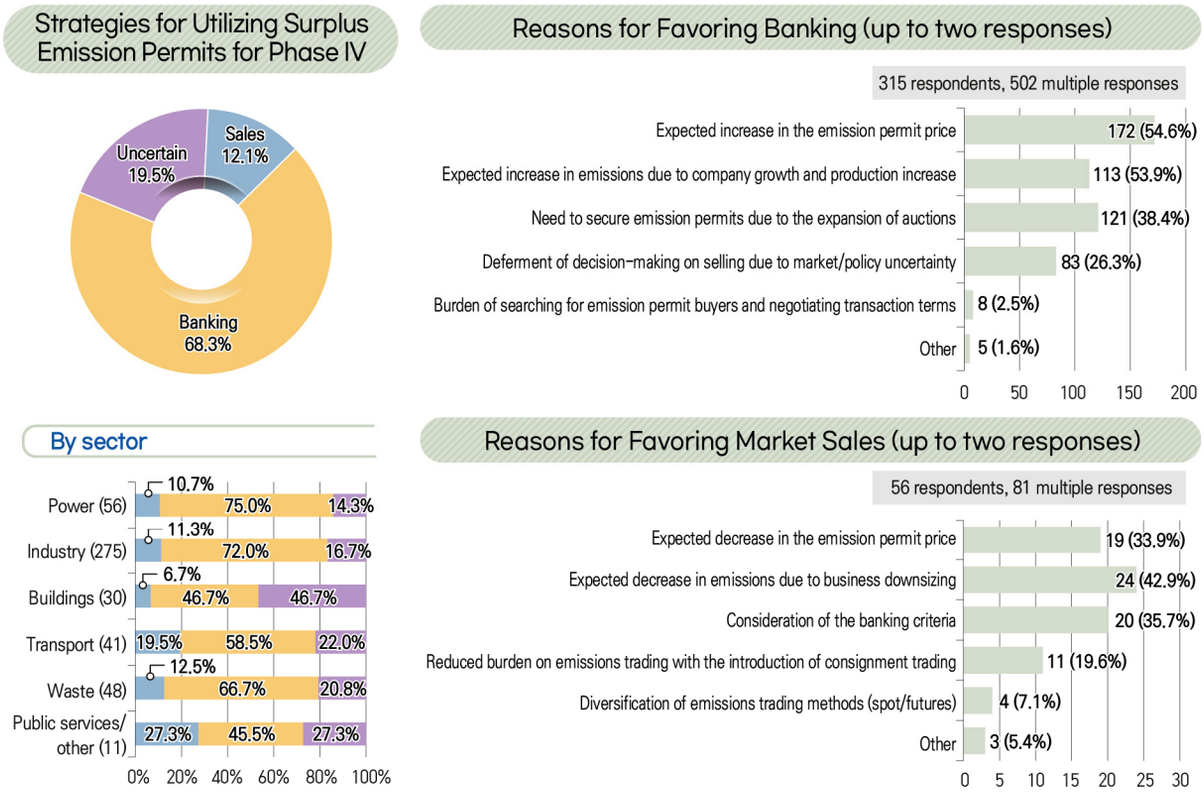
A sectoral analysis of the strategic priorities for complying with the obligation to surrender emission permits in Phase IV, aggregating responses for the three most preferred strategies, showed that the purchase of emission permits was chosen as the most preferred strategy in all sectors. Specifically, the responses were as follows: power (purchase of emission permits: 93.8%, 15 responses; participation/investment in external projects: 68.8%, 11 responses; management and technological investment for internal emission reduction: 62.5%, 10 responses); buildings (purchase of emission permits: 100.0%, 3 responses; participation/investment in external projects: 22.2%, 2 responses; management and technological investment for internal emission reduction: 22.2%, 2 responses), transport (purchase of emission permits: 81.8%, 9 responses; management and technological investment for internal emission reduction: 81.8%, 9 responses; participation/investment in external projects: 63.6%, 7 responses), waste (purchase of emission permits: 100.0%, 9 responses; m and technological investment for internal emission reduction: 77.8%, 7 responses; participation/investment in external projects: 66.7%, 6 responses) and public services/other (purchase of emission permits: 100.0%, 2 responses; management and technological investment for internal emission reduction: 100.0%, 2 responses; participation/investment in external projects: 100%, 2 responses). In the industry sector, the most preferred strategy was the purchase of emission permits (88.2%, 60 responses), followed by management and technological investment for internal emission reduction (72.1%, 49 responses) and the banking of emission permits (61.8%, 42 responses). These results indicate that, consistent with Phase III, covered entities chose the banking of emission permits as a key strategy to comply with their obligation to surrender emission permits.



〈Figure Ⅳ-11〉 Strategies to Comply with the Surrender Obligation by K-ETS Decision-Makers for Phase IV

Continuing from Phase III, the tendency to favor banking of surplus emission permits is expected to remain high in Phase IV. Only 12.1% of the responding entities (56 responses) reported that they would favor the sale of surplus emission permits in the exchange or OTC market, while 68.3% (315 responses) reported that they would favor the banking of surplus emissions over to the subsequent compliance year. Meanwhile, 19.5% (90 responses) responded that they were uncertain. The tendency to favor banking over sales was observed consistently in all sectors, including power (75.0%, 42 responses), industry (72.0%, 198 responses), buildings (46.7%, 14 responses), transport (58.5%, 24 responses), waste (66.7%, 32 responses), and public services/other (45.5%, 5 responses).

The reasons for favoring banking included, in order of frequency, an expected increase in the emission permit price (54.6%, 172 responses), the need to secure emission permits due to the expansion of auctions (38.4%, 121 responses), and an expected increase in emissions due to the growth of the company and an increase in production (35.9%, 113 responses). Other reasons included the retention of emission permits due to an expected decrease in free allocations. The primary reasons for favoring the sale of surplus emission permits were an expected decrease in emissions due to business downsizing (42.9%, 24 responses), consideration of the criteria for the banking of emission permits (35.7%, 20 responses), and an expected decrease in the emission permit price (33.9%, 19 responses). Other reasons included the sale of emission permits in response to rising emission permit prices. The market revitalization measures planned for Phase IV, such as the introduction of consignment trading and diversification of emissions trading methods, were found to have had no significant impact on covered entities' strategies for utilizing surplus emission permits.

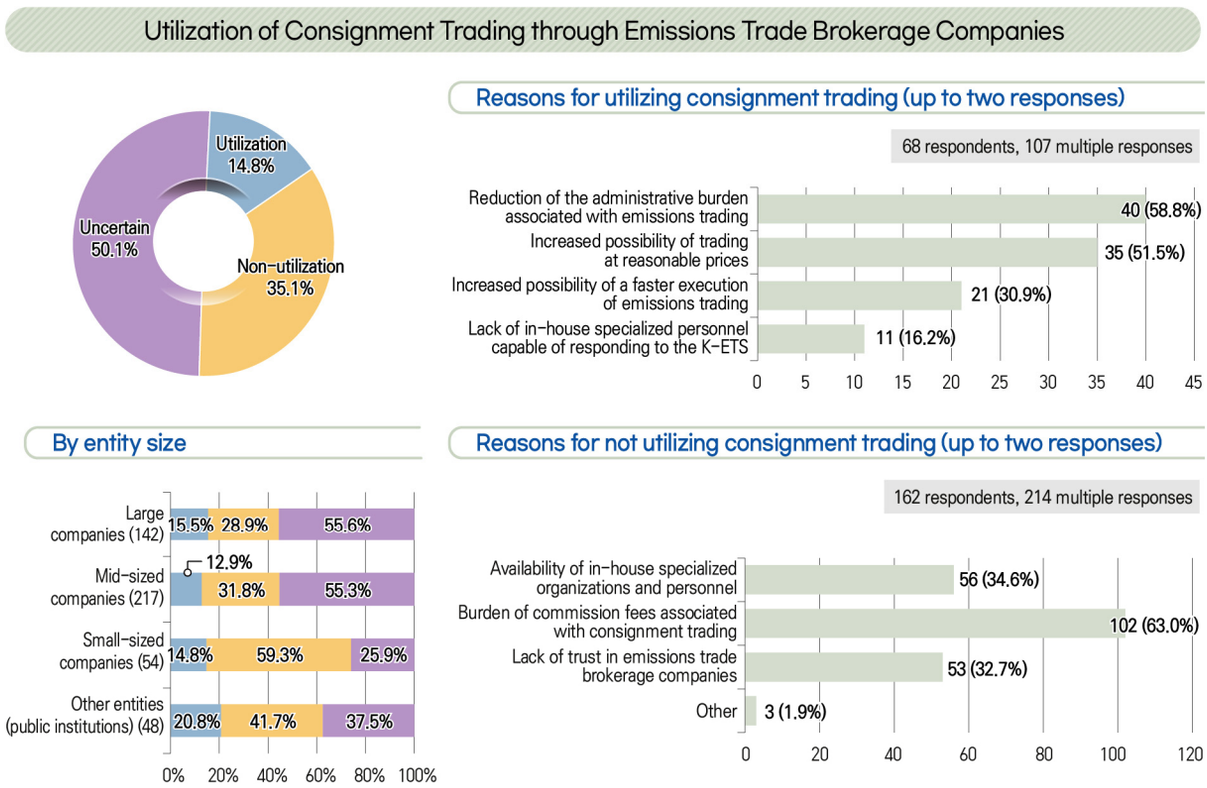


〈Figure Ⅳ-12〉 Strategies for Utilizing Surplus Emission Permits for Phase IV

Regarding the utilization of consignment trading through emissions trade brokerage companies, which has been in effect since November 2025, 14.8% of the responding entities (68 responses) reported that they plan to utilize consignment trading, while 35.1% (162 responses) reported that they do not plan to utilize it and 50.1% (231 responses) stated that they were uncertain. Broken down by entity size, more than half of large companies (utilization: 15.5%, 22 responses; non-utilization: 28.9%, 41 responses; uncertain: 55.6%, 79 responses) and mid-sized companies (utilization: 12.9%, 28 responses; non-utilization: 31.8%, 69 responses; uncertain: 55.3%, 120 responses) reported that their plans had not yet been determined, with approximately 30% reporting that they do not plan to utilize consignment trading. Conversely, more than 40% of small-sized companies (utilization: 14.8%, 8 responses; non-utilization: 59.3%, 32 responses; uncertain: 25.9%, 14 responses) and other entities (public institutions) (utilization: 20.8%, 10 responses; non-utilization: 41.7%, 20 responses; uncertain: 37.5%, 18 responses) reported that they do not plan to utilize consignment trading.

Among entities that reported that they plan to utilize consignment trading, the most frequently cited reason was a reduction of the administrative burden associated with emissions trading (58.8%, 40 responses), followed by an increased possibility of trading at reasonable prices (51.5%, 35 responses), an increased possibility of a faster execution of emissions trading (30.9%, 21 responses), and a lack of in-house specialized personnel capable of responding to the K-ETS (16.2%, 11 responses). Among

entities that reported that they do not plan to utilize consignment trading, the most frequently cited reason was the burden of commission fees associated with consignment trading (63.0%, 102 responses), followed by the availability of in-house specialized organizations and personnel (34.6%, 56 responses) and a lack of trust in emissions trade brokerage companies (32.7%, 53 responses). Other reasons included the ease of conducting direct trading.

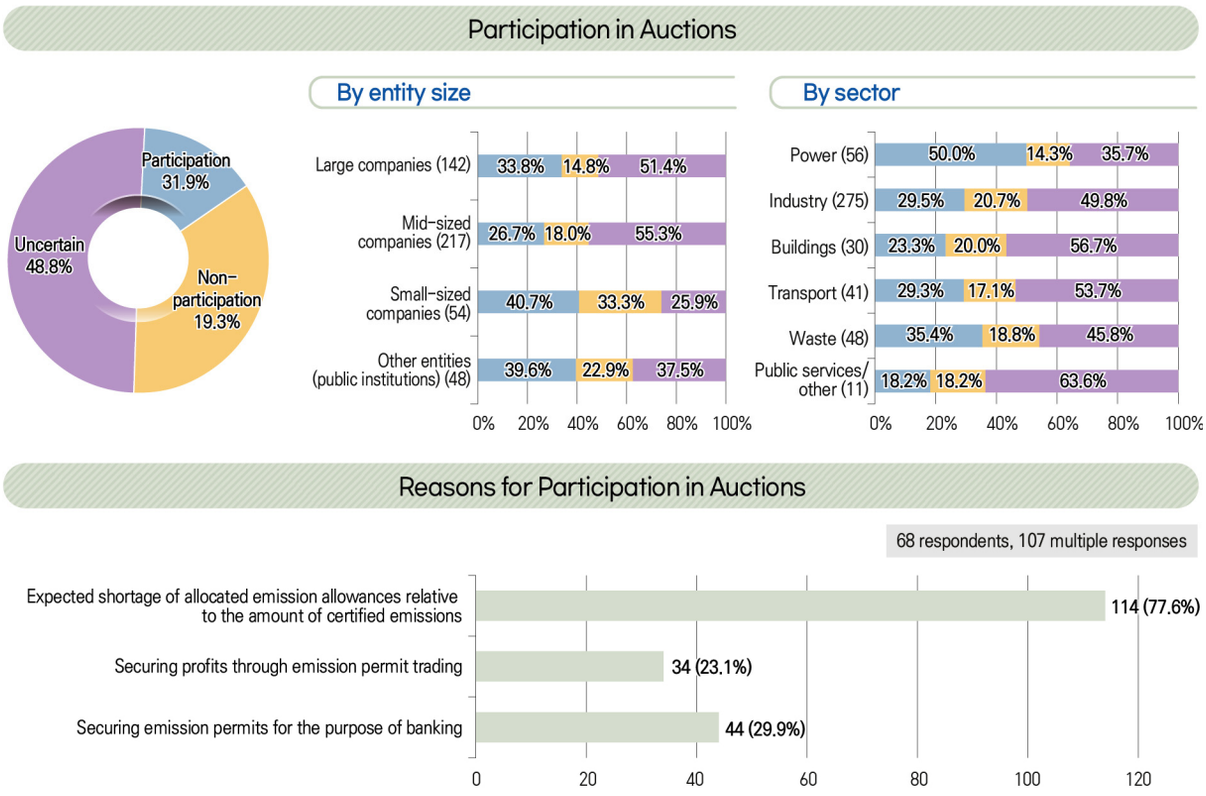


〈Figure Ⅳ-13〉 Views on Consignment Trading through Emissions Trade Brokerage Companies

Regarding covered entities' intention to participate in emission allowance auctions following the expansion of the eligibility to participate in auctions in Phase IV, 31.9% of the responding entities (147 responses) reported that they intend to participate in auctions, while 19.3% (89 responses) stated that they do not intend to participate and 48.8% (225 responses) stated that they were uncertain. Among the entities intending to participate in auctions, the most frequently cited reason for their intention was an expected shortage of allocated emission allowances relative to the amount of certified emissions (77.6%, 114 responses), followed by securing emission permits for the purpose of banking (29.9%, 44 responses), and securing profits through emission permit trading (23.1%, 34 responses).

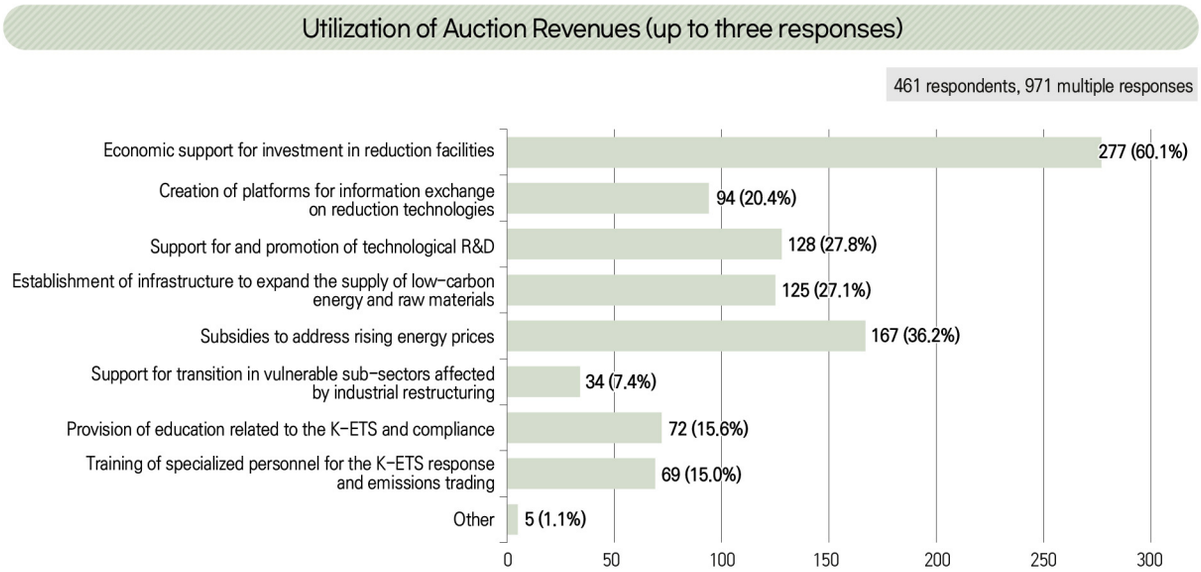
Broken down by entity size, for entities of all sizes, the proportion of entities reporting that they intend to participate in auctions (large companies: 33.8%, 48 responses; mid-sized companies: 26.7%, 58 responses; small-sized companies: 40.7%, 22 responses; other entities (public institutions): 39.6%, 19

responses) was higher than that of entities reporting otherwise (large companies: 14.8%, 21 responses; mid-sized companies: 18.0%, 39 responses; small-sized companies: 33.3%, 18 responses; other entities (public institutions): 22.9%, 11 responses). However, more than half of large companies (51.4%, 73 responses) and mid-sized companies (55.3%, 120 responses) responded that their participation in auctions had not yet been determined. Broken down by sector, the proportion of positive responses was highest in the power sector (50.0%, 28 responses), followed by waste (35.4%, 17 responses), industry (29.5%, 81 responses), transport (29.3%, 12 responses), buildings (23.3%, 7 responses), and public services/other (18.2%, 2 responses).



〈Figure Ⅳ-14〉 Views on Participation in Emission Allowance Auctions

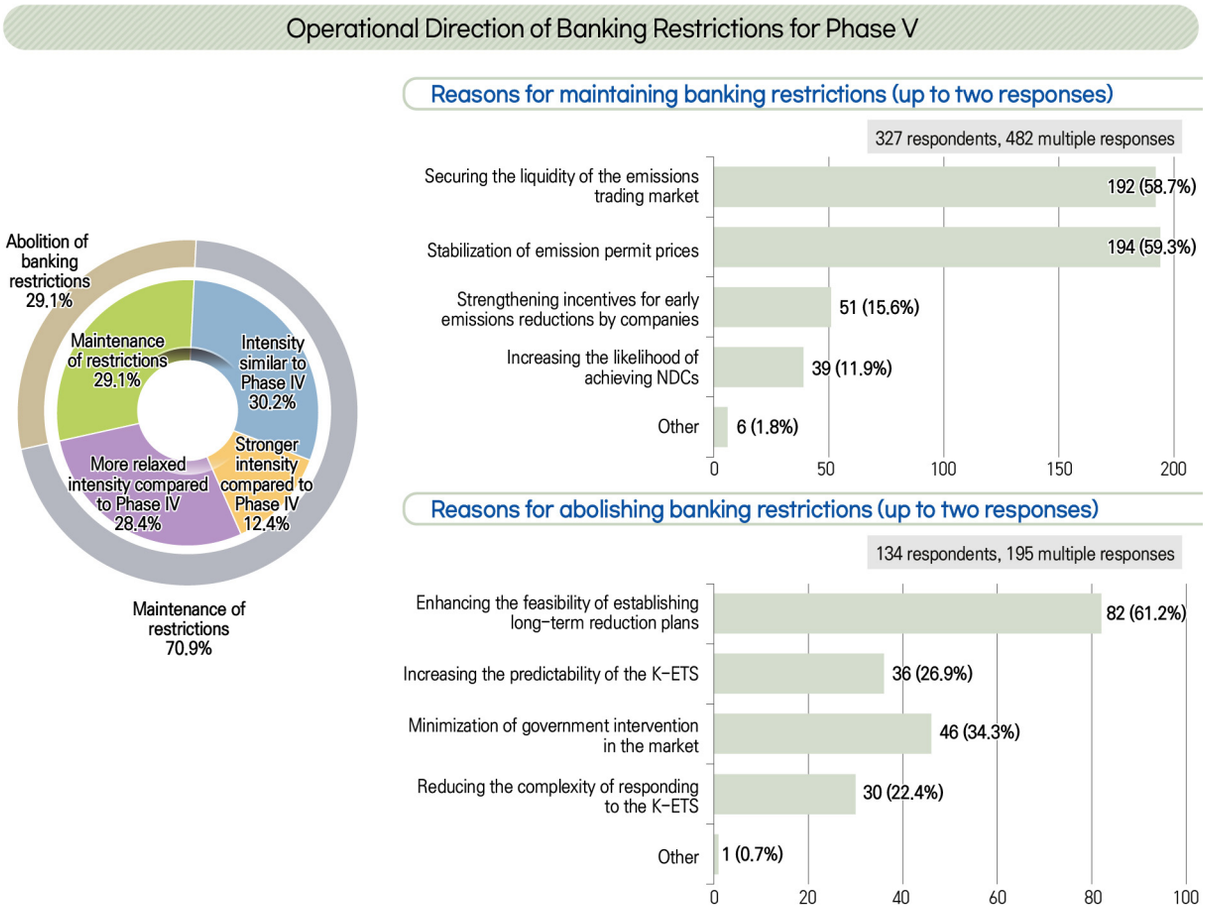
Regarding the utilization of revenue generated from emission allowance auctions, the majority of responding entities preferred the revenue to be used for financial support, such as economic support for investment in reduction facilities (60.1%, 277 responses) and subsidies to address rising energy prices (36.2%, 167 responses). The next most preferred methods of utilizing the revenue were related to establishing conditions for emissions reduction efforts, including support for and promotion of technological research and development (27.8%, 128 responses), the establishment of infrastructure to expand the supply of low-carbon energy and raw materials (27.1%, 125 responses), and the creation of platforms for information exchange on reduction technologies (20.4%, 94 responses).



〈Figure Ⅳ-15〉 Views on Revenue Generated from Emission Allowance Auctions

Regarding the operational direction of banking restrictions for Phase V, respondents preferred to maintain banking restrictions (70.9%, 327 responses) rather than to abolish them (29.1%, 134 responses). The primary reasons for favoring the maintenance of banking restrictions were the stabilization of emission permit prices (59.3%, 194 responses) and securing the liquidity of the emissions trading market (58.7%, 192 responses). With regard to the desired level of restrictions, among respondents favoring the maintenance of banking restrictions (327 responses), the most common response was restrictions with an intensity similar to Phase IV (42.5%, 139 responses), followed by a more relaxed intensity compared to Phase IV (40.1%, 131 responses) and a stronger intensity compared to Phase IV (17.4%, 57 responses).

The most frequently cited reason for favoring the abolition of banking restrictions was enhancing the feasibility of establishing long-term reduction plans (61.2%, 82 responses), followed by the minimization of government intervention in the market (34.3%, 46 responses), increasing the predictability of the K-ETS (26.9%, 36 responses), and reducing the complexity of responding to the K-ETS (22.4%, 30 responses).



〈Figure Ⅳ-16〉 Operational Direction of Banking Restrictions for Phase V

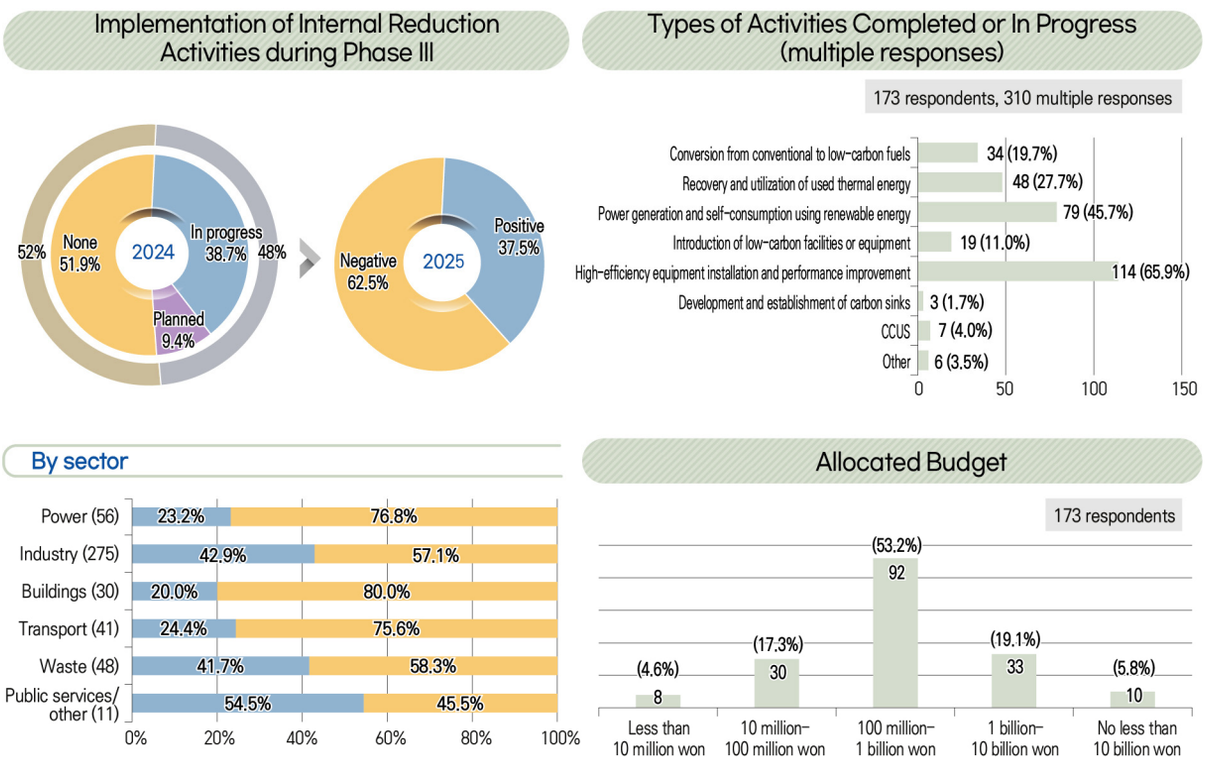
4 GHG Emission Reduction Efforts and Performance

In terms of internal emission reduction projects that had been completed during Phase III or were still in progress since Phase III, the proportion of responding entities that reported having implemented reduction activities (37.5%, 173 responses) was lower than the proportion of responding entities that reported not having implemented other reduction activities (62.5%, 288 responses). The positive response rate was also lower than the proportion of responding entities that reported they were implementing or had plans to implement such activities (48.1%, 153 responses) in the 2024 survey.

Broken down by sector, the proportion of entities that had implemented reduction activities during Phase III was highest in the public services/other sector (54.5%, 6 responses), followed by industry (42.9%, 118 responses), waste (41.7%, 20 responses), transport (24.4%, 10 responses), power (23.2%, 13 responses), and buildings (20.0%, 6 responses). Except for the public services/other sector (45.5%, 5 responses), the proportion of responding entities reporting that they had not implemented reduction

activities was higher in all sectors (power: 76.8%, 43 responses; industry: 57.1%, 157 responses; buildings: 80.0%, 24 responses; transport: 75.6%, 31 responses; waste: 58.3%, 28 responses).

Regarding the types of internal reduction activities that had been completed or were still in progress, the most common type of activity was the installation of high-efficiency equipment and the improvement of equipment performance (65.9%, 114 responses), followed by power generation and self-consumption using renewable energy (45.7%, 79 responses) and the recovery and utilization of unused thermal energy (27.7%, 48 responses). The top three types of internal reduction activities remained the same as the previous year's survey (installation of high-efficiency equipment and the improvement of equipment performance: 40.8%, 100 responses; power generation and self-consumption using renewable energy: 21.2%, 52 responses; recovery and utilization of unused thermal energy: 13.5%, 33 responses). Regarding the budget allocated for internal reduction activities, the response rate was the highest for 100 million to 1 billion won (53.2%, 92 responses), accounting for more than half of the responses, followed by 1 billion to 10 billion won (19.1%, 33 responses), 10 million to 100 million won (17.3%, 30 responses), no less than 10 billion won (5.8%, 10 responses), and less than 10 million won (4.6%, 8 responses).



〈Figure Ⅳ-17〉 Implementation of Internal Reduction Activities during Phase III

Regarding internal reduction projects planned for Phase IV, 18.0% of the responding entities (83 responses) reported that they have internal reduction projects planned, while 35.6% (164 responses) reported that they have internal reduction projects under review although they have no specific projects

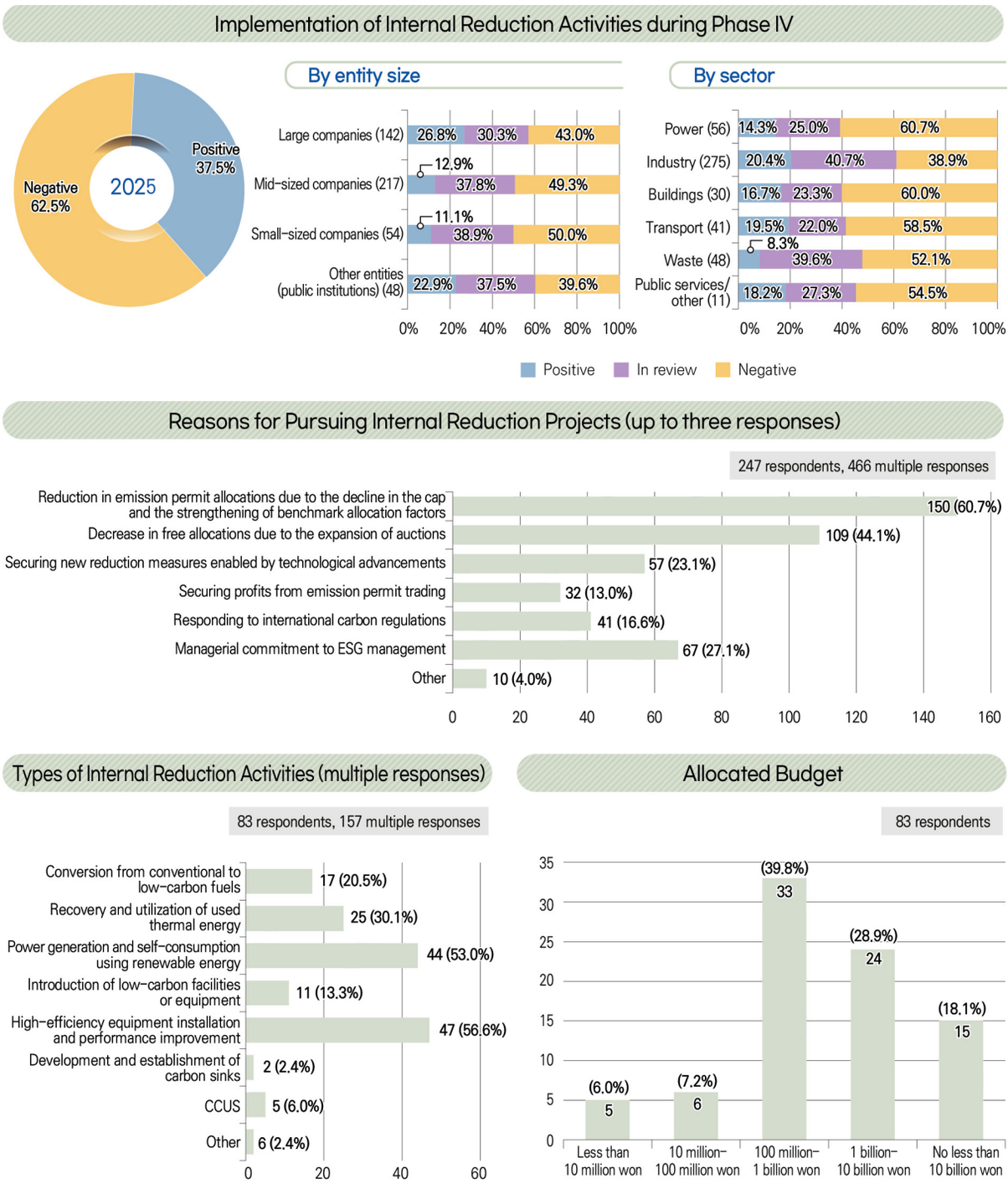
planned. In terms of the reasons for pursuing internal reduction projects during Phase IV, the most frequently cited reasons were a reduction in emission permit allocations due to the NDC-based decline in the cap and the strengthening of benchmark allocation factors (60.7%, 150 responses) and a decrease in free allocations due to the expansion of auctions (44.1%, 109 responses). Other major reasons included managerial commitment to ESG management (27.1%, 67 responses) and securing new reduction measures enabled by technological advancements (23.1%, 57 responses). Other reasons included growing consumer demand for environmentally friendly products, client companies' demands for GHG reductions, and efforts to reduce product production costs.

Broken down by entity size, the proportion of entities with internal reduction projects planned for Phase IV was the highest for large companies (26.8%, 38 responses), followed by other entities (public institutions) (22.9%, 11 responses), mid-sized companies (12.9%, 28 responses), and small-sized companies (11.1%, 6 responses). The proportion of entities with internal reduction projects planned or under review for Phase IV was the highest for other entities (public institutions) (60.4%, 29 responses), followed by large companies (57.0%, 81 responses), mid-sized companies (50.7%, 110 responses), and small-sized companies (50.0%, 27 responses). More than half of entities of all sizes expressed positive perceptions toward the implementation of internal reduction projects during Phase IV.

Broken down by sector, the proportion of entities with internal reduction projects planned for Phase IV was the highest in the industry sector (20.4%, 56 responses), followed by transport (19.5%, 8 responses), public services/other (18.2%, 2 responses), buildings (16.7%, 5 responses), power (14.3%, 8 responses), and waste (8.3%, 4 responses). The proportion of entities with internal reduction projects planned or under review for Phase IV was the highest for the industry sector (61.1%, 168 responses), followed by waste (47.9%, 23 responses), public services/other (45.5%, 5 responses), transport (41.5%, 17 responses), buildings (40.0%, 12 responses), and power (39.3%, 22 responses).

The types of internal reduction activities planned and the scale of the associated budget were examined for entities that reported having internal reduction projects planned. Regarding the types of internal reduction activities planned, the most common type of activity was the installation of high-efficiency equipment and the improvement of equipment performance (56.6%, 47 responses), followed by power generation and self-consumption using renewable energy (53.0%, 44 responses), the recovery and utilization of unused thermal energy (30.1%, 25 responses), and conversion from conventional to low-carbon fuels (20.5%, 17 responses). These types of activities are consistent with the types of major internal reduction activities implemented by covered entities during Phase III (〈Figure Ⅳ-17〉). Regarding the budget allocated for these activities, the response rate was the highest for 100 million to 1 billion won (39.8%, 33 responses), followed by 1 billion to 10 billion won (28.9%, 24 responses), no less than 10 billion

won (18.1%, 15 responses), 10 million to 100 million won (7.2%, 6 responses), and less than 10 million won (6.0%, 5 responses). Compared to Phase III, during which the most common budget ranges were 100 million to 1 billion won (53.2%, 92 responses), 1 billion to 10 billion won (19.1%, 33 responses), and 10 million to 100 million won (17.3%, 30 responses), the scale of internal reduction projects is expected to increase during Phase IV.

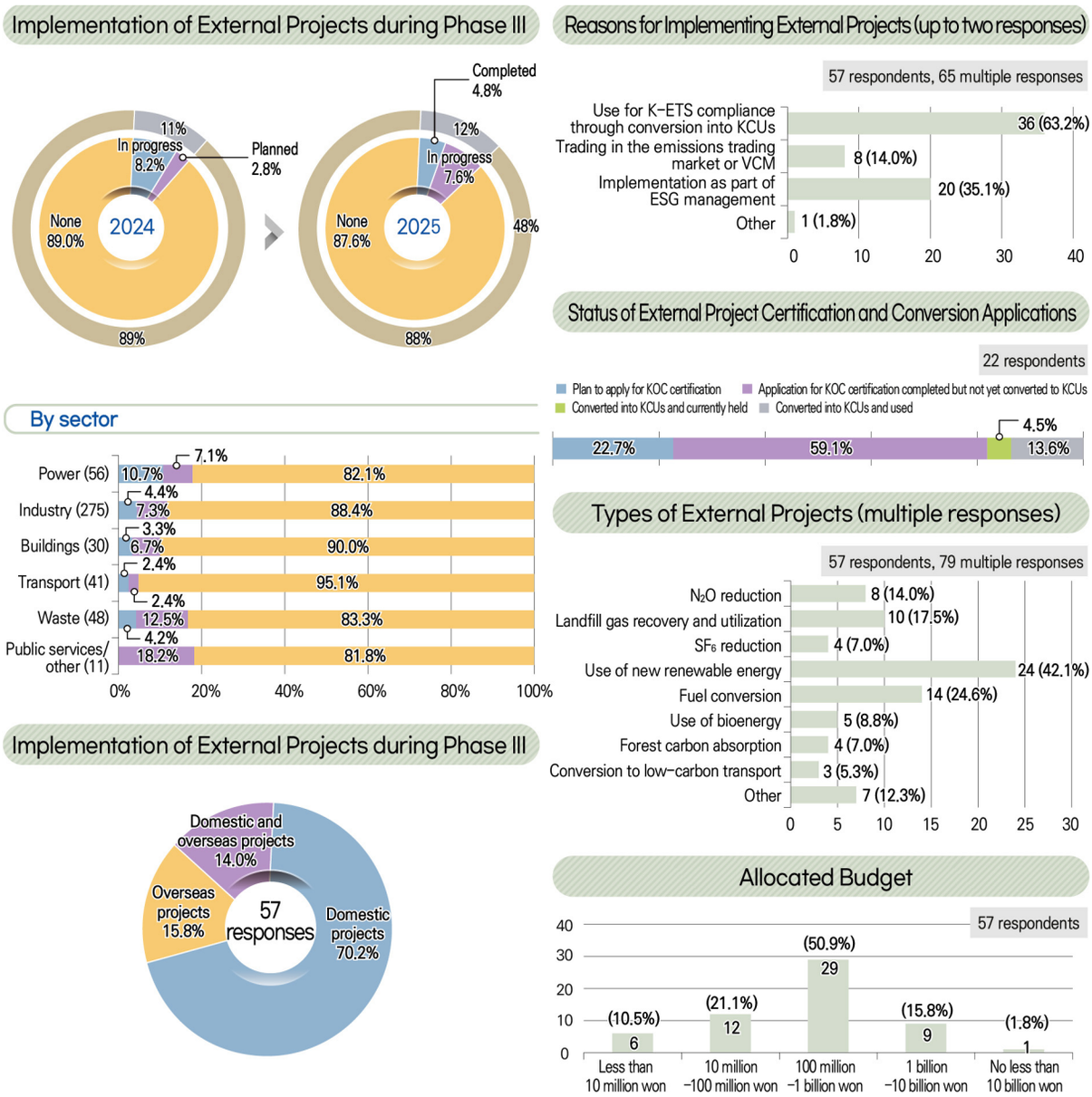


〈Figure Ⅳ-18〉 Implementation of Internal Reduction Activities during Phase IV

Meanwhile, only 12.4% of respondents (57 entities) reported that they had completed external projects during Phase III or have ongoing external projects that were initiated during Phase III. This finding is similar to the results of the 2024 survey, in which 11.0% of the respondents (35 responses) reported that they had implemented or planned external projects, while 89.0% (283 responses) reported that they had not implemented these projects nor did they plan to. In terms of the reasons for implementing external projects, the most frequently cited reason was their use for compliance with the K-ETS through conversion into KCUs (63.2%, 36 responses), followed by their implementation as part of ESG management (35.1%, 20 responses) and trading in the emissions trading market or the voluntary carbon market (VCM) (14.0%, 8 responses). Broken down by the sector, the proportion of entities that had implemented or have ongoing external projects was highest in the public services/other sector (18.2%, 2 responses), followed by power (17.9%, 10 responses), waste (16.7%, 8 responses), industry (11.6%, 32 responses), buildings (10.0%, 3 responses), and transport (4.9%, 2 responses).

Among entities that had completed external projects (4.8%, 22 responses), three entities (13.6%) reported that they had converted the resulting credits into KCUs and used them for emissions trading or compliance with the surrender obligation, one entity (4.5%) reported that they are holding the resulting credits after converting them into KCUs, and 13 entities (59.1%) reported that they had completed application for KOC certification but had not yet converted the credits into KCUs. In addition, five entities (22.7%) stated that they plan to apply for KOC certification.

Among entities that had completed external projects or have ongoing external projects, the overwhelming majority selected domestic projects (70.2%, 40 responses) as the category of projects primarily implemented. The most common types of these projects were the use of new renewable energy (42.1%, 24 responses), fuel conversion (24.6%, 14 responses), and landfill gas recovery and utilization (17.5%, 10 responses). Other project types included the introduction of high-efficiency equipment (e.g., cookstoves and generative burners) and waste heat recovery. Regarding the budget allocated for external projects, the response rate was the highest for 100 million to 1 billion won (50.9%, 29 responses), followed by 10 million to 100 million won (21.1%, 12 responses), 1 billion to 10 billion won (15.8%, 9 responses), less than 10 million won (10.5%, 6 responses), and no less than 10 billion won (1.8%, 1 response).

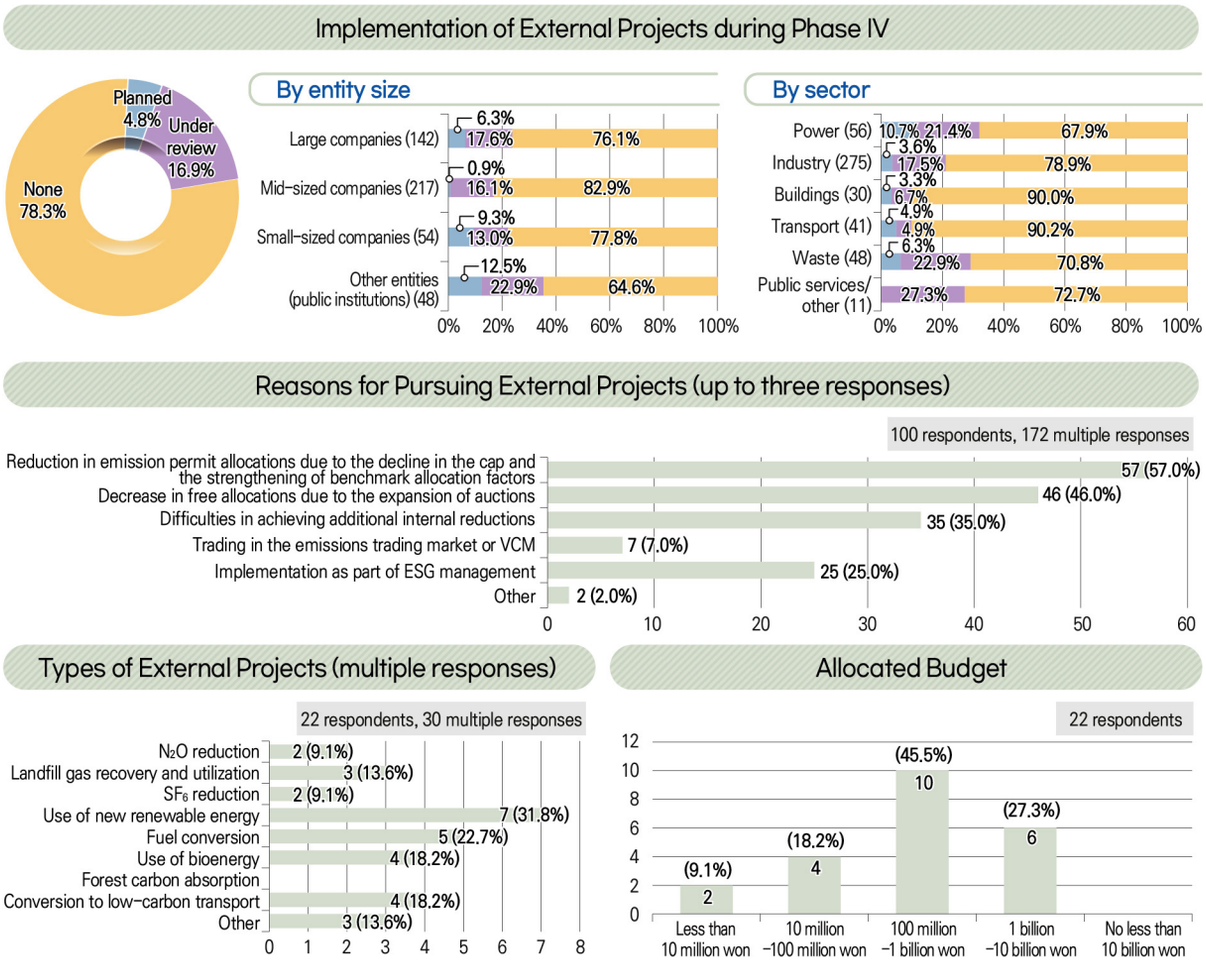


〈Figure Ⅳ-19〉 Implementation of External Projects during Phase III

When asked if they have plans to implement external projects during Phase IV, 4.8% of the responding entities (22 responses) reported that they have external projects planned, 16.9% (78 responses) reported they have external projects under review, and 78.3% (361 responses) stated they have no plans for such projects. Therefore, the majority of responding entities reported that they neither plan nor are reviewing the implementation of external projects. In terms of the reasons for planning or reviewing external projects, the most frequently cited reason was a reduction in emission permit allocations due to the decline in the cap and the strengthening of benchmark allocation factors (57.0%, 57 responses). Other reasons included a decrease in free allocations due to the expansion of auctions (46.0%, 46 responses), difficulties in achieving additional internal reductions (35.0%, 35 responses), and the implementation as part of ESG management (25.0%, 25 responses).

Broken down by entity size, the proportion of entities with external projects planned or under review for Phase IV was the highest for other entities (public institutions) (35.4%, 17 responses), followed by large companies (23.9%, 34 responses), small-sized companies (22.2%, 12 responses), and mid-sized companies (17.1%, 37 responses). These results suggest that other entities (public institutions) demonstrated the strongest intention to pursue external projects. Broken down by sector, positive perceptions toward the implementation of external projects (i.e., having external projects planned or under review) during Phase IV were highest in the power sector (32.1%, 18 responses), followed by waste (29.2%, 14 responses), public services/other (27.3%, 3 responses), industry (21.1%, 58 responses), buildings (10.0%, 3 responses), and transport (9.8%, 4 responses).

Among entities with external projects planned for Phase IV, the types of projects planned included the use of new renewable energy (31.8%, 7 responses), fuel conversion (22.7%, 5 responses), the use of bioenergy (18.2%, 4 responses), and conversion to low-carbon transport (18.2%, 4 responses). Regarding the budget allocated for these projects, the response rate was the highest for 100 million to 1 billion won (45.5%, 10 responses), followed by 1 billion to 10 billion won (27.3%, 6 responses), 10 million to 100 million won (18.2%, 4 responses), and less than 10 million won (9.1%, 2 responses). No respondents reported planned budgets of 10 billion won or more.



〈Figure Ⅳ-20〉 Implementation of External Projects during Phase IV

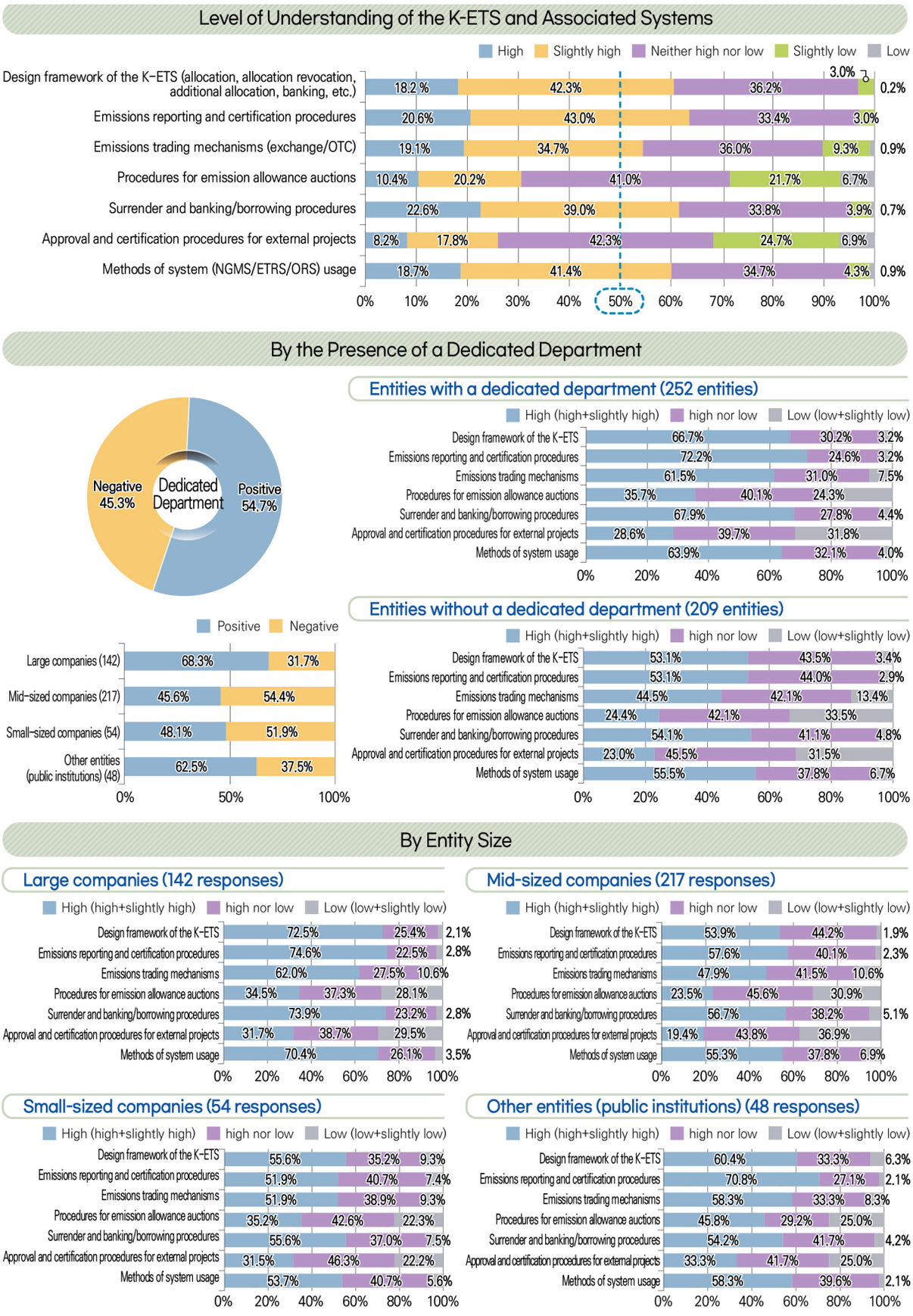
5 Support Required to Respond to the K-ETS

An assessment of covered entities' understanding of the K-ETS and associated systems (NGMS, ETRS, and ORS) used to respond to it revealed that, overall, the level of understanding of the K-ETS and associated systems is not low. A majority of respondents responded positively regarding the design framework of the K-ETS (positive: 60.5%, 279 responses; negative: 3.3%, 15 responses), emissions reporting and certification procedures (positive: 63.6%, 293 responses; negative: 3.0%, 14 responses), emissions trading mechanisms (positive: 53.8%, 248 responses; negative: 10.2%, 47 responses), surrender and banking/borrowing procedures (positive: 61.6%, 284 responses; negative: 4.6%, 21 responses), and methods of system usage (positive: 60.1%, 277 responses; negative: 5.2%, 24 responses), while their negative responses remained relatively low at approximately 10% or less for these items. In contrast, the level of understanding regarding the procedures for emission allowance auctions was lower than for other items (positive: 30.6%, 141 responses; negative: 28.4%, 131 responses; neutral: 41.0%, 189 responses). This result appears to reflect the fact that participation in auctions is limited to entities eligible for auctions. Accordingly, the findings suggest that more active education and promotion of auction procedures will be necessary during Phase IV. Furthermore, regarding the level of understanding of the approval and certification procedures for external projects (positive: 26.0%, 120 responses; negative: 31.7%, 146 responses; neutral: 42.3%, 195 responses), the proportion of negative responses was higher than that of positive responses. This outcome is likely due to the fact that many entities have not implemented external projects.

On the other hand, the level of understanding of the K-ETS and associated systems varied depending on whether the responding entity maintained a dedicated department responsible for K-ETS-related tasks. Among entities with a dedicated department (54.7%, 252 responses), the proportion of positive responses exceeded 60% for the design framework of the K-ETS (positive: 66.7%, 168 responses; negative: 3.2%, 8 responses), emissions reporting and certification procedures (positive: 72.2%, 182 responses; negative: 3.2%, 8 responses), emissions trading mechanisms (positive: 61.5%, 155 responses; negative: 7.5%, 19 responses), surrender and banking/borrowing procedures (positive: 67.9%, 171 responses; negative: 4.4%, 11 responses), and methods of system usage (positive: 63.9%, 161 responses; negative: 4.0%, 10 responses), while their negative responses remained relatively low at approximately 5%. Among entities without a dedicated department (45.3%, 209 responses), the proportion of positive responses was generally lower and the proportion of neutral responses was higher compared to entities with a dedicated department. The positive response rate was highest for methods of system usage (55.5%, 116 responses), followed by surrender and banking/borrowing procedures (54.1%, 113 responses), emissions reporting and certification procedures (53.1%, 111 responses), the design framework of the K-ETS (53.1%, 111 responses), emissions trading mechanisms (44.5%, 93 responses),

procedures for emission allowance auctions (24.4%, 51 responses), and approval and certification procedures for external projects (23.0%, 48 responses). For all items, the proportion of positive responses did not exceed 60%, while the proportion of neutral responses was relatively high, remaining at approximately 40%. In addition, 44.4% of the responding entities with a dedicated department (112 responses) reported at least five years of experience in K-ETS-related tasks, while 36.8% of the responding entities without such a department (77 responses) reported at least five years of experience in K-ETS-related tasks, demonstrating a slightly lower response rate.

Broken down by entity size, a higher proportion of positive responses was observed among large companies and other entities (public institutions) for most items. In particular, large companies demonstrated an overall higher level of understanding of the K-ETS and associated systems. Mid-sized and small-sized companies exhibited lower proportions of positive responses and relatively higher proportions of neutral responses compared to large companies and other entities (public institutions). No substantial difference was observed in response patterns between mid-sized and small-sized companies. Excluding items related to auctions and external projects, at least 70% of large companies provided positive responses, while approximately 60% of other entities (public institutions) provided positive responses. The proportion of positive responses for mid-sized and small-sized companies remained at approximately 50%. These results appear to be related to the presence of dedicated departments responsible for K-ETS-related tasks within the responding entities. Specifically, over 60% of large companies (68.3%, 97 responses) and other entities (public institutions) (62.5%, 30 responses) reported that they have a dedicated department, while less than half of mid-sized companies (45.6%, 99 responses) and small-sized companies (48.1%, 26 responses) reported that they have such a department.



〈Figure Ⅳ-21〉 Level of Understanding of the K-ETS and Associated Systems

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