

# CARBON MARKET BUSINESS BRIEF

## KOREA

### KOREA ETS AT A GLANCE

**Years in operation** Phase 1: 2015-17  
Phase 2: 2018-20  
Phase 3: 2021-25

**Overall cap & trajectory** Phase 1 had a cap of 1,704.18 million tCO<sub>2</sub>e while Phase 2 had a cap of 1,796.13 MtCO<sub>2</sub>e.  
  
Phase 3 has a cap of 2,902 MtCO<sub>2</sub>e, and 180 Mt in reserves (14 million for market stabilisation, 20 million for market formation, and 146 million for new entrants and other purposes).

**Target(s)** To reduce GHG emissions to 40% below 2018 levels by 2030, and to achieve net-zero emissions by 2050

**Emissions Reduced to date** South Korea's total national emissions in 2019 was 701.4 MtCO<sub>2</sub>e, of which 587.9 Mt were covered by the ETS. In 2019, emissions per unit of GDP was 3.79 tCO<sub>2</sub>e/KRW while emissions per capita was 13.6 tCO<sub>2</sub>e (see table below).

Total GHG Emission per Real Gross Domestic Product (GDP)

Parameter	1990	2000	2010	2015	2016	2017	2018	2019
GDP (per billion KRW)	454.15	903.55	1,426.62	1,658.02	1,706.88	1,760.81	1,812.00	1,852.67
Total Emissions (per million tCO <sub>2</sub> e)	292.10	502.7	656.1	692.6	693.6	710.7	727.1	701.4
Emissions per GDP (tCO <sub>2</sub> e/KRW)	6.43	5.56	5.20	4.18	4.06	4.04	4.01	3.79
Emissions per Capita GDP (tCO <sub>2</sub> e/person)	6.80	10.7	13.2	13.6	13.5	13.8	14.1	13.6

Ref : GHG Inventory and Research Center (GIR)

**Sectors covered** Business entities with annual average GHG emissions of at least 125,000 tCO<sub>2</sub>e, and individual facilities with annual average GHG emissions of at least 25,000 tCO<sub>2</sub>e.

The K-ETS covers the energy, industry, buildings, transportation and public/others sectors.

**GHGs covered**

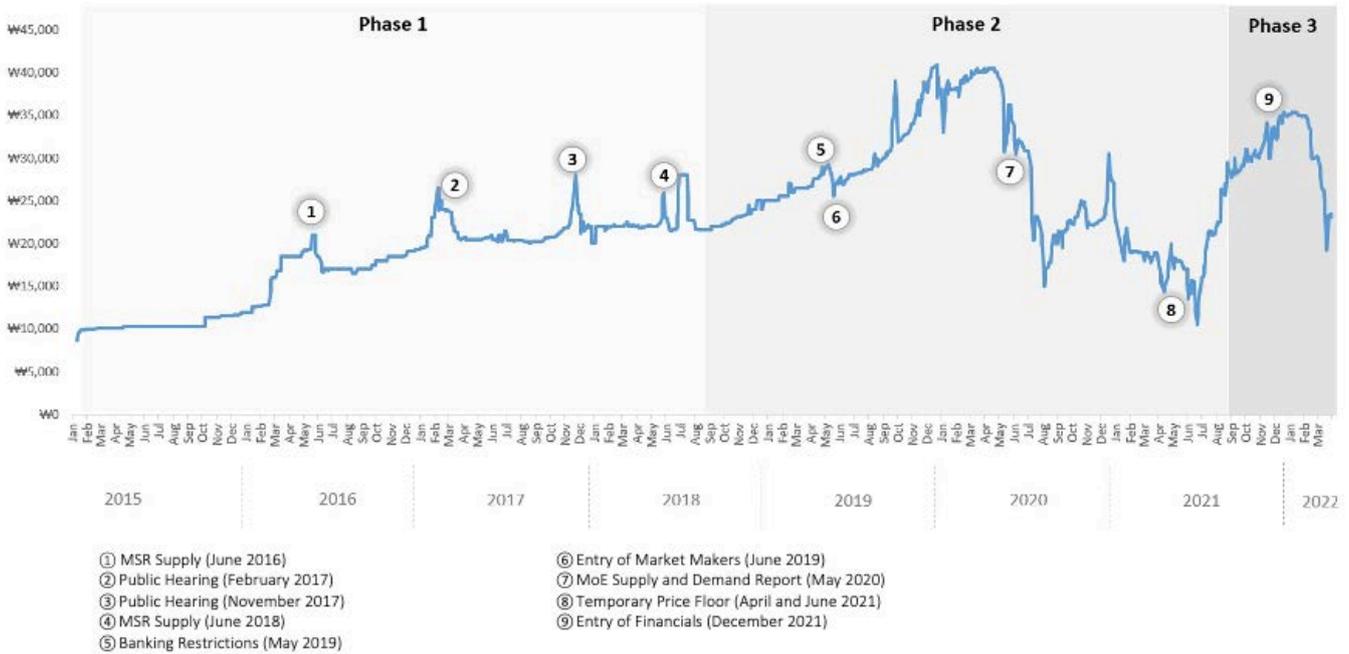
- CO<sub>2</sub>
- Methane
- N<sub>2</sub>O
- HFCs
- PFCs
- SF<sub>6</sub>
- Indirect emissions from electricity consumption

**# of covered entities** 639 companies

Allocation method	<p>The K-ETS employs two methods of allocating allowances: grandfathering (GF) and benchmarking (BM). In Phase 3, the GF method will be applied to all sub-sectors except for 12 (cement, oil refining, aviation, power generation, energy and industrial complex, district cooling and heating, and waste, steel, petrochemicals, building, pulp and paper, timber).</p> <p>In Phase 3, less than 90% of allowances will be freely allocated, with the rest sold at auction. Energy-intensive and trade-exposed (EITE) sectors will receive 100% free allocation. EITE eligibility will be based on a leakage index*. All local government units, schools, medical institutions, and public transportation operators also qualify for 100% free allocation.</p> <p>*Leakage index = (production cost x trade intensity) &gt; 0.2%</p>
Trading rules	<p>Allowances can be traded via exchange and/or OTC. Tradable allowances are Korea Allowance Unit (KAU), Korea Credit Unit (KCU), and Korea Offset Credit (KOC). i-KCUs and i-KOCs were added in 2019 for international offset units, and KOCs and i-KOCs were categorised according to their vintage years from 2021.</p> <p>During Phase 1, trading was strictly between compliance entities while financial institutions acting as market-makers joined in Phase 2. Third-party institutions such as financial firms and brokers joined in Phase 3.</p>
Use of offsets and linking	<p>In Phase 3, the offset limit submission has been reduced to a maximum of 5% of each entity's compliance obligations, regardless of its classification, from 10% in Phase 2.</p> <p>Limitations have been introduced on the issuance and conversion of offset credits in Phase 3.</p> <ul style="list-style-type: none"> <li>a) GHG reduction projects (according to reduction period coverage) to KOC conversion: <ul style="list-style-type: none"> <li>1) April 2010 – December 2020: within 2 years (2021-22)</li> <li>2) January 2021 onwards: within 3 years (2022-24)</li> </ul> </li> <li>b) KOC to KCU conversion: within 2 years of the KOC issuance</li> </ul> <p>As of 2022, there are 272 registered methodologies (211 for CDM and 61 for domestic).</p>
Other features	<p>Banking is allowed but is limited to the amount equal to double the annual net sales (excluding swaps and auctions) of KAUs and KCUs between 2021-23, and the amount of annual KAU and KCU net sales between 2024-25.</p> <p>Market makers are allowed to carry-over allowances unconditionally. Brokerage firms, which are allowed to hold a maximum of 200,000 tCO<sub>2</sub>e for the whole phase, can bank allowances without limitations.</p> <p>Intra-phase borrowing is also allowed, limited to 15% of an entity's obligation in Phase 3. However, the limit will decrease in accordance with the entity's past borrowing transactions and is calculated using this formula: 15% - (previous year's borrowing rate * 50%)</p> <p>The K-ETS has 14 million allowances in a market stabilisation reserve.</p>
Penalties for non-compliance	<p>The penalty for non-compliance shall not exceed three times the average market price of the given compliance year or KRW 100,000 per tonne.</p>
Use of revenues	<p>The revenue from auctions will be reinvested to support small- and mid-sized companies.</p>

# MAJOR DEVELOPMENTS

Figure 1. KAU Developments (2015 – 1Q 2022)



In March 2021, the ETS Act was amended in preparation for the entrance of securities firms and brokerage companies. Additional market makers (Hana Financial Investment, Korea Investment and Securities, SK Securities) started operations in May 2021 and new KOC units are listed according to their vintage years in June 2021.

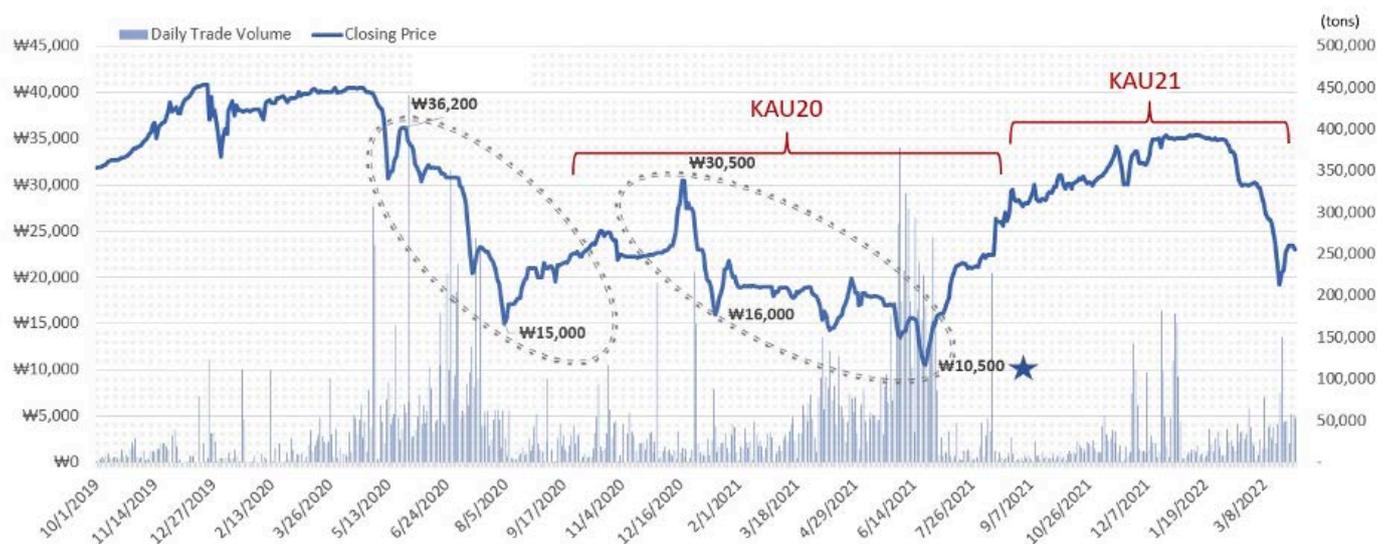
The 2050 Carbon Neutrality Commission, an organisation in charge of establishing and implementing the nation’s carbon neutral policies and strategies, was launched in May 2021. Meanwhile, the Framework Act on Carbon and Green Growth (also known as “Carbon Neutrality Act”) was passed by the National Assembly in August 2021 and entered into force in March 2022, making Korea the 14th country in the world to legislate a carbon neutrality target, and also legally mandating a minimum emissions reduction of 35% from 2018 levels by 2030.

At COP26 in Glasgow, the government pledged an enhanced emissions reduction target of 40% from 2018 levels by 2030, and officially submitted the new NDC to the UNFCCC in December 2021. In the same month, 20 securities firms joined the market.

2022 is expected to bring several policy changes, particularly in the role of nuclear in the energy mix, as the country transitions to a new government.

## MARKET COMMENTARY

Figure 2. KAU20 – KAU21 Price and Volume



### 2020 Compliance Year

Allowance prices during the pre-pandemic period were strongly supported by bullish long-term market and policy outlooks. Even during the initial onset of the pandemic, prices hovered around high levels as the 2019 compliance demand remained unaffected by the economic impacts of COVID-19.

The effects of the pandemic saw prices collapse from September 2020 and reached a five-year low of KRW 15,000 and then to a new all-time low of KRW 10,500. In response, the government set a temporary price floor of KRW 12,900 in April 2021 and KRW 9,450 in June 2021.

The government allocated 9.4 million KAU20s from August 2020 to June 2021, and while four auctions from February 2021 to May 2021 were postponed amid persistent low prices, the volume from the postponed auctions were offered altogether in the final KAU20 auction in June 2021.

### KAU21 Allowance Prices

Non-indexed KAU21s were valued at KRW 11,550–23,000 in January 2021 to July 2021, and have traded between KRW 25,600 and KRW 35,400 since August 2021. The market's recovery was mainly attributed to the easing of oversupply worries and the expected increase in demand as the country successfully controlled the spread of COVID-19 and thus preventing massive lockdowns.

Prices rose to KRW 35,400 after large scale transactions in December 2021, extending the bullish momentum until mid-January 2022. These transactions were mostly from power companies completing their yearly internal audits as well as some hedging activity triggered by the end of KEPCO's ETS subsidy support.

In the first quarter of 2022, oversupply worries and dampened market sentiments amid broader uncertainties in the global markets brought prices back down to a low of KRW 19,250. Auction volumes were also adjusted in consideration of weak prices. The market will likely remain highly volatile until the completion of the 2021 compliance cycle.

*Note: all prices in this report reflect KRX closing prices, not intraday high and low*

## USEFUL LINKS

[Ministry of Environment](#)

[Carbon Neutrality Commission](#)

[Korea Exchange](#)

[Greenhouse Gas Inventory and Research Center](#)

[Ecoeye International](#)

[International Carbon Action Partnership](#)

## REFERENCES

[Republic of Korea's Enhanced Update of 1st Nationally Determined Contribution \(English\)](#)

[Framework Act on Carbon Neutrality and Green Growth \(Korean\)](#)

[Framework Act on Low Carbon, Green Growth \(English\)](#)

[Enforcement Decree of the Framework Act on Low Carbon, Green Growth \(English\)](#)

[Enforcement Decree of the Act on the Allocation and Trading of Greenhouse Gas Emission Permits \(Korean\)](#)

[Act on the Allocation and Trading of Greenhouse Gas Emission Permits \(Korean\)](#)

[2030 Greenhouse Gas Reduction Roadmap \(Korean\)](#)

[National Greenhouse Gas Inventory \(1990-2019\) \(Korean\)](#)

[Phase 2 Basic Plan \(Korean\)](#)

[Phase 2 Allocation Plan \(Korean\)](#)

[Phase 3 Basic Plan \(Korean\)](#)

[Phase 3 Allocation Plan \(Korean\)](#)

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