

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 1,689.9 million tCO _{2e} Phase 2 had a cap of 1,777 million tCO _{2e} , plus 153 million tonnes of reserves. Phase 3 has a cap of 2,902 million tCO _{2e} , and 180 million 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 24.4% below 2017 levels by 2030, and to achieve net-zero emissions by 2050
Emissions Reduced to date	National GHG emissions per unit of GDP in 2018 was 402 tCO _{2e} /billion Korean won, a 11.8% decrease from 2017, according to 2020 data from the GIR (see table below).

Total GHG Emission per Real Gross Domestic Product (GDP)

Parameter	1990	2000	2010	2015	2016	2017	2018
GDP (per billion KRW)	454,146	903,551	1,426,618	1,658,020	1,706,880	1,760,812	1,812,005
Total Emissions (per million tCO _{2e})	292.2	502.9	656.3	692.5	693.5	709.7	727.6
Total Emissions per GDP (tCO _{2e} /billion KRW)	643.4	556.5	519.7	417.7	406.3	403.1	401.6
Total Emissions per Capita (tCO _{2e} /person)	6.8	10.7	13.2	13.6	13.5	13.8	14.1

Ref : GHG Inventory and Research Center (GIR)

Between the K-ETS start in 2015 and 2018, emissions intensity dropped 3.9%.

Sectors covered	Business entities with annual average GHG emissions of 125,000 tCO _{2e} or more, and individual facilities with annual average GHG emissions of 25,000 tCO _{2e} or more are subject to caps under the K-ETS. Phase 1 covered the energy, industry, buildings, transportation and public services sectors. In Phase 2, waste was added to the K-ETS. At present, the same categorisation applies to Phase 3.
GHGs covered	The K-ETS covers direct emissions of six greenhouse gases – carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride – and indirect emissions from electricity consumption.
# of covered entities	Phase 1: 524-592 companies Phase 2: 589-639 companies Phase 3: 684 companies

Allocation method	<p>The K-ETS employs two methods of allocating allowances: grandfathering (GF) and benchmarking (BM). For Phase 1, the GF method was applied to all sub-sectors except for cement, oil refining, and aviation. For Phase 2, the GF method is applied to all sub-sectors except for seven (the three from Phase 1 plus power generation, energy and industrial complex, district cooling and heating, and waste). In Phase 3, the GF method will be applied to all sub-sectors except for 12 (the seven from Phase 2 plus steel, petrochemicals, building, pulp and paper, timber).</p> <p>Most sectors received free allowances in Phase 1. This was gradually reduced to 97% in Phase 2 and auctioning (3%) was introduced. Auctioned allowances can be bought by sectors that are not 100% freely allocated. Initially, a bidding limit of 30% had been set but was reduced to 15% to prevent hoarding (bidding of more than 15% with a max limit of 30% is allowed on special market conditions).</p> <p>In Phase 3, less than 90% of allowances will be freely allocated, with for-auction allowances rising to more than 10%. 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 will qualify for 100% free allocation.</p> <p>*Leakage index = (production cost x trade intensity) > 0.2%</p>
Trading rules	<p>Allowances can be traded via exchange and/or over-the-counter. 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 distinction of incoming international offset units.</p> <p>During Phase 1, trading was strictly between compliance entities while financial institutions acting as market-makers (Korea Development Bank and Industrial Bank of Korea) joined in Phase 2. In Phase 3, third-party institutions such as financial firms, brokers, and individuals are eligible to trade.</p>
Use of offsets and linking	<p>In Phase 1, offset credits were limited to domestic CDM credits and other credits from domestically certified projects. Use of overseas offset credits was allowed in Phase 2, subject to other criteria, up to 10% of an entity's compliance obligation (with a maximum of 5% from overseas reduction projects). 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.</p> <p>In Phase 1 and Phase 2, offset credits had no expiration. However, limitations have been introduced on the issuance and conversion of offset credits in Phase 3.</p> <ul style="list-style-type: none"> • GHG reduction projects (according to reduction period coverage) to KOC conversion: <ul style="list-style-type: none"> • April 2010 – December 2020: within 2 years (2021-22) • January 2021 onwards: within 3 years (2022-24) • KOC to KCU conversion: within 2 years of the KOC issuance <p>As of 2018, there are 252 registered methodologies (211 for CDM and 41 for domestic).</p>
Other features (eg banking, borrowing, reserves, etc)	<p>Banking is allowed with some restrictions. In Phase 3, banking is limited to the amount equal to twice 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 are eligible to bank 200,000 tCO_{2e} annually, while individuals are allowed to bank 1,000 tCO_{2e} per year.</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 to an 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	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.
Use of revenues	The revenue from auctions will be reinvested to support small- and mid-sized companies.

MAJOR DEVELOPMENTS

The government made several major climate change-related and K-ETS policy announcements in 2020. The most notable was the government's declaration of carbon neutrality by 2050, a policy shift that includes plans for a KRW 73.4 trillion package aimed at boosting green infrastructure, investing in clean energy and electric vehicles, and creating "green" jobs. The announcement was followed by the proposal of a new law, the Green New Deal Framework Act, that will form the legal basis of the net-zero commitments.

The country's 2050 Low Emission Development Strategy, incorporating core carbon neutral strategies submitted by different government interagency committees, was also drafted and approved. The LEDS contains measures that will accelerate the expansion in the use of clean energy through fuel switching and investments in renewable energy, commercialisation and development of decarbonisation technologies, enforcement of low-carbon urban planning, fostering low carbon industries through digital technological innovation and green hydrogen and CCUS promotion, and distribution of eco-friendly vehicles. A Climate Response Fund and Carbon Neutral Committee will also be established to support the transition to a carbon neutral system. Work on carbon neutral scenario modelling is underway and is expected to be released in 2021.

In December 2020, the government submitted its updated NDC to the UNFCCC, changing its emissions reduction target to 24.4% below 2017 levels by 2030, or 540 million tCO_{2e}. Its previous 2030 goal was for a 37% cut compared to BAU, which equated to 536 million tCO_{2e}.

Also in December, the Ministry of Trade, Industry and Energy published the 9th Basic Power Supply and Demand Plan for 2020-34, which will see installed capacities of coal and nuclear facilities decrease while LNG power capacity will increase. By 2034, renewables will increase three times from its current share, to 42%, and will be the biggest fuel source of the country.

Meanwhile, the Phase 3 Allocation Plan for 2021-25 was finalised in September 2020 and allocation to companies was completed by the end of 2020. The emissions cap has been determined in consideration of the 2030 GHG Reduction Roadmap and will see a decrease of 4.7% compared to 2017-19. ETS coverage has been expanded to 73.5% of the economy, capturing previously exempted industries and processes, and the benchmarking allocation method has been improved. The criteria for free allowances has been revised while the ETS market function has been expanded to allow participation of third-parties and introduce futures trading.

The government has committed to support the transition of CDM projects into the Paris Agreement's Sustainable Development Mechanism. However, conditions to the conversion of foreign offsets to KOC and KCU were introduced, and submission of offset credits for compliance obligations were reduced from 10% to 5%, regardless of categorisation.

For 2021, the government announced that a total of 18.2 million KAU₂₀ and KAU₂₁ allowances will be auctioned. The Korea Development Bank (KDB) and Industrial Bank of Korea (IBK) were also chosen as the market makers for 2021.

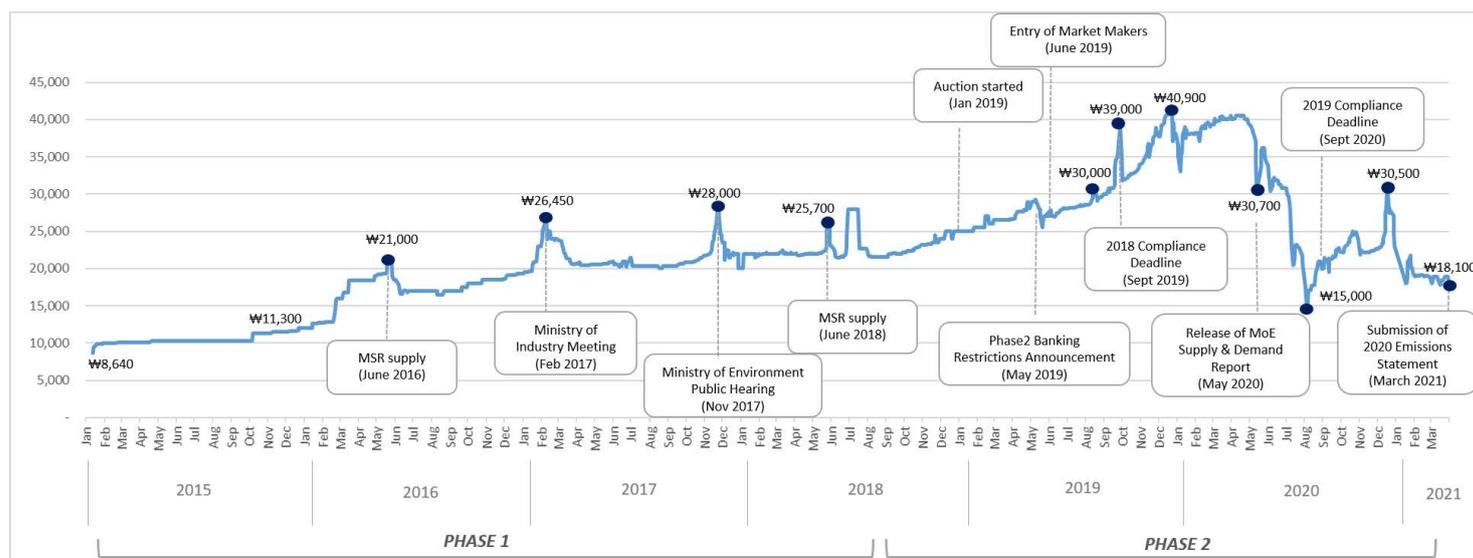


FIGURE 1
KAU Price

MARKET COMMENTARY

The Korean market has seen a nearly five-fold increase in allowance prices since 2015, when it started at KRW 8,640. Based on historical patterns, trade and supply appear to be concentrated ahead of the September compliance deadline. Price volatility is also prominent during this period, when aggressive buying from small emitters tends to push prices upwards.

The proportion of OTC deals started to rise in Phase 2 as companies negotiate large-scale transactions. Long companies, on the other hand, try to retain surplus allowances to prepare for tighter caps and future price increases. From late 2018 to the early half of 2019, the supply shortage together with market uncertainty caused prices to rise.

Allowance auctions were introduced in January 2019, while market-makers entered in June 2019. The market-makers supply about 200,000 tonnes of allowances per month and, with their entry, the pattern of stagnant trade post compliance seen in Phase 1 disappeared. After the end of the banking and borrowing application in September 2019, additional demand from short companies pushed the price to a peak of KRW 40,900 in December 2019.

Auctions were well-received and mostly oversubscribed but since May 2020, the bid rate has fallen from an average of 150% to 82% as allowances failed to fully sell out as demand declined amid the COVID-19 pandemic.

Market prices continued to hover around high levels in the early half of 2020 despite the pandemic's impact on global economies because the K-ETS is a compliance-driven market and there was high demand ahead of the 2019 compliance deadline in September 2020.

However, carbon prices quickly retreated in the following months, collapsing to as low as KRW 15,000 – a price that was last seen in 2016 – mainly attributed to the economic difficulties brought by the COVID-19 pandemic and an over-supplied market, before slightly recovering to KRW 19,500 at the end of the 2020 true-up period. By this time, allowances had lost 50% of their value compared to the previous year. A short bull run was seen in December 2020 when several companies went into an aggressive buying, pushing the prices up to KRW 30,500, but quickly reversed before the year ended.

KAU20 prices showed further volatility as 2021 began, with prices crashing to KRW 16,000 – losing 30% of their value in the span of seven days as companies consistently offered lower buying prices and as the volume of expiring allowances grew. Prices have since stabilised at around KRW 18,000 – KRW 19,000 in February and March 2021.

Meanwhile, prices for Korea Offset Credits (KOCs) fell to KRW 26,000 in December 2020 from the highs of KRW 40,000 in 2019, with minimal trading activity. Prices have remained around that level throughout Q121. Korea Credit Units (KCU), on the other hand, have not seen any trades since Phase 2 started and were last listed on the exchange for vintage 2019 at a price of KRW 31,850 per tonne.

USEFUL LINKS

[Ministry of Environment](#)

[Korea Exchange](#)

[Greenhouse Gas Inventory and Research Center](#)

[Ecoeye International](#)

[International Carbon Action Partnership](#)

REFERENCES

[Republic of Korea's Updated Nationally Determined Contribution \(English\)](#)

[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 \(1990-2018\) \(Korean\)](#)

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

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

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

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

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