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Korea Emission Trading Scheme

Operation Results of the Korea ETS Phase 1

The Ministry of Environment released the operation results of the first phase of the ETS following the completion of the compliance obligations of the last remaining companies.

The first phase had a final allocation of 1,685.58 million tons, excluding the amount from the stabilization reserve, where 1,669.43 million tons were rendered as certified emissions leaving a 16.2 million tons of surplus – 0.96% of the total quota.

Figure 1. Status of Emissions Quota (unit: thousand tons)

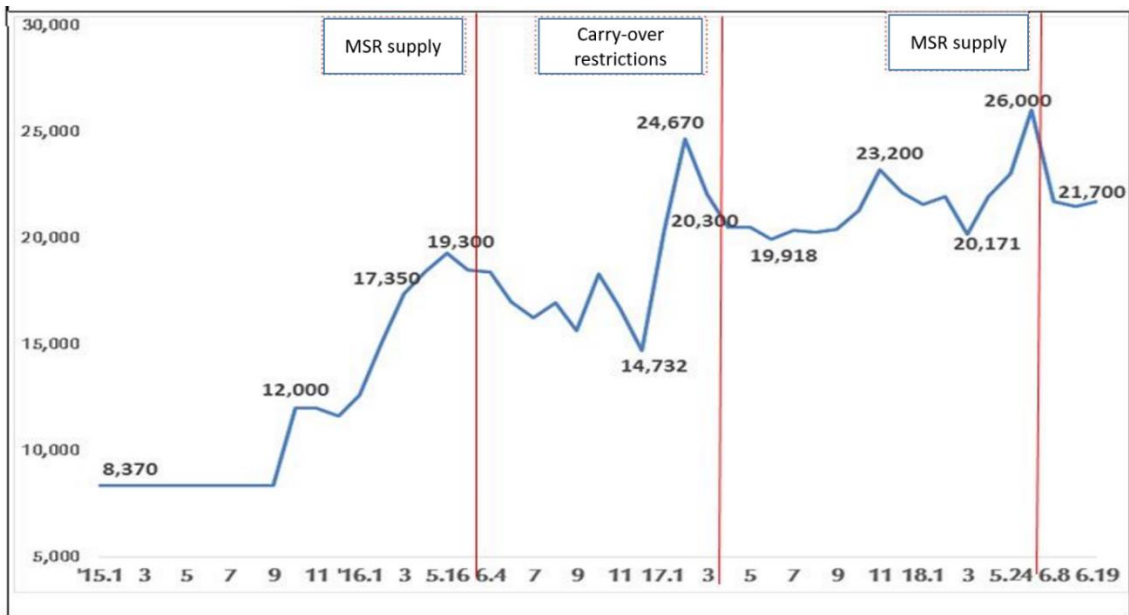
		2015	2016	2017	Total
Pre-allocation (①)		543,107	535,858	529,648	1,608,613
Others (②)	Additional	9,091	16,105	26,326	51,492
	Cancellation	△13,351	△20,615	△10,620	△44,586
	Early Action Credits	–	29,412	21,980	51,392
	Allocation Plan Change	–	–	18,643	18,643
Final Allocation (①+②)		538,847	560,760	585,977	1,685,584

Figure 2. Comparison of Quota vs. Emission (unit: million tons)

	2015	2016	2017	Total
Number of companies	524	562	592	–
Final Allocation (①)	538.8	560.8	586	1,685.60
Emissions (②)	543.1	554.3	572	1,669.40
Balance (①–②)	△4.3 (△0.80%)	6.5 (1.15%)	14.0 (2.39%)	16.2 (0.89%)

Of the 592 companies that were eligible to receive allowances in 2017, 402 received more allowances while 190 had insufficient allocations. Most of the 190 companies secured their permits through buying from the market or using offsets.

Figure 3. Price Spikes in Phase 1



The reserved units for stabilization measures in Phase 1 amounted to 89.44 million tons, of which 75.58 million tons (84.5%) were used and 13.86 million tons of reserves (including reserves for other uses) were left. The government supplied 4.94 million tons of stabilization reserves in two occasions in order to manage the rapid increase in prices and the market’s supply and demand balance. An amendment to restrict carry-over regulations was also put in place to safeguard a sufficient supply to the market.

The government has also issued 22.47 million tons of Korean Offset Credits (KOC) from 81 projects. These credits are mainly from projects in the sectors of N2O reduction, fuel switching, waste heat recovery, landfill gas utilization, SF6 reduction and other renewable energy projects. Out of the total, 15.4 million tons (68.5%) of KOCs were converted to Korean Credit Units (KCU) for trading or compliance submissions.

Figure 4. Emission Trading By Year

	2015	2016	2017	2018 (~ 8.9)	Total
Trade Volume ^① (thousand tons)	573	1,190	2,626	4,126	8,515
Trade Value ^① (Hundred Million Korean Won)	631	2,007	5,447	9,035	17,120
Average Price ^② (Korean Won)	12,028	17,367	21,131		
3-year average price	20,374				

The first three years of the ETS showed that the trade volume more than doubled every year. The total trade volume from 2015 until the first half of 2018, including OTC transactions, amounted to 8.52 million tons which is equivalent to a trade value of KRW 1.71 trillion.

The average price per ton steadily increased from KRW 12,028 in 2015 to KRW 17,367 in 2016 and KRW 21,131 in 2017. The average price for three years was 20,374 won.

Figure 5. Volume of Carry-Over

Allowance Allocation	−	Insufficient Allocation	+	MSR Supply	+	KCU Submission	≡	Carry-over
4,936		3,320		494		1,539		3,701

454 companies carried a total of 37.01 million tons to the phase 2 (2018-2020). The volume were from companies' allocation surpluses, market reserves, and offset emission allowances (KCU).

The Ministry of Environment announced that it plans to further analyze the economic impacts such as reduction effects of companies, incentives for investment in reduction activities as well as production costs to reflect them appropriately in the operation of the ETS.

Korean Market Update

Last Month's Highlights (September 2018)

- Phase 2 trading activity started full operations after the closure of the 2017 compliance year. The month was a period of stagnant trade with only 1 to 2 KAU18 trades a day
- The price of KAU18 increased by 600 and closed at KRW 22,200 on September 28 due to rising momentum
- Most trades were settled as OTC transactions
- According to Carbon-i's power report, the power generation in the first half of 2018 increased by 3.1% compared to the same period last year. Coal dominated the share with 41% followed by gas (28.8%), nuclear power (21.5%), renewable energy (6.1%) and oil (1.3%)
- While nuclear power generation is expected to increase by the second half of 2018 due to the scheduled opening of the Shin Kori 4 unit, generation ratio from oil will continue decreasing due to rising oil prices. Gas generation will also sharply decrease due to the re-opening of nuclear and coal plants that were closed for preventive maintenance and opening of new power plants

Korean Market Update

This Month's Trend (October 2018)

Buying orders for KAU18 started coming to the market after the compliance deadline and after KAU17 was de-listed from the market in the second week of August 2018. Buying orders keep increasing registering almost 600,000 tons in September as companies start early to find an opportunity to secure permits.

Transactions remain low with only 1,000 tons or less trading in some days. Trading activity, particularly buyer participation, is expected to remain limited until the allocation quotas are confirmed by the end of this month. KCU18 stayed transaction-less since it was listed in the market.

KAU18 currently trades at KRW 22,800, KCU18 at 21,800 and KOC at 25,000. As of publishing time, KAU18's total volume amount to 1 million tons and KOC transactions at 157,000 tons.

Figure 6. KAU18 and KOC Over-The-Counter Transactions

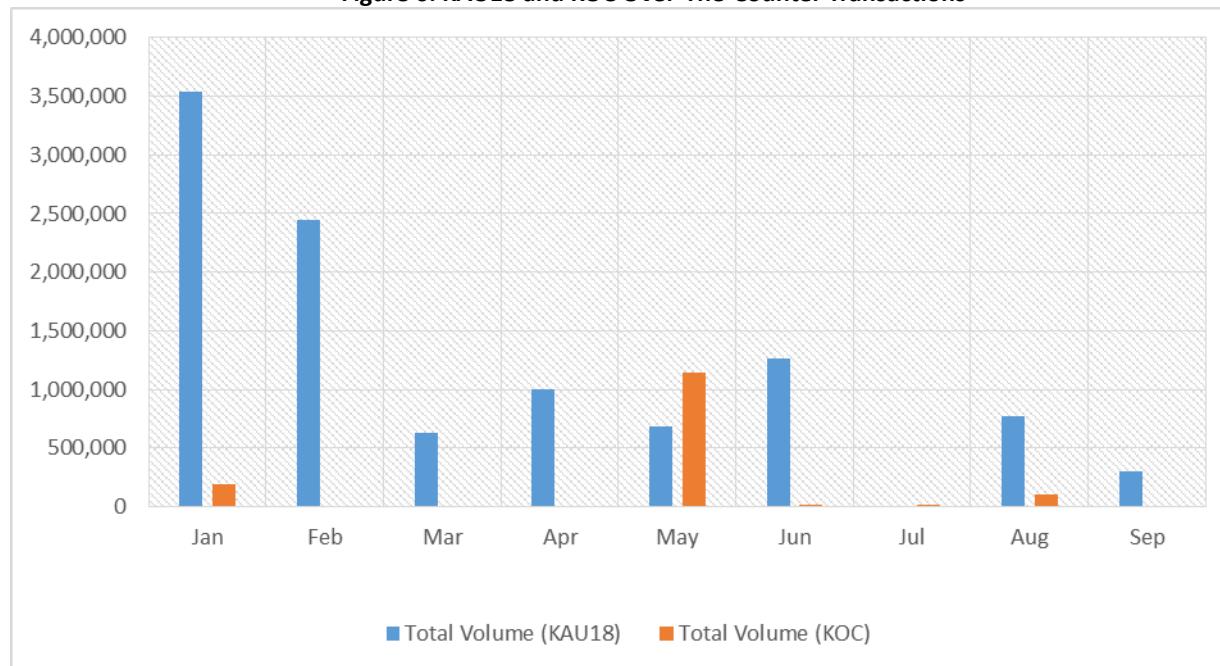
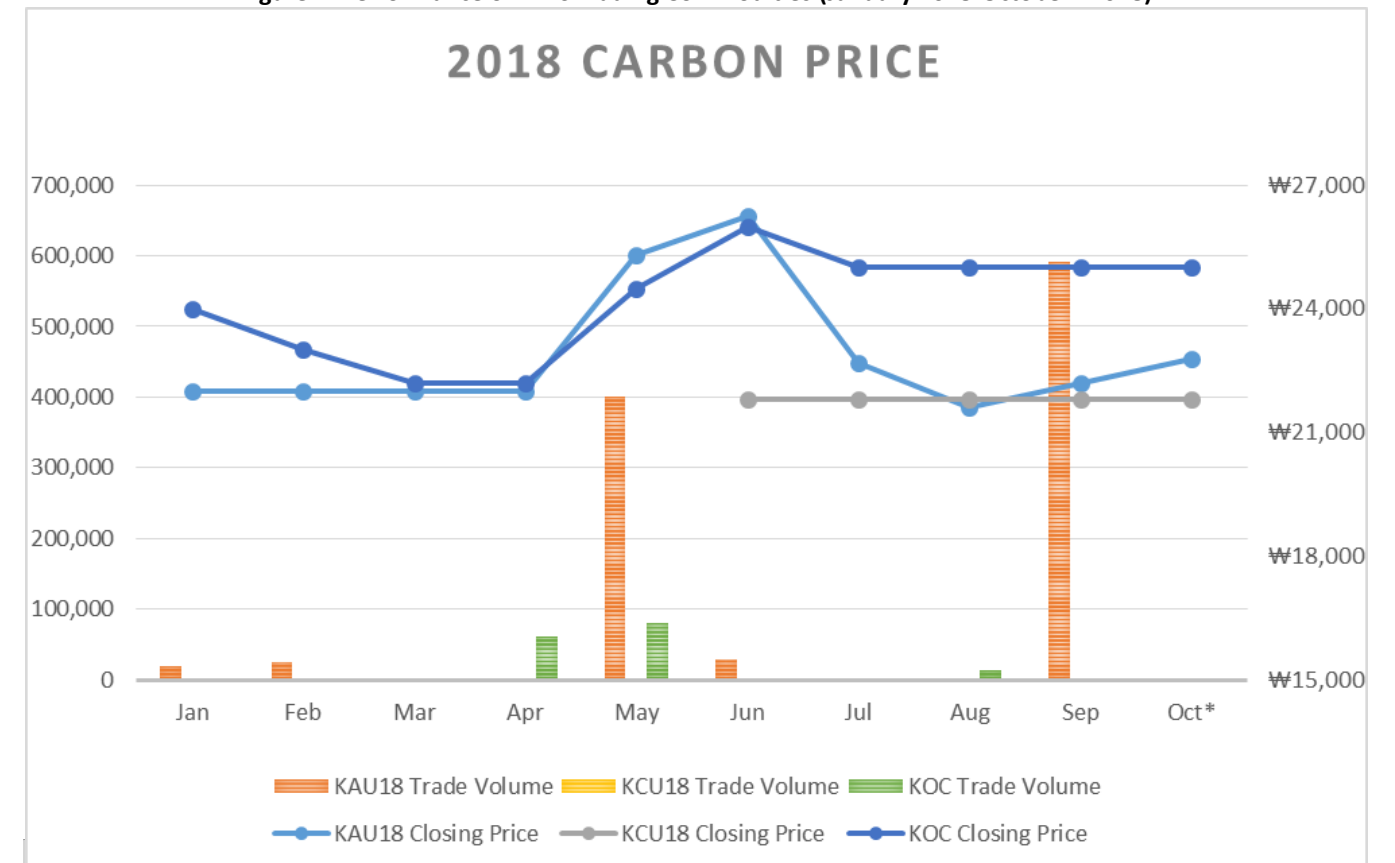


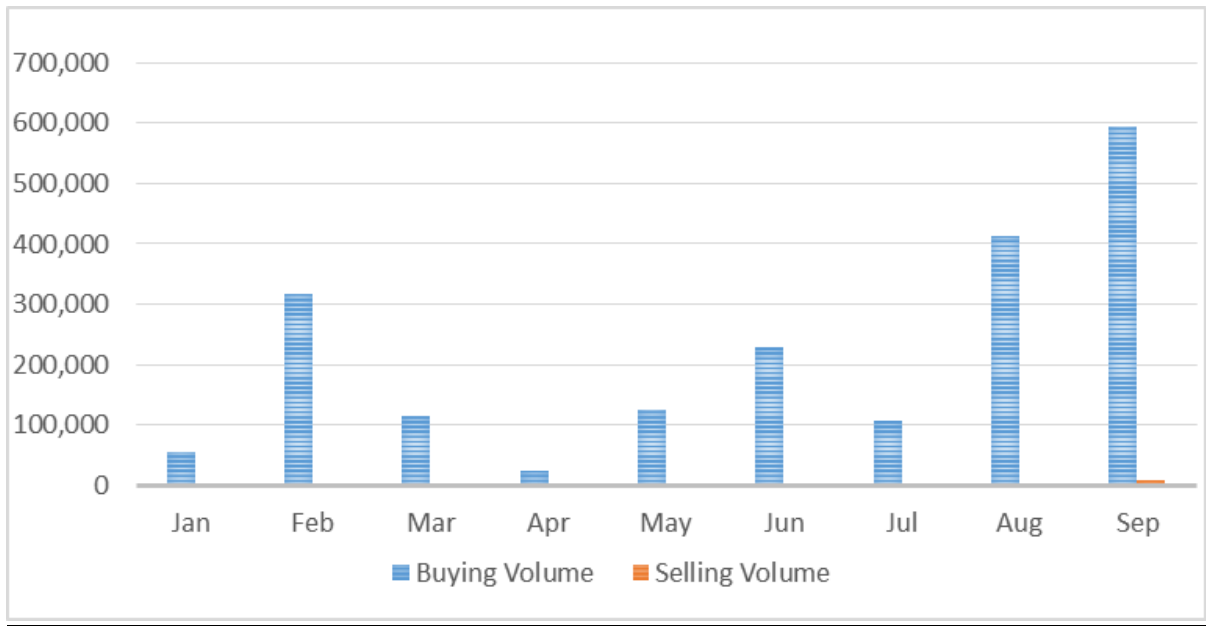
Figure 7. Performance of KETS Trading Commodities (January 2018-October* 2018)



	Closing Price	Monthly Increase	Trade Volume	Closing Price	Monthly Increase	Trade Volume	Closing Price	Monthly Increase	Trade Volume
Jan	22,000	-	20,000	-	-	-	24,000	-	-
Feb	22,000	-	26,000	-	-	-	23,000	▼1,000	-
Mar	22,000	-	-	-	-	-	22,200	▼800	-
Apr	22,000	-	-	-	-	-	22,200	-	62,226
May	25,300	▲3,300	400,000	-	-	-	24,500	▲2,300	80,000
Jun	26,250	▲950	29,000	21,800	-	-	26,000	▲1,500	2,545
Jul	22,700	▼3,550	-	21,800	-	-	25,000	▼1,000	-
Aug	21,600	▼1,100	-	21,800	-	-	25,000	-	13,218
Sep	22,200	▲600	590,600	21,800	-	-	25,000	-	-
Oct*	22,800	▲600	1,956	21,800	-	-	25,000	-	-
Total	-	-	1,067,556	-	-	-	-	-	157,989

*October's data is based on the trading information on October 19, 2018

Figure 8. KAU18 Buy/Sell Orders (January 2018-September 2018)



	Buying Volume	Selling Volume	Trade Volume (Market)
Jan	56,000	None	None
Feb	318,000		
Mar	114,052		
Apr	24,000		
May	126,000		
Jun	230,000		
Jul	106,759		
Aug	411,910		
Sep	593,271	9,100	600

October's Key Events

Powering Past Coal Alliance, October 2nd

South Chungcheong Province in South Korea became the Alliance's 75th member and the first Asian jurisdiction to join after the coalition launched in November of last year. The province has 30 out of 61 coal-fired power plants in Korea representing 18 GW of power generation and a production of 25% of the country's GHG emissions and 13% of air pollutant emissions as of 2015. The province, in its 2050 Energy Vision Plan, has committed to decreasing coal generation to zero by 2050 and increasing renewable energy generation to 47% with 14 power plants slated to be converted into green power plants.

According to its website, the Alliance is a coalition of national and sub-national governments, businesses and organizations working to advance the transition from unabated coal power generation to clean energy and currently has 75 members comprising of 28 national governments, 19 sub-national governments and 28 businesses or organizations.

Meanwhile, the Korean Environment Minister, mayors of the cities of Seoul and Incheon, and the governor of Gyeonggi Province in a joint declaration also announced its plan to actively promote the low-carbon transition through the conversion of coal to environment-friendly energy to achieve fine dust removal.

Furthermore, two Korean financial institutions – Korea's Teacher' Pension and Government Employees Pension System - have also announced their plan to refuse any future coal power plant projects and have joined the global fossil-free campaign led by international non-profit organization 350.org

Special Report on Global Warming of 1.5°C, October 8th

The Intergovernmental Panel on Climate Change (IPCC) during its 48th session released the *Special Report on Global Warming of 1.5°C*, written by 91 authors from 40 countries and unanimously approved by all 195 member nations, suggesting that the temperature rise should be limited to 1.5°C by the end of the century compared with pre-industrial levels to avoid the grave consequences of global disasters caused by warming. The summary of the special report were concentrated in 4 chapters. The first chapter describes the current status and impacts of global warming, risks, and prospects. The average global temperature has risen by

0.87°C compared to the period of 1850-1900, an increase of 0.2°C per decade. If this trend continues, it is expected to exceed 1.5°C between 2030 and 2052.

The second section contains information on the effects of “1.5°C and 2°C warming” on the ecosystem, human health and economy. A rise of 2°C will cause irreversible impacts: additional 420 million people will be exposed to severe heat waves, sea level will rise higher causing habitats and marine ecosystems to disappear, and increased risks in human security, economic growth and supply of basic necessities like food and water, among others. If the rise is limited to 1.5°C, 10 million people will be saved from sea level rise risk, the number of people vulnerable to poverty will be reduced by hundreds of millions, and the rate of the total population exposed to serious water shortages will be reduced by up to 50%.

The chapter that followed emphasizes the need to shift energy systems, industries, agriculture, transportation, and urban systems to keep the global warming to within 1.5°C. CO₂ emissions should be reduced by at least 45% from 2010 to 2030 and net zero emissions must be achieved by 2050 meaning that any remaining emissions would need to be balanced by applying absorption technology and that 50 to 65% of the primary energy supply and 70 to 85% of the power generation should be sourced from renewable energy while 75 to 90% of greenhouse gas should be reduced from the industrial sector.

The last chapter contains efforts to strengthen sustainable development and poverty eradication in relation to climate change. It is estimated that the investment in the energy sector will increase to US\$ 900 billion per year from 2015 to 2050 and a total investment estimate of US\$ 2.4 trillion is required until 2035 to fund and realize the transition.

The special report will be used as a key scientific resource at the 24th UN Climate Change Conference (COP24) in Katowice, Poland on December 2018.

Korea Carbon Forum, October 11th – 12th

The Korean Government-hosted Carbon Forum, a once a year event, held its second convention under the theme of “Implementation of the Paris Agreement Using the Future New Technology” to explore ways to reduce greenhouse gases for sustainable development using new technologies. The forum had programs related to

climate change policy, new technologies, carbon market and industry trends for the implementation of the GHG emission reduction target in response to climate change.

Simultaneous seminars totaling to ten covering around thirty topics were presented and discussed for two days. These seminars were held to provide lectures on the current status and prospects of the East Asian carbon market, second phase of the Korean ETS, strategies for responding to the carbon market and the global aviation carbon offset system, development strategies of the mobile industry, energy policy trends and future employment schemes for domestic and overseas climate-related projects as a way to help nurture future experts in climate change and energy fields.

Other events included the Korea-China-Japan Future Energy New Technology Symposium, Special Symposium on National Strategic Project on Carbonization, and Korea Climate Change Symposium. Under the Korea-China-Japan Technology Symposium, a variety of next-generation energy technologies were introduced such as hydrogen energy storage, urban mines for a systematic method of reusing and recycling waste from electronics and photovoltaic, Smart Green Village and offshore wind power.

The forum was attended by more than 1,000 participants.

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