



DECEMBER 2019



IMPACT CARBON

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### MARKET SITUATION

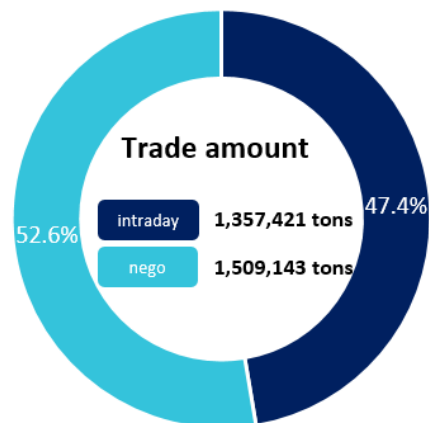
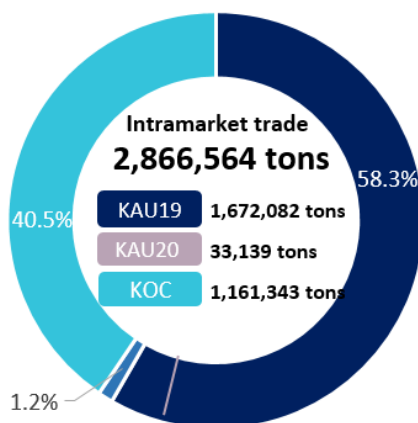
#### Comprehensive Trading Information (January 2019 – November 2019)

<b>KAU19</b>	
↑ <b>38,350</b> ▲4,400(+13.0%)	
Closing Price	38,350 Won
- 1 Month Average	37,008 Won
- 3 Month Average	34,015 Won
- Total Average	30,474 Won
Total Trading Amount	1,672,082 tons
- Intraday	1,224,183 tons
- Negotiated	447,899 tons
Total Trading Value	51.0 B Won

<b>KCU19</b>	
→ <b>31,850</b> (0.0%)	
Closing Price	31,850 Won
- 1 Month Average	-
- 3 Month Average	-
- Total Average	-
Total Trading Amount	-
- Intraday	-
- Negotiated	-
Total Trading Value	-

<b>KAU20</b>	
↑ <b>37,950</b> ▲5,850(+18.2%)	
Closing Price	37,950 Won
- 1 Month Average	32,113 Won
- 3 Month Average	32,085 Won
- Total Average	32,085 Won
Total Trading Amount	33,139 tons
- Intraday	2,000 Won
- Negotiated	31,139 tons
Total Trading Value	1.06 B Won

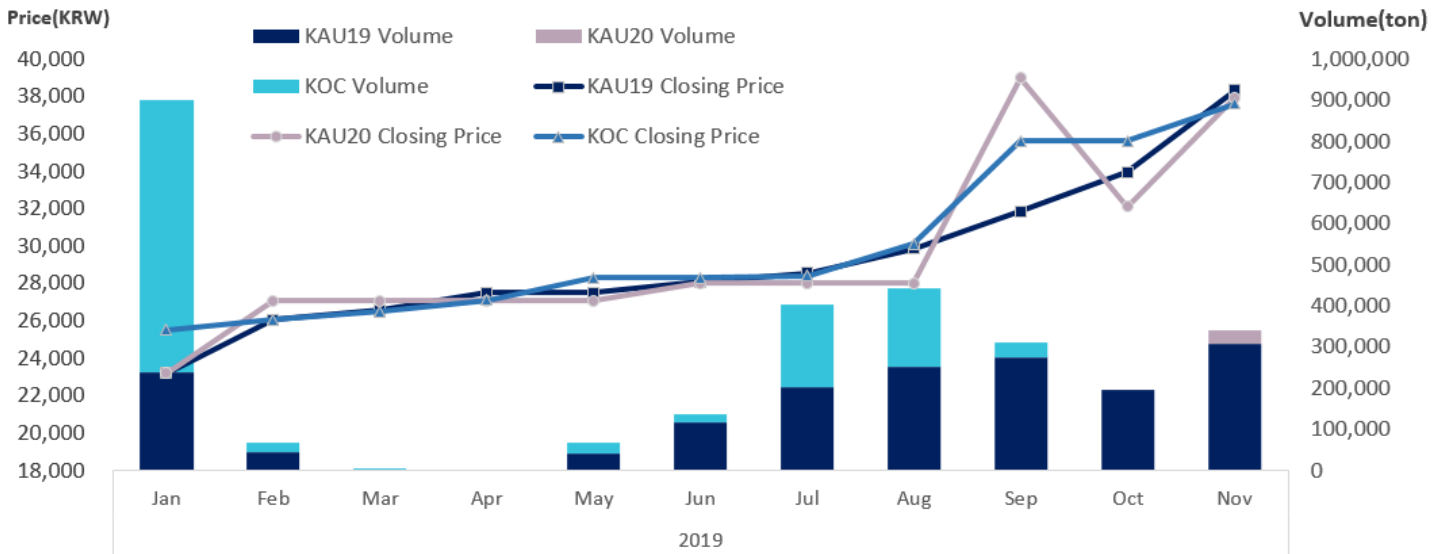
<b>KOC</b>	
↑ <b>37,600</b> ▲2,000(+5.6%)	
Closing Price	37,600 Won
- 1 Month Average	-
- 3 Month Average	32,782 Won
- Total Average	26,818 Won
Total Trading Amount	1,161,343 tons
- Intraday	131,238 tons
- Negotiated	1,030,105 tons
Total Trading Value	31.1 B Won



\*Trade information are official data from the Korea Exchange (KRX); based on November 2019 (in comparison with prev month)



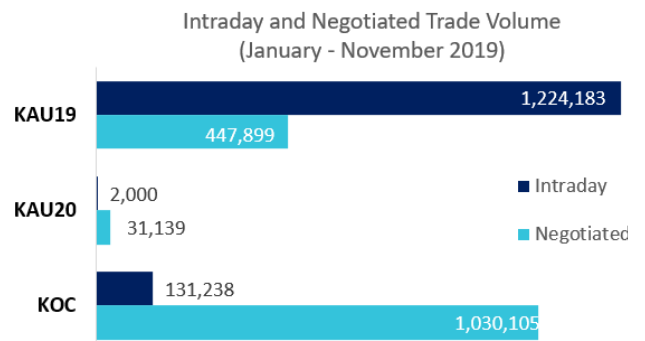
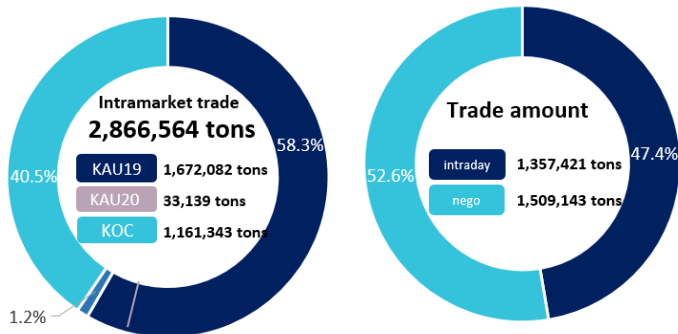
Emission Allowance Monthly Trading Information (January 2019 – November 2019)



	KAU19			KAU20			KOC		
	Closing Price	Monthly Increase	Trade Volume	Closing Price	Monthly Increase	Trade Volume	Closing Price	Monthly Increase	Trade Volume
2019 Jan	23,200	-	237,000	23,200	-	-	25,500	▲1,000	664,754
Feb	26,050	▲2,850	45,000	27,050	▲3,850	-	26,050	▲550	23,163
Mar	26,550	▲500	-	27,050	-	-	26,500	▲450	4,229
Apr	27,500	▲950	-	27,050	-	-	27,100	▲600	-
May	27,500	-	40,500	27,050	-	-	28,300	▲1,200	25,000
Jun	28,100	▲600	118,000	28,000	▲950	-	28,300	-	16,702
Jul	28,550	▲450	202,500	28,000	-	-	28,400	▲100	200,000
Aug	29,850	▲1,300	250,300	28,000	-	-	30,100	▲1,700	190,963
Sep	31,850	▲2,000	273,522	39,000	▲11,000	1,139	35,600	▲5,500	36,532
Oct	33,950	▲2,100	196,517	32,100	▼6,900	-	35,600	-	-
Nov	38,350	▲4,400	308,743	37,950	▲5,850	32,000	37,600	▲2,000	-
<b>Total</b>	-	-	<b>1,672,082</b>	-	-	<b>33,139</b>	-	-	<b>1,161,343</b>

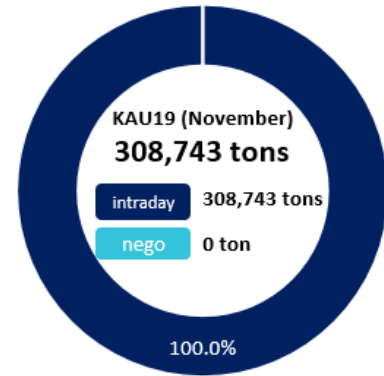
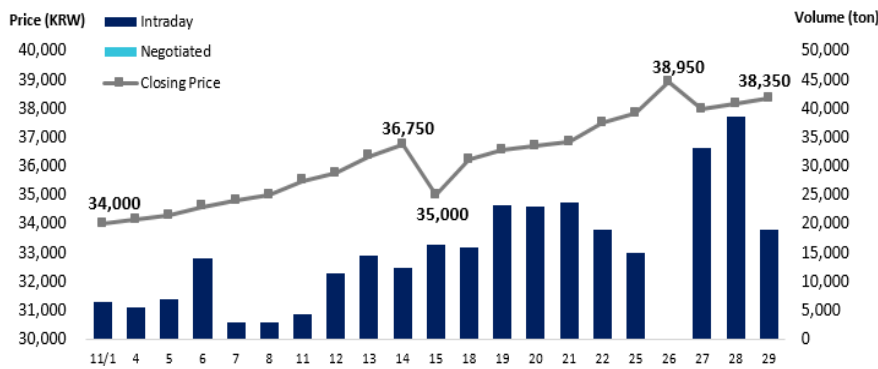
\*End-of-the-month closing price

\*No intramarket trade for KCU19





KAU19 Trading Trends (November 2019)



Price (KRW)	Closing Price	38,350	Trade Volume	Intraday	308,743
	Average Price	37,008		Negotiated	-
	Monthly Highest	38,950		Total	308,743
	Monthly Lowest	34,000		Total Trade Value (B won)	

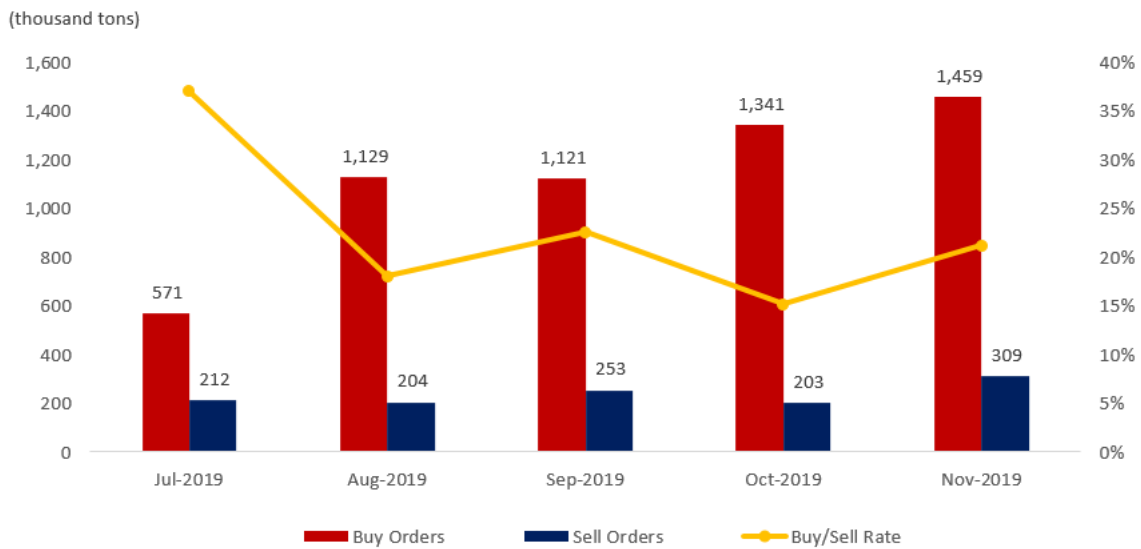
	Date	Closing Price	Gap	Rate	Trade Volume			
					Intraday	Negotiated	Total	
KAU19	1-Nov-2019	34,000	▲50	0.15	6,500	-	6,500	
	4-Nov-2019	34,150	▲150	0.44	5,593	-	5,593	
	5-Nov-2019	34,300	▲150	0.44	7,000	-	7,000	
	6-Nov-2019	34,600	▲300	0.87	14,000	-	14,000	
	7-Nov-2019	34,800	▲200	0.58	3,000	-	3,000	
	8-Nov-2019	35,000	▲200	0.57	3,000	-	3,000	
	11-Nov-2019	35,500	▲500	1.43	4,300	-	4,300	
	12-Nov-2019	35,750	▲250	0.70	11,500	-	11,500	
	13-Nov-2019	36,350	▲600	1.68	14,500	-	14,500	
	14-Nov-2019	36,750	▲400	1.10	12,280	-	12,280	
	15-Nov-2019	35,000	▼1,750	-4.76	16,500	-	16,500	
	18-Nov-2019	36,250	▲1,250	3.57	16,000	-	16,000	
	19-Nov-2019	36,550	▲300	0.83	23,200	-	23,200	
	20-Nov-2019	36,700	▲150	0.41	22,970	-	22,970	
	21-Nov-2019	36,850	▲150	0.41	23,820	-	23,820	
	22-Nov-2019	37,500	▲650	1.76	19,000	-	19,000	
	25-Nov-2019	37,850	▲350	0.93	15,000	-	15,000	
	26-Nov-2019	38,950	▲1,100	2.91	-	-	-	
	27-Nov-2019	38,000	▼950	-2.44	33,080	-	33,080	
	28-Nov-2019	38,150	▲150	0.39	38,500	-	38,500	
	29-Nov-2019	38,350	▲200	0.52	19,000	-	19,000	
		Total	-	-	-	308,743	-	308,743



(Trade) There was about 310,000 tons of trade in November, all were intraday deals just like the previous month. KAU19 price increased by 13% compared to October’s month-end closing price, an average increase of 210 won per day for 21 trading days.

(Buy/Sell Sectors) Cumulative trading volume of KAU19 from January 2019 until October 2019 amounted to 1.36 million tons of which 67.1% were intraday deals and 32.9% were concluded bilaterally.

Out of the 26 sectors, the power generation and energy sectors accounted for the highest buying share at 82.3% followed by petrochemicals at 6.2%, steel, and waste, making up the top 4 buying sectors. For the selling sector, market makers sold 791,000 tons taking 58% of the market share. Other sectors to include in the top 4 selling industries are the collective energy sector, semiconductor, and waste.



(Buy/Sell Spread) In November, buy orders amounted to 1.46 million tons and demand from short companies is steadily increasing. From July 2019, allowances in the market are consistently supplied by the market makers at about 200,000 tons per month.

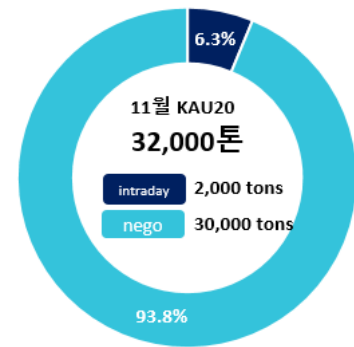
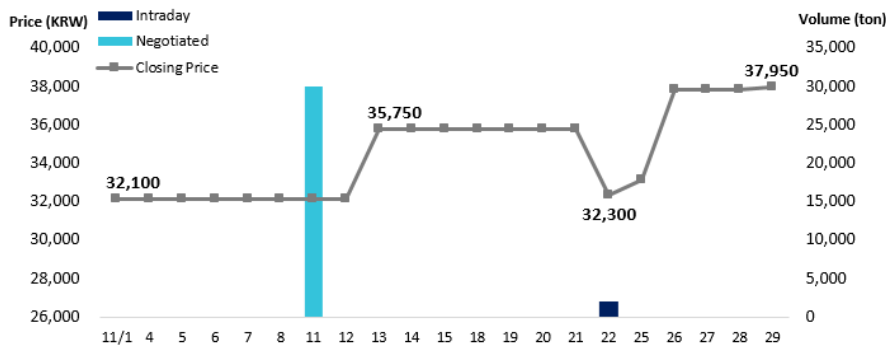
In the same month, allowances sold amounted to around 310,000 tons, up by 90,000 tons from the average of 218,000 tons in the previous four months (July to October). As a result, the supply rate rose by 21.2% compared to October. It is believed that the additional supply came from companies that have excess allowances.

(Price) Despite the additional volume from long companies, KAU19 prices increased by KRW 4,150 after 20 trading days from its price of KRW 34,000 on November 1<sup>st</sup> ending at KRW 38,150 on November 29<sup>th</sup>.

The average monthly price rose to KRW 37,008 in November from October’s average of KRW 33,093.



KAU20 Trading Trends (November 2019)

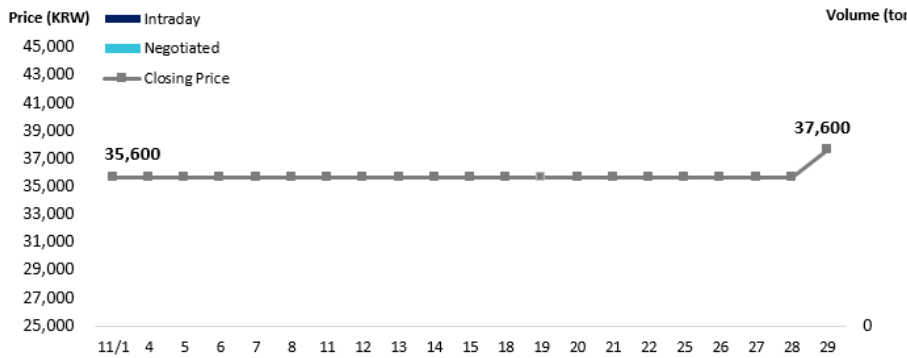


	Date	Closing Price	Gap	Rate	Trade Volume			
					Intraday	Negotiated	Total	
KAU20	1-Nov-2019	32,100	-	-	-	-	-	
	4-Nov-2019	32,100	-	-	-	-	-	
	5-Nov-2019	32,100	-	-	-	-	-	
	6-Nov-2019	32,100	-	-	-	-	-	
	7-Nov-2019	32,100	-	-	-	-	-	
	8-Nov-2019	32,100	-	-	-	-	-	
	11-Nov-2019	32,100	-	-	-	30,000	30,000	
	12-Nov-2019	32,100	-	-	-	-	-	
	13-Nov-2019	35,750	-	-	-	-	-	
	14-Nov-2019	35,750	-	-	-	-	-	
	15-Nov-2019	35,750	-	-	-	-	-	
	18-Nov-2019	35,750	-	-	-	-	-	
	19-Nov-2019	35,750	-	-	-	-	-	
	20-Nov-2019	35,750	-	-	-	-	-	
	21-Nov-2019	35,800	▲50	0.14	-	-	-	
	22-Nov-2019	32,300	▼3,500	-9.78	2,000	-	2,000	
	25-Nov-2019	33,150	▲850	2.63	-	-	-	
	26-Nov-2019	37,850	-	-	-	-	-	
	27-Nov-2019	37,850	-	-	-	-	-	
	28-Nov-2019	37,850	-	-	-	-	-	
	29-Nov-2019	37,950	▲100	0.26	-	-	-	
	<b>Total</b>		-	-	-	2,000	30,000	32,000

Trading resumed two months after 1,139 tons were exchanged in September registering 32,000 tons in November and closing the month at KRW 37,950, up by 18.2% from the previous month.

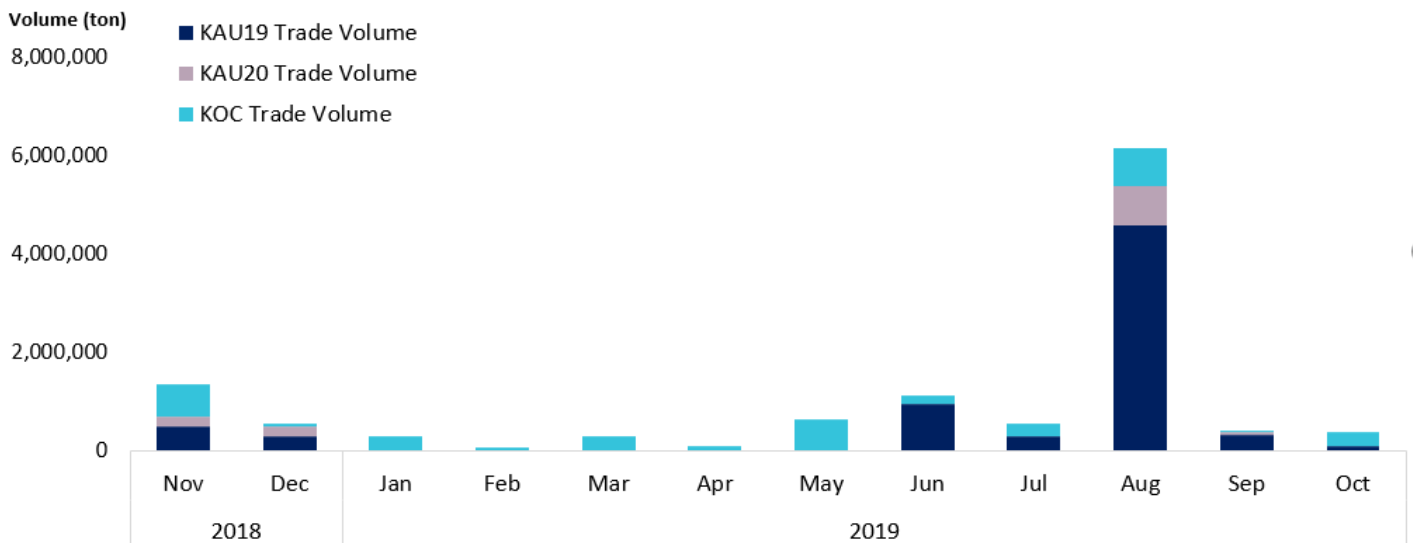


KOC Trading Trends (November 2019)



KOCs maintained the price of KRW 35,600 for September through the most of November until it rose to KRW 37,600 at the end of the month due to momentum without trade.

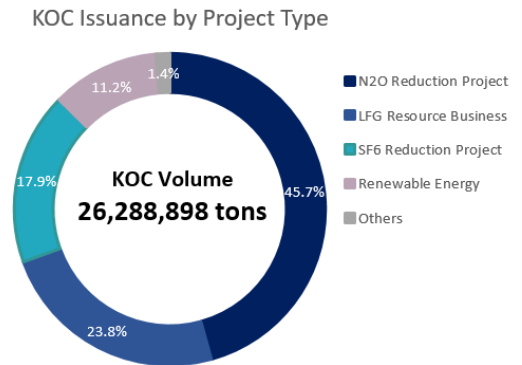
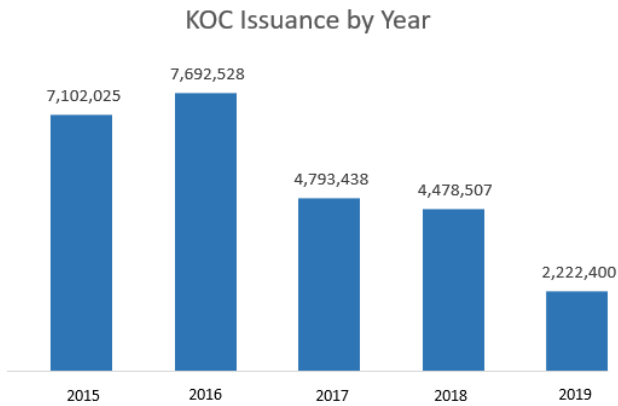
Over-the-Counter Transactions (January 2018 – November 2019)



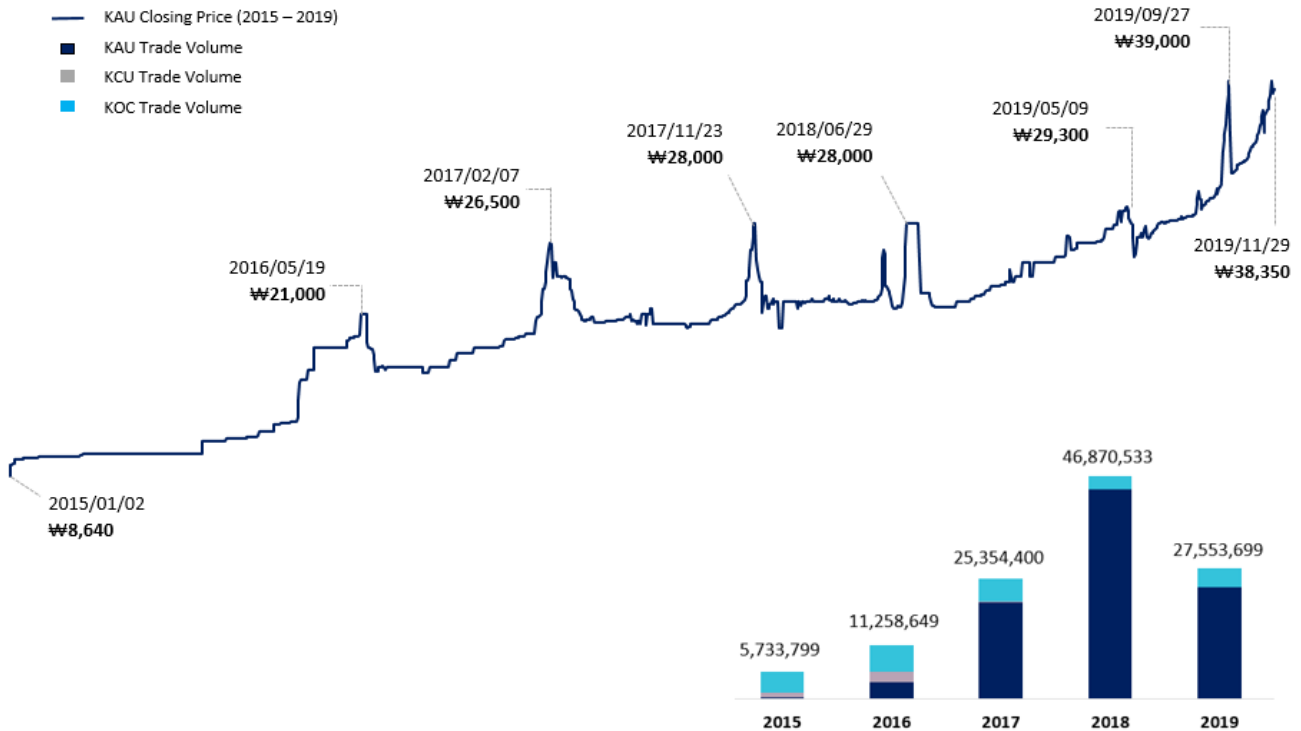
Year	Month	KAU19 Trade Volume	KAU20 Trade Volume	KOC Trade Volume	Total
2018	Nov	500,000	200,000	648,372	1,348,372
	Dec	300,000	200,000	67,041	567,041
2019	Jan	-	-	300,000	300,000
	Feb	-	-	64,116	64,116
	Mar	-	-	300,000	300,000
	Apr	-	-	96,369	96,369
	May	3,000	-	632,253	635,253
	Jun	955,000	-	179,085	1,134,085
	Jul	300,000	-	246,484	546,484
	Aug	4,580,000	800,000	784,422	6,164,422
	Sep	336,099	50,000	39,388	425,487
	Oct	100,000	-	300,000	400,000
<b>Total</b>		<b>7,074,099</b>	<b>1,250,000</b>	<b>3,657,530</b>	<b>11,981,629</b>



KOC Issuance Status (as of November 2019)



Total ETS Performance (January 2015 – November 2019)



	KAU		KCU		KOC		Total	
	Intramarket	OTC	Intramarket	OTC	Intramarket	OTC	Intramarket	OTC
2015	321,380	78,315	920,717	-	-	4,413,387	1,242,097	4,491,702
2016	2,562,068	920,954	1,883,767	296,149	661,822	4,933,889	5,107,657	6,150,992
2017	13,707,828	6,594,468	323,276	-	703,032	4,025,796	14,734,136	10,620,264
2018	17,530,386	26,670,560	-	-	299,582	2,370,005	17,829,968	29,040,565
2019	7,472,454	15,977,785	-	-	1,161,343	2,942,117	8,633,797	18,919,902
<b>Total</b>	<b>41,594,116</b>	<b>50,242,082</b>	<b>3,127,760</b>	<b>296,149</b>	<b>2,825,779</b>	<b>18,685,194</b>	<b>47,547,655</b>	<b>69,223,425</b>
	91,836,198		3,423,909		21,510,973		116,771,080	

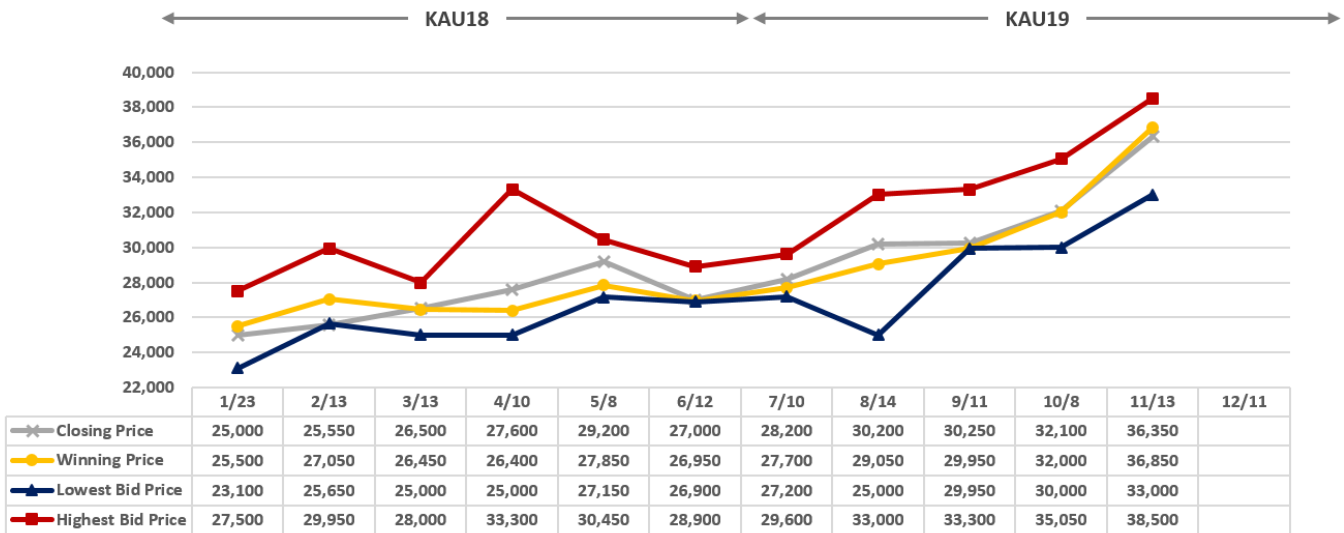




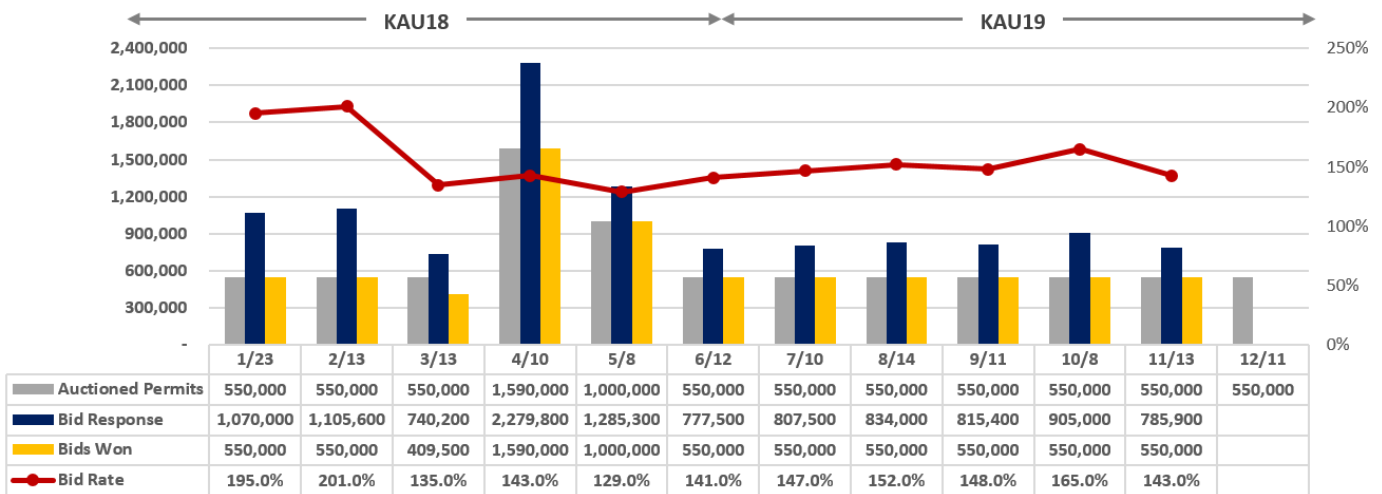
### MONTHLY AUCTION

	November 2019
Auctioned Permits	550,000 tons
Total number of received bids	785,900 tons
Bid Rate	143%
Participating companies	9
Winning companies	8
Lowest Bid Price	KRW 33,000
Highest Bid Price	KRW 38,500
Market Closing Price	KRW 36,350
Winning Bid Price	KRW 36,850
Total amount of bids won	550,000 tons
Total value of bids won	KRW 20,267,500,000

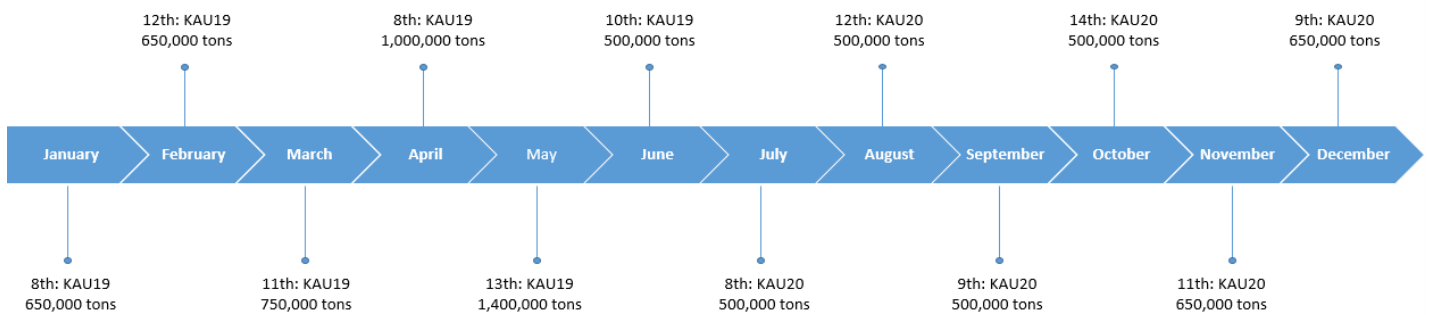
Eight out of nine participating companies secured 550,000 tons of KAU19 for the clearing price of KRW 36,850. The clearing price was 1.4% higher than the secondary market price of KRW 36,350 with the lowest submitted bid price at KRW 33,000 and the highest bid price at KRW 38,500.



From March to October, prices settled below the secondary market prices but it reversed this month due to the intensifying competition in buying KAU19 leading to price overheating.



Auctions continue to receive high bid responses from participating companies as competition in securing permits increasingly intensify.



For 2020, an estimated 8,250,000 tons of allowances will be placed in auction according to the government’s announcement. This amount comprises of KAU19 at 4,950,000 tons and KAU20 at 3,300,000 tons.

### KOREA ETS UPDATE

On December 4<sup>th</sup>, i-KCU19 and i-KOC were listed as new market commodities. The introduction is a measure for the government to separately manage and monitor the incoming international carbon offset credits.

i-KCU19 price is KRW 31,850 per ton while i-KOC is KRW 37,600 per ton. Although buy orders started coming immediately, no trade has been made so far.

**Table 1. K-ETS Phase 2 (2018-2020) Schedule**

	1Q	2Q	3Q	4Q	
2018 (1st Year)	Jan	2: KAU 18 Listing ~31: MP submitted by new entities of 2nd year	May	30: 2017 notification of certified emissions/additional quota	
	Mar	~31: 2017 MP submission application for additional allocation	Jun	~11: 2017 banking application (borrowing X, 5/31~) 22: KCU 18 Listing ~29: notification/application for appeals	
			Jul	~02: 2017 Emission certificate submission (5/31 ~) ~02: Application for ETS Voluntary Participation 31: designation and notification of new entrants ~09: 2017 Submission of emission allowance 10: Delisting of KAU17/KCU17 31: Phase 2 Allocation	
				Oct	31: Phase 2 Quota Notification
				Nov	8: KAU19/KAU20 Listing
				Dec	~31: 2018 request for MP review
2019 (2nd Year)	Jan	23: First auction of allowances	Apr	10 Fourth auction of allowances	
	Feb	13: Second auction of allowances	May	8: Fifth auction of allowances 31: 2018 notification of certified emissions/ allocation addition or cancellation	
	Mar	13: Third auction of allowances ~31: 2018 emissions certification and MP submission 2018 additional allocation application	Jun	10: Operation of market maker system 12: Sixth auction of allowances	
			Jul	1: deadline of notification of complaints/objections 10: Seventh auction of allowances 29: notification of results (carry-over) 31: designation and notification of new entrants	
			Aug	2: 2018 additional quota/cancellation amount notification of results 14: Eight auction of allowances	
			Sep	11: carry-over/borrowing 11: Ninth auction of allowances ~30: surrender of allowances	
2020 (3rd Year)	Mar	~31: (est) 2019 emissions certification and MP submission (est) 2019 application for additional allocation	May	31: (est) 2019 notification of certified emissions/additional allocation	
			Jun	~10: (est) 2019 allowance banking and borrowing ~30: (est) 2019 surrender of allowances (est) 2019 notification/application for appeals	
			Jul	31: (est) notification of results (complaints/objection) ~31: (est) Phase 3 Allocation Plan (est) Phase 3 Assignment of compliance entities (est) designation and notification of new entrants	
			Aug	~10: (est) 2019 surrender of allowances (for companies with objection) ~31: (est) Phase 3 application for allowances allocation	
				Oct	31: (est) notification of Phase 3 allocation quota
2021	Jan	~15: (est) 2020 request for MP review	May	31: (est) 2020 notification of certified emissions/additional allocation	
	Mar	~31: (est) 2020 emissions certification and MP submission (est) application for additional allocation	Jun	~10: (est) 2020 banking of allowances (borrowing X) ~30: (est) surrender of allowances (est) 2020 notification of appeals	
			July	31: (est) notification of results (complaints/objections)	
			Aug	~9: (est) 2020 surrender of allowances (for companies with objections)	



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