



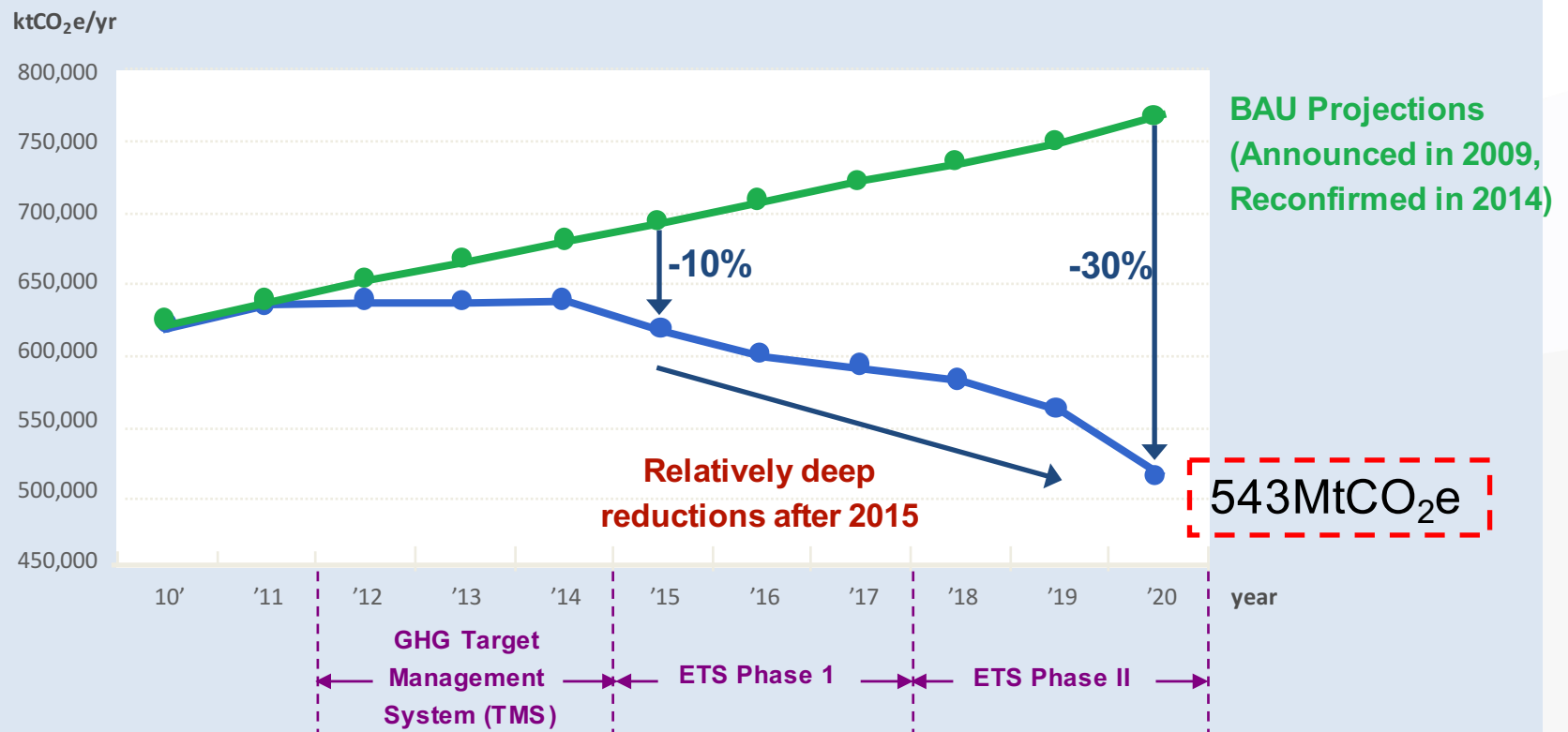
South Korea Climate Target and Emissions Trading System Update

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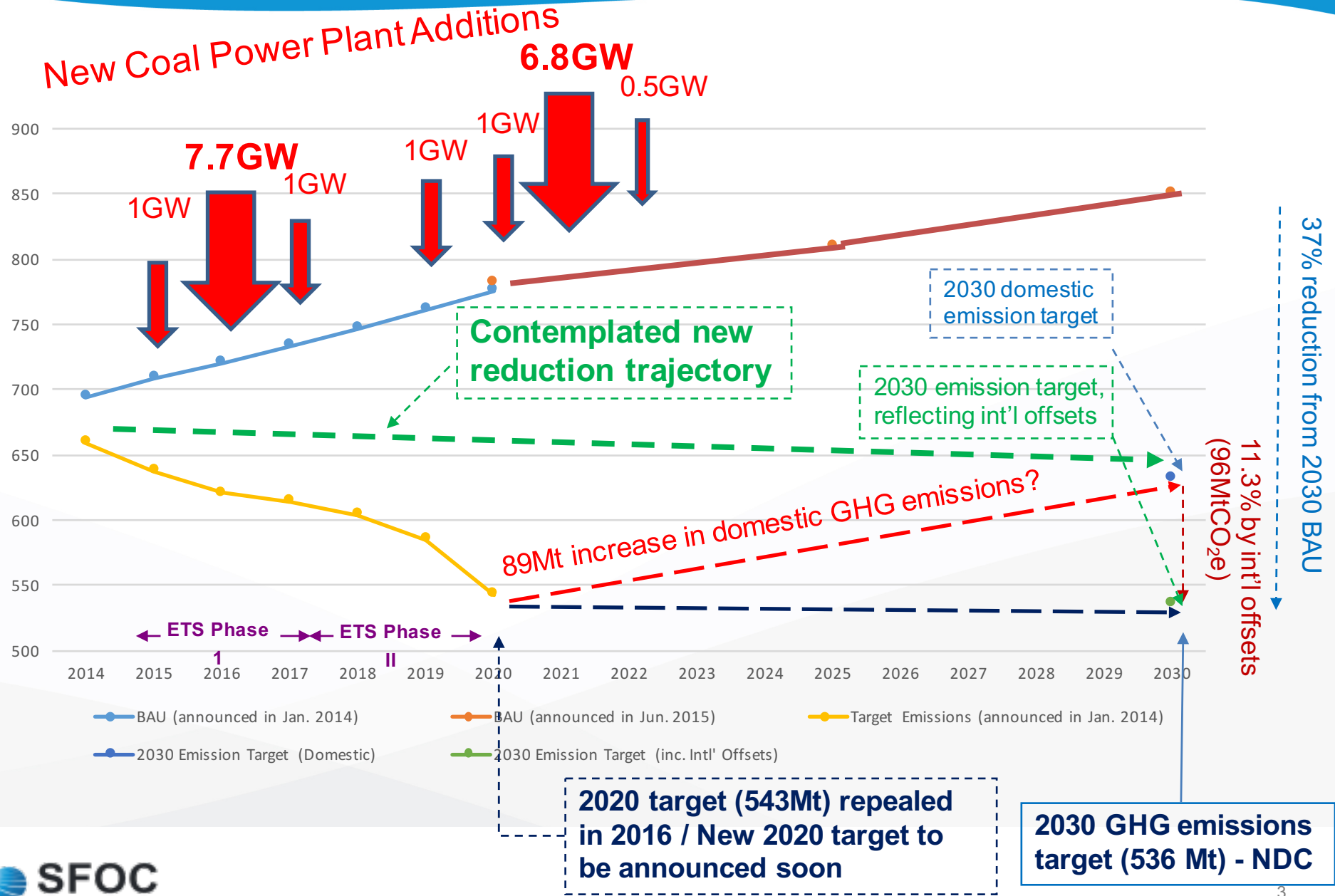
November 15, 2016

South Korea's previous 2020 Climate Target (announced in 2009, **repealed**)

30% below Business as Usual (BAU) by 2020



What happened to South Korea's 2020 Climate Target?



What next: South Korea's 2020 Climate Target and 11.3% Commitment to International Offsets?

- South Korean Government plans to announce (a) Roadmap to 2030 Climate Target and (b) new 2020 climate target.
 - Air pollution from coal fired power plants has been hot topic in Korea, and has led to (i) early retirement of 30+ years old coal power plants, and (ii) enhancement of air emission limits of relatively new plants - more regulations expected.
 - Such regulations will significantly affect South Korea's 2020 and 2030 climate targets.
- South Korea has not yet announced how it will procure the international offsets (11.3% reduction) it committed to acquire.

Key Features of Korean Emissions Trading System

Issue		Feature
Coverage		67% of Korea's national emissions
Sectors		23 sub-sectors, including steel, cement, petro-chemistry, refinery, power, buildings, waste and aviation sectors
Liable Entities		Approximately 520 entities for Phase I
Phases / Allocation	Phase I (2015-2017)	100% free allocation
	Phase II (2018-2020)	97% free allocation
	Phase III (2021-2025)	Less than 90% free allocation
Enforcement		Penalty not exceeding three times the average market price of allowances of the given compliance year or KRW 100,000/tCO ₂ e

Key Features of Korean Emissions Trading System

Issue	Feature
Parties eligible for trade	<u>Only regulated companies + three government owned banks (IBK, KDB, KEXIM) are allowed to trade</u>
Banking	<u>Unlimited banking of credits (no expiry)</u> – surplus credits not coming out to the market
Borrowing	Intra-phase borrowing up to 10% (20% for Phase I) of credits for certain compliance year
Allocations / Targeting	<ul style="list-style-type: none"> • <u>Sectoral Targeting</u> - Emission reduction factor determined depending on sector the regulated entity is in • Legacy of Sectoral Targeting - Approximately <u>forty allocation lawsuits</u>
Offsets / CDM	Korea domestic CDM credits can be converted to K-ETS credits (up to 10%, except for adipic acid and HFC projects)

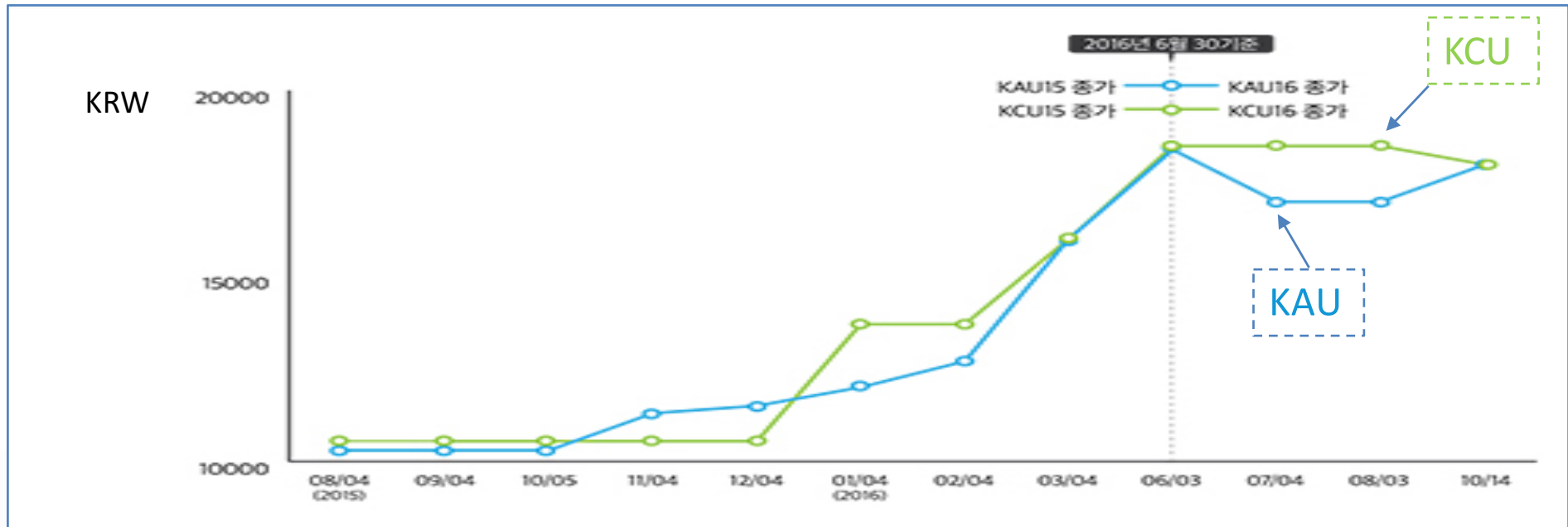
K-ETS Year One Emissions Status (excluding Offsets)

Responsible Ministry	Sector (Twenty-three)	No. of Companies	Initial Allocations (A)	Cancellations (B)	Additional Allocations (C)	Certified Emissions (D)	Surplus (A-B+C-D)
Total		523	538,414,437	5,028,836	6,367,661	542,650,908	-2,897,646
MOLIT	Building	40	4,038,957	45,445	-	3,911,698	81,814
	Aviation	5	1,281,748	-	621	1,465,213	-182,844
MAFRA	Food & Beverages	22	2,626,421	8,578	35,688	2,482,812	170,719
	Wood	7	384,053	1,772	-	333,905	48,376
MOTIE (Seventeen Sectors)	Energy / Power Generation	39	245,524,382	2,491,964	4,362,149	249,147,589	-1,753,022
	Steel	37	103,845,389	1,317,872	40,601	101,850,319	717,799
	Oil Refining	5	19,068,731	17,896	262,456	18,718,663	594,628
	Paper	42	7,520,087	238,760	95,198	7,156,947	219,578
	Glass	24	6,093,962	5,330	16,871	5,972,365	133,138
	Fiber	15	4,564,213	68,869	991	4,146,329	350,006
	Automotive	26	4,264,325	10,057	29,097	4,063,393	219,972
	Electronics / Electricity	21	3,371,476	143,076	10,701	2,963,675	275,426
	Shipbuilding	8	2,662,493	14,547	-	2,529,372	118,574
	Machinery	19	1,359,234	8,896	700	1,270,840	80,196
	Mining	2	200,215	-	-	184,526	15,689
	Petrochem	86	47,907,437	497,225	421,409	49,369,130	-1,537,509
	Cement	23	43,541,192	14,787	81,135	44,547,034	-939,494
	Semiconductor	20	10,570,609	23,343	957,824	11,729,981	-224,891
	Display	5	10,042,789	18,502	20,757	10,315,887	-270,843
	Non-ferrous Metal	24	6,800,781	5,298	4,254	7,616,851	-817,114
Telecommunications	6	3,091,063	8,229	-	3,127,543	-44,709	
Ministry of Environment	Waterworks	3	770,296	51,482	-	744,605	-25,791
	Waste	44	8,884,584	36,906	27,209	9,002,231	-127,344

(Unit: tCO₂e)

Carbon Price / Transaction Trends

<KAU (allowances) and KCU (offsets) transactions trends>



(source: Climate Change Research Institute of Korea)

- According to Korean Government, Year One has been 6Mt long (incl. offsets)
- Prices have gone up to approximately KRW 18,000, dropping down to around KRW 16,000 in early June with market stability measures (release of approximately 0.9 MtCO₂e) implemented by government
- Trade volume / frequency has been minimal

What lessons from K-ETS Year One?

- Regulated companies, although not happy, are getting used to price on carbon
 - Companies are now realizing that reducing emissions saves money
- However, market was not functioning properly (e.g., increases in prices despite 6MtCO₂e long market)
 - Mostly attributable to unlimited banking and prohibiting third party market makers from participating in the K-ETS
 - One of South Korea's first environment/ energy commodity markets
- Government intervention intended to lower credit prices has undermined credibility of K-ETS credit prices
 - Market stability measures
 - Removing cap on early action credits
 - Contemplated Phase I additional allocations
 - Increasing borrowing limits (increased to 20% from 10% for Phase I)



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Thank You!

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