환경부
Ministry of Environment

Korea's Journey towards Carbon Neutrality

- Enhanced 2030 NDC -

01 Background and Progress

Climate Crisis and the Major Countries' Efforts toward the Carbon Neutrality

Seriousness of the global climate crisis

- ☑ Frequent occurrence of climate-related disasters
- ☑ Economic losses from climate extremities
  ($210 billion in 2019)
- ☑ Spread of global pandemic and other forms of crisis, which humanity continues to face

Carbon Neutrality announcement of the major countries and enhanced 2030 NDCs

- ☑ EU, U.S. and other countries announced to achieve Carbon Neutrality by 2050
- ☑ China to achieve Carbon Neutrality by 2060

Countries	Base years	Goals announced
US	2005	50~52% reduction
UK	1990	68% reduction
Japan	2013	46% reduction
EU	1990	55% reduction
Canada	2005	40~45% reduction

2050 Carbon Neutrality announcement and Enhanced 2030 NDC Target

Announcement of the Green New Deal (July 2020)

☑ As a proactive response to the climate crisis, announced the Green New Deal for a low-carbon society

"By marching toward the Green New Deal, we will be able to lead the new international economic order of solidarity and collaboration, with an aim to resolve the climate crisis"
- In the Public Announcement of the Korean Green New Deal Policy (July 14, 2020)

Announcement of the 2050 Carbon Neutrality (October 2020)

☑ Announcement of the 2050 Carbon Neutrality plan as a response to global climate crisis

"We will actively work with the international community in response to the global climate change to meet the 2050 Carbon Neutrality goal" - Administrative address (October 28, 2020)

Announcement of the plan to prepare for the Enhanced 2030 NDC (April 2021)

☑ Enhanced 2030 NDC as an interim measures to achieve 2050 Carbon Neutrality goal

"We will additionally enhance 2030 NDC, and will submit to the UN within this year" – Leaders Summit on Climate (April 22, 2021)

Progress in the process of preparing for the enhanced 2030 NDC

Enactment of the Framework Act on Carbon Neutrality and Green Growth (FACNGG)

- ☑ By 2030, reducing GHG emissions by more than 35% compared with the level of 2018

Reviewing draft 2030 NDC proposed by the Gov't

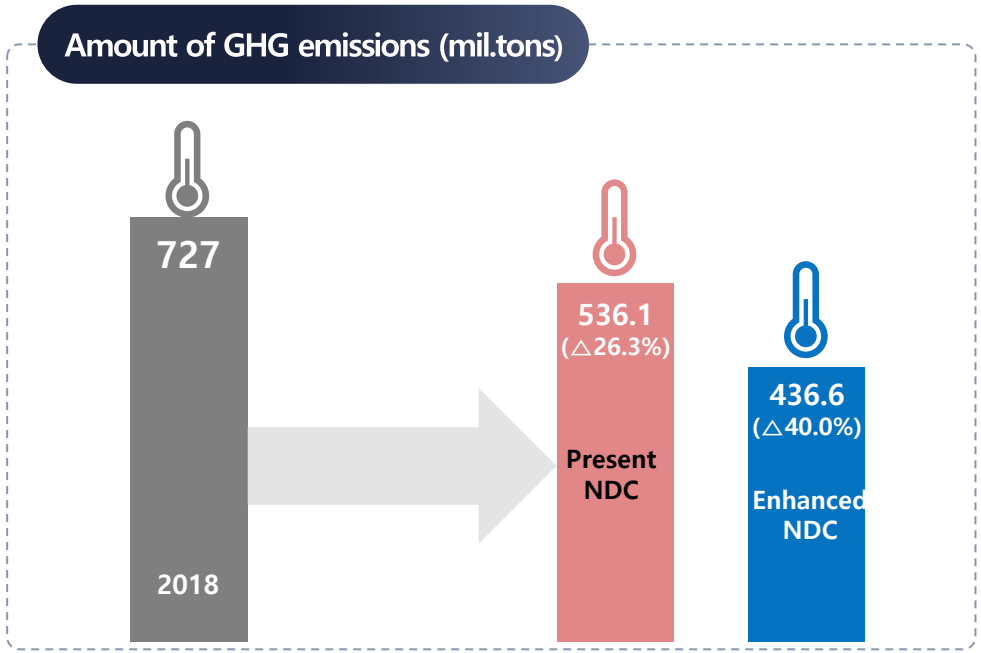
- ☑ Carrying out consultation to set the target of enhanced 2030 NDC, using "Technical Working Group (W/G)" platform
- ☑ The 2050 Carbon Neutrality Commission proposed enhanced 2030 NDC as "40%" (September, 2021)

Discussions within the 2050 Carbon Neutrality Commission

- ☑ Organized and operated "NDC Task Force (NDC T/F)" within the 2050 Carbon Neutrality Commission ('21.Aug.20~)
- ☑ Comprehensive NDC Workshop ('21.Sep.08~), Report of the Gov't plan to prepare enhanced 2030 NDC ('21.Sept.10~)
- ☑ Discussion Forum ('21.Oct.08~) and Meetings with Stakeholders' Organizations

2 Enhanced 2030 NDC (Nationally Determined Contribution)

Enhanced 2030 NDC



2030 NDC Target

- Reduce greenhouse gas emissions 40% from that of 2018 (727.6 million tons)

  => 2030 Emission Target: 436.6 million tons

Directions to review 2030 NDC

- Review the NDC, with consideration of the purpose of FACNGG, global circumstances, as well as domestic conditions

- Maximum use of domestic reduction in Korea.
  Use overseas reduction, for the amount not met with domestic reduction
  => 35.4% Domestic Reduction + 4.6% Overseas Reduction = "40%"

Implications of the enhanced 2030 NDC

- Set an ambitious goal, considering * relatively late emission-peak (base year), * high proportion of manufacture industry in the national economy, among others

Country	Proportion of Manufacture Industry	Base year	NDC	Average Rate of Annual Reduction
US	11.3%	'05	50~52%	2.81%
EU	14.8%	'90	55%	1.98%
UK	8.8%	'90	68%	2.81%
Japan	20.7%	'13	46%	3.56%
ROK	29.1%	'18	40%	4.17%

Table of the 2030 NDC (Unit: million tons of CO_2-eq)

	Sector	Base year (2018)	Present NDC (emission reduction percentage)	Enhanced 2030 NDC target (emission reduction percentage)
Amount of emission		727.6 (total amount of emission)	536.1 (△ 191.5, △ 26.3%)	436.6 (△ 291.0, △ 40.0%)
Emission	Energy Transformation	269.6	192.7 (△ 28.5%)	149.9 (△ 44.4%)
	Industry	260.5	243.8 (△ 6.4%)	222.6 (△ 14.5%)
	Buildings	52.1	41.9 (△ 19.5%)	35.0 (△ 32.8%)
	Transportation	98.1	70.6 (△ 28.1%)	61.0 (△ 37.8%)
	Farming, Livestock, Fishing	24.7	19.4 (△ 21.6%)	18.0 (△ 27.1%)
	Wastes	17.1	11.0 (△ 35.6%)	9.1 (△ 46.8%)
	Hydrogen	-	-	7.6
	Others (accidental discharge, etc.)	5.6	5.2	3.9
Absorption and Removal	Carbon Sinks	- 41.3	- 22.1	- 26.7
	CCUS	-	- 10.3	- 10.3
	Overseas reduction	-	- 16.2	- 33.5

Sectoral Enhancing Plans: (1) Energy Transformation

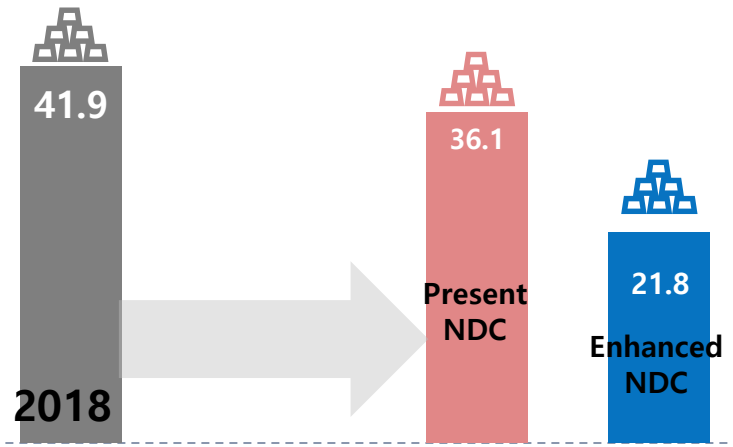
Energy Transformation

2018 — 269.6 million tons

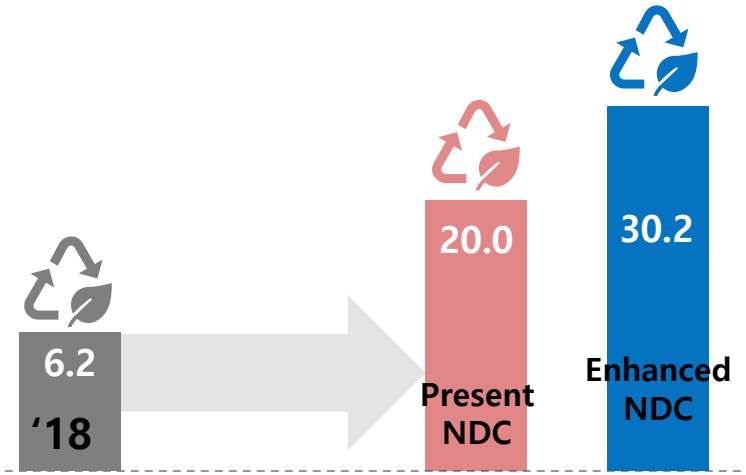
2030 — 149.9 million tons (△44.4%)

- (Necessary Amount of Electricity Generation) 612.4TWh
  * Electricity demand increased due to GDP growth, and the increased use of electricity vehicles
- (Supply) Decrease of Coal-fired Power Generation, More renewable energy + No-Carbon Power Sources (e.g. ammonia)
  * Energy Mix in 2030 : Renewable 30.2% + nuclear 23.9% + coal 21.8% + LNG 19.5% + ammonia 3.6%

Coal (share, %)



New renewable energy (share, %)



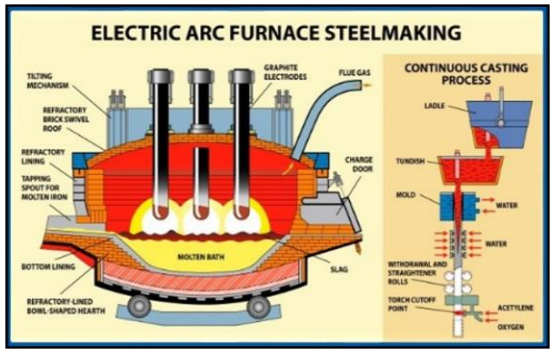
Sectoral Enhancing Plans: (2) Industries

Industries

2018 260.5 million tons

2030 222.6 million tons (△14.5%)

- (Steel) Increase of energy efficiency, changes in the method of production (* furnace → electrical furnace etc., 3 million tons)
- (Petroleum chemistry) Use of electrical furnace, switching of fuel (* naphtha → biofuel & hydrogen), use plastic waste as a source of fuel
- (Cement) Switching of fuel (* bituminous coal → plastic waste), improving production efficiency, switching fuel (* limestone → slag etc.)
- (Other sectors) Co-generation: Fossil fuels → LNG, bio
  Semiconductors, display: Installing equipment to reduce use of fluorized gas etc.



Electric furnace

Recovering fluorized gas

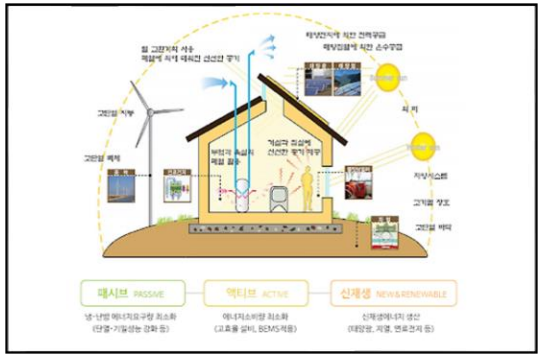
Reducing sulphur hexafluoride

Sectoral Enhancing Plans: (3) Buildings

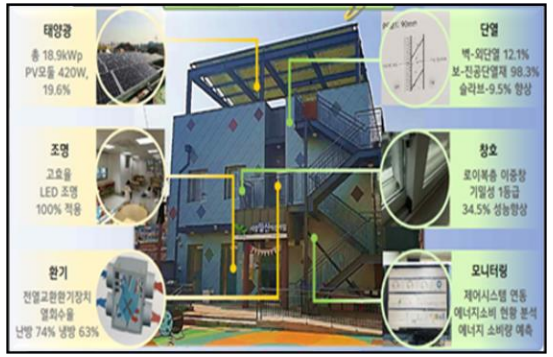
Buildings

2018	52.1 million tons
2030	35.0 million tons (△32.8%)

- ☑ **(Enhancing energy efficiency)** Zero-energy construction, Promote green remodeling
- ☑ **(Supplying high-efficiency equipment)** Enhancing energy consumption efficiency standards
- ☑ **(Clean energy)** Increased use of solar, geothermal energy, etc.
- ☑ **(Using electricity instead of fossil fuel)** Promote use of electricity at buildings, instead of fossil fuels(* coal briquet, kerosene etc.)



Zero-energy construction



Green remodeling

Solar heat residence

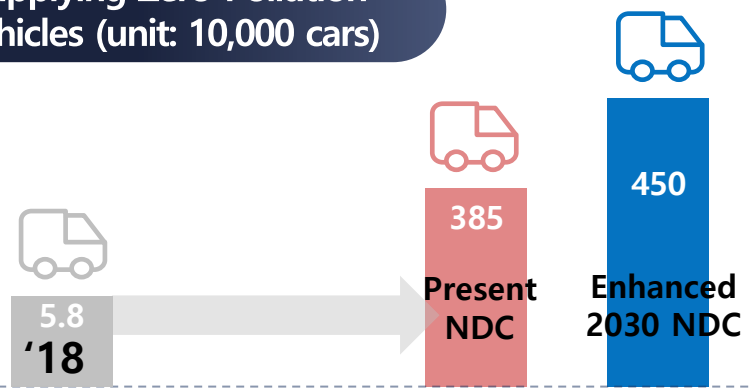
Sectoral Enhancing Plans: (4) Transportation

Transportation

2018	98.1 million tons
2030	61.0 million tons (△37.8%)

- (Managing Demand) Expand the use of public transportation, Promote railway transportation => Reduce driving distances
- (No-pollution Vehicles) Promote the use of no-pollution vehicles, hydrogen cars, etc. => 4.50 million vehicles
- (Bio-diesel) Increase the percentage of bio-diesel ingredient within diesel fuel (* 3 → 8%)
- (Maritime / Aerospace) Providing environment-friendly vessels, Upgrade the efficiency of aircrafts' fuels, etc.

Supplying Zero-Pollution Vehicles (unit: 10,000 cars)



Hydrogen vehicle

Electric car

Sectoral Enhancing Plans: (5) Farming, Livestock and Fishing

Agriculture, livestock and fishing

2018	24.7 million tons
2030	18.0 million tons (△27.1%)

- ☑ **(Low-carbon agriculture)** Improve water & irrigation management method at rice fields, Reduce the use of nitrogen fertilizer
- ☑ **(Livestock management)** Making energy from livestock manure, Supplying low-methane feed -----> Reduce methane emission
- ☑ **(Supplying high-efficiency equipment)** Switching fuel of agricultural machines to electricity, hydrogen etc., Replacing old machines

Simple farmland irrigation

Raising livestock with low-methane feed

Eco-friendly energy town

Sectoral Enhancing Plans: (6) Waste Treatment

Waste

2018	17.1 million tons
2030	9.1 million tons (△46.8%)

- (Waste reduction and reuse) Reducing municipal, business, construction wastes, etc., Expand recycling
- (Using ecological plastics) Increase the use of bioplastics at home, workplaces, etc.
- (Biogas) Use methane gas recovered from landfills and biological waste treatment facilities

Expand recycling

Degradable plastics

Recover methane gas

Sectoral Enhancing Plans: (7) Hydrogen, Carbon Sinks, and CCUS

Hydrogen

2030 — 7.6 million tons

- Hydrogen electrolysis, Obtaining hydrogen generated as by-products and imported hydrogen

Carbon sinks

2030 — - 26.7 million tons

- (Forests) Increase the use of wooden materials, Restoring forests, Creating idle land, Building urban forests, etc.
- (Maritime etc.) Creating wetland and ocean forests, Restoring vegetation belt (* using edges of streams and dam flood plains)

CCUS

2030 — - 10.3 million tons

- (CCS) Securing high-volume storage through exploration and drilling of the domestic ocean (2019 ~ 2022)
- (CCU) Commercialize products of research and development, Institutional support -> Encourage expanded usage in the private sector

03 Our Plan Going Forward

Major Policy Tasks to Achieve the 2030 NDC Target

Preparing for Sectoral Implementation Plan & Reflecting it to the Domestic Legal System

- ☑ Formulating Carbon Neutrality plan for each sector such as energy, industry, cyclic economic, etc.
- ☑ Modifying statutory plans including the Comprehensive Plan of Carbon Neutrality and the Comprehensive Plan of Electricity Supply and Demand

Technological Innovation & Strengthening of Green Financing

- ☑ Support R&D of core technology to reduce GHG emissions and commercialization
  * (e.g.) Strategy of Technical Innovation for Carbon Neutrality of the Ministry of Science, Ministry of ICT, etc.
- ☑ Expand assistance for Green Policy Financing, Preparing for the Green Classification System

Supporting Just Transition

- ☑ (Designating Special District) Supporting the livelihood and Promote re-employment of the unemployed
- ☑ (Assisting business transition) Assisting the transition from high-carbon industry to green industry
- ☑ (Just Transition Support Center) Training, Support to make smooth changes of occupation

Establishing Carbon Neutrality Lifestyle

- ☑ Strengthening promotions & campaigns of the general public, Supporting local communities' efforts toward Carbon Neutrality

- The ceremony of implementing 2050 Carbon Neutrality-

- Catholic Suwon parish declares its participation of 'Carbon Neutrality' -

Thank you

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