

25-28 October 2022

Incheon City, Republic of Korea



2022 Sustainable Development Transformation FORUM

Accelerating the recovery from the
COVID-19 pandemic and the full
implementation of the 2030 Agenda for
Sustainable Development at all levels



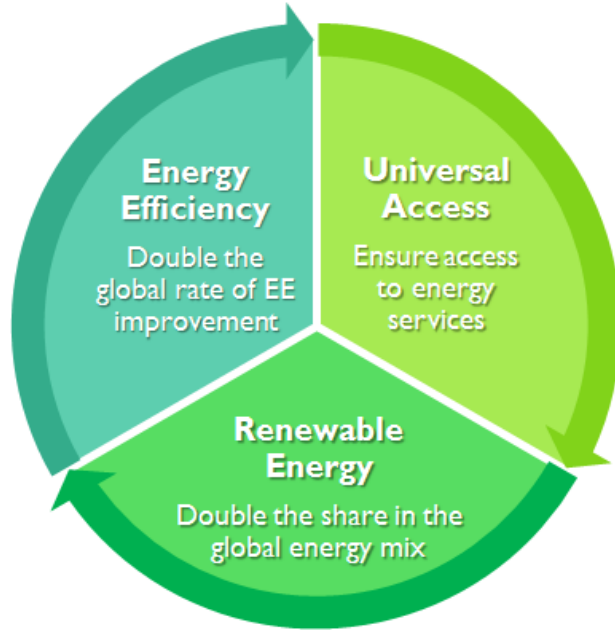
Affordable and Clean Energy

Sun-J in Yun

Professor

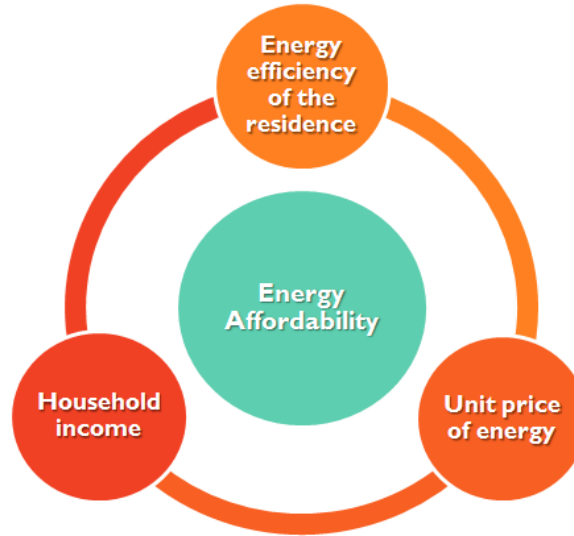
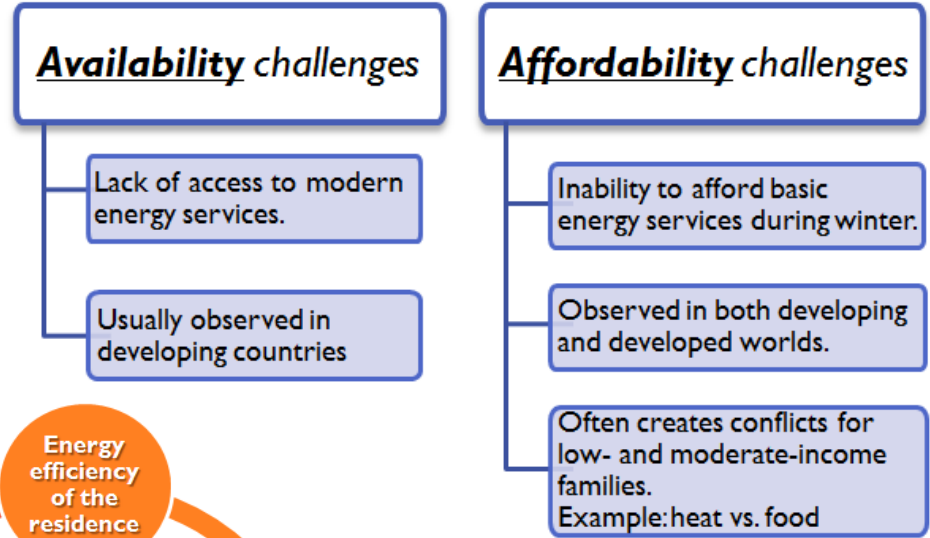
Seoul National University

■ UN's "Sustainable Energy For All"



Source: UN (<http://www.se4all.org/>)



■ Dimensions of Energy Poverty






■ Key Factors of Energy Affordability

Types of Energy Welfare in Korea


Support for Energy Supply

-  Discounts on electricity bills
-  Provision of energy voucher

Support for Energy Efficiency Improvement

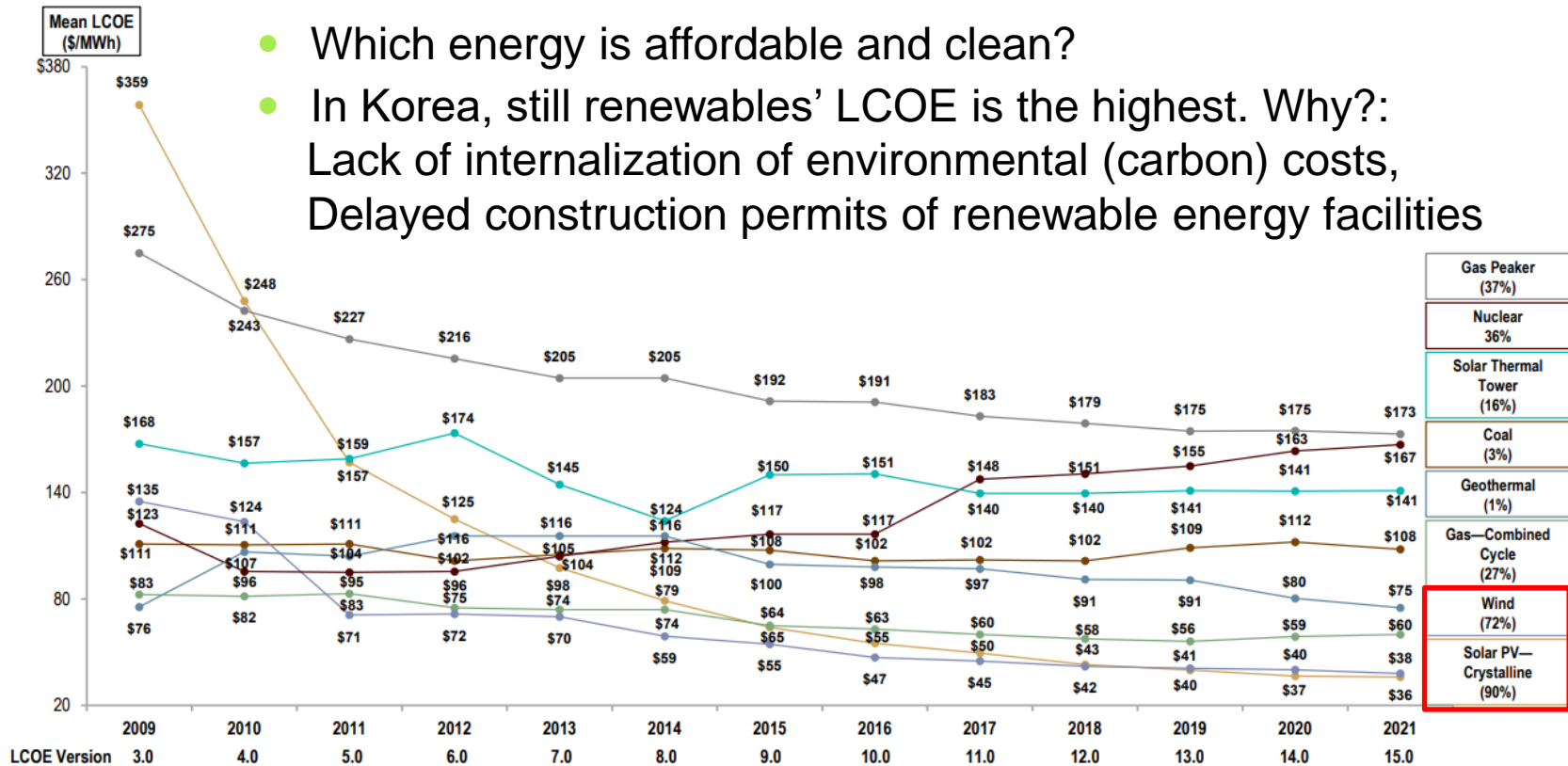
-  Green remodeling: Insulation, window replacement, LED light replacement
-  Provision of power-saving appliances: Air-conditioners, Boilers, TVs, etc.
-  Provision of Energy Storage System (ESS) for low-income households

Support for Energy Transition

-  Support for installation of mini PVs free of charge for low-income rental housing, senior citizens' centers, and houses in remote islands

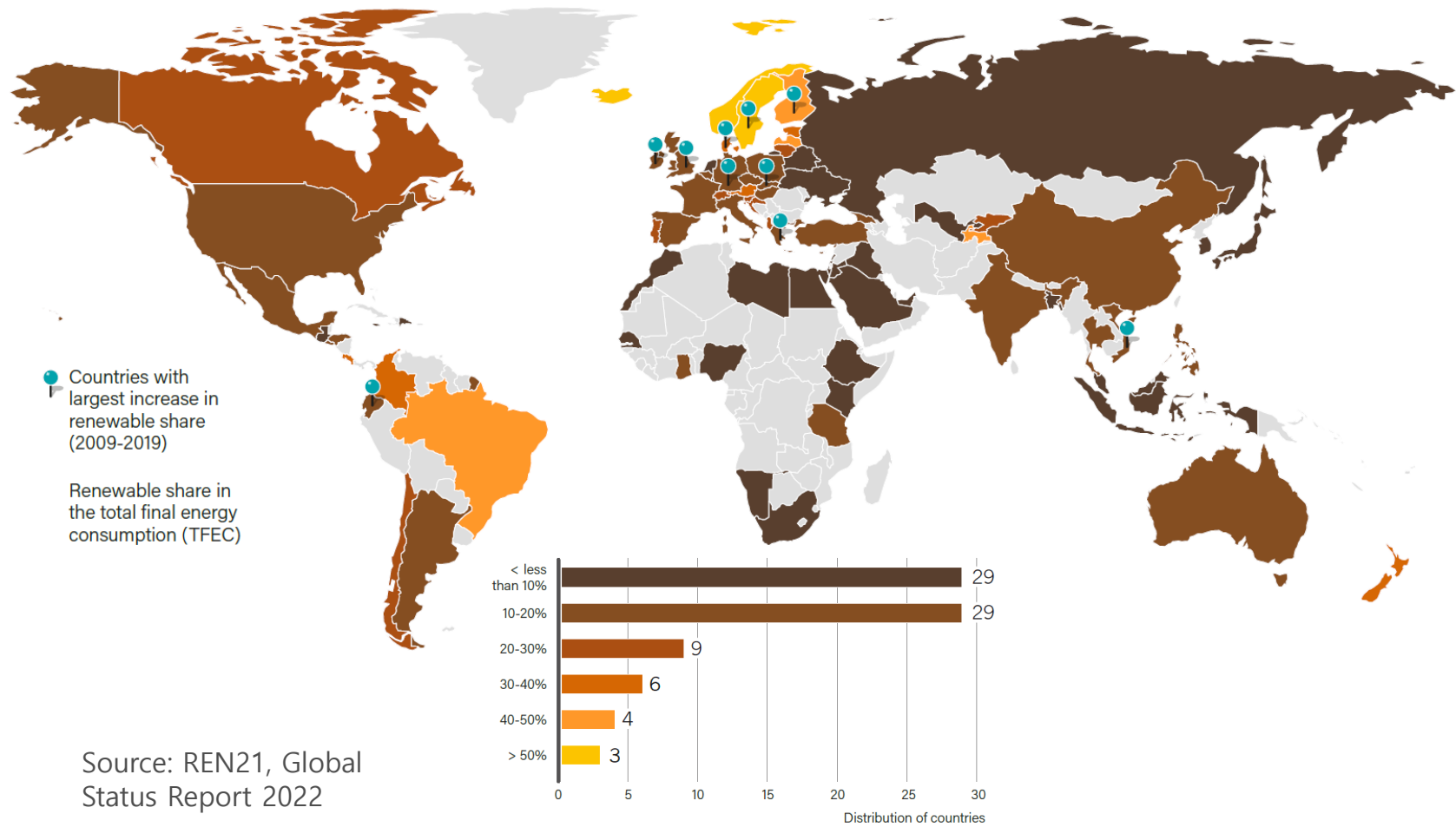
Levelized Cost of Energy Comparison: Historical Utility-Scale Generation Comparison

- Which energy is affordable and clean?
- In Korea, still renewables' LCOE is the highest. Why?:
Lack of internalization of environmental (carbon) costs,
Delayed construction permits of renewable energy facilities

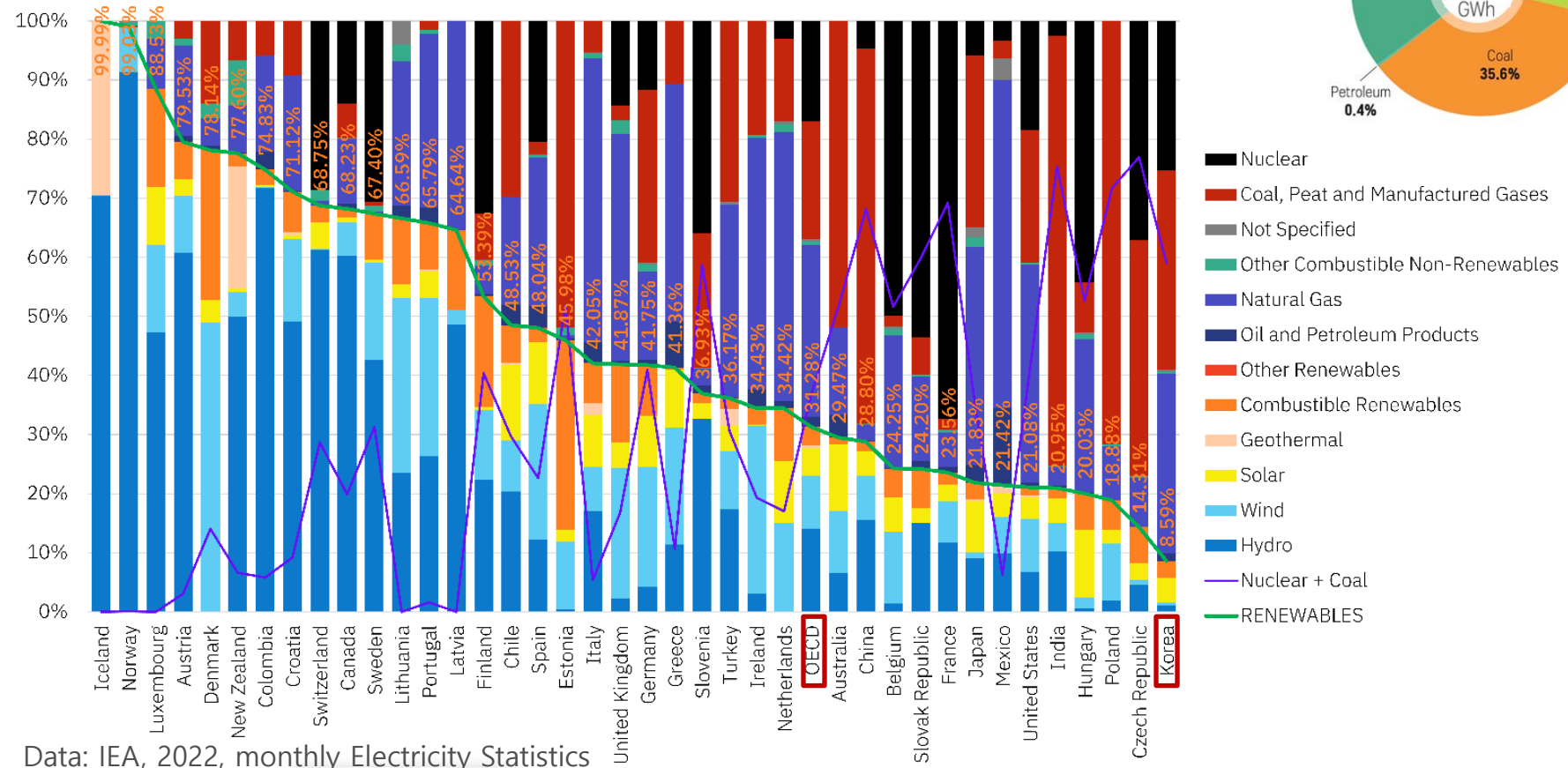
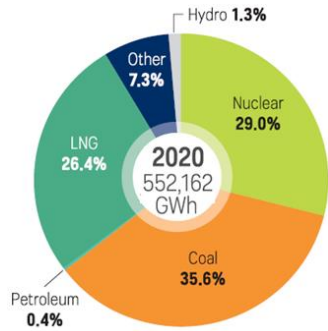


Source: Lazard, 2021, LAZARD'S LEVELIZED COST OF ENERGY ANALYSIS — VERSION 15.0

Electricity Generation by Energy Sources



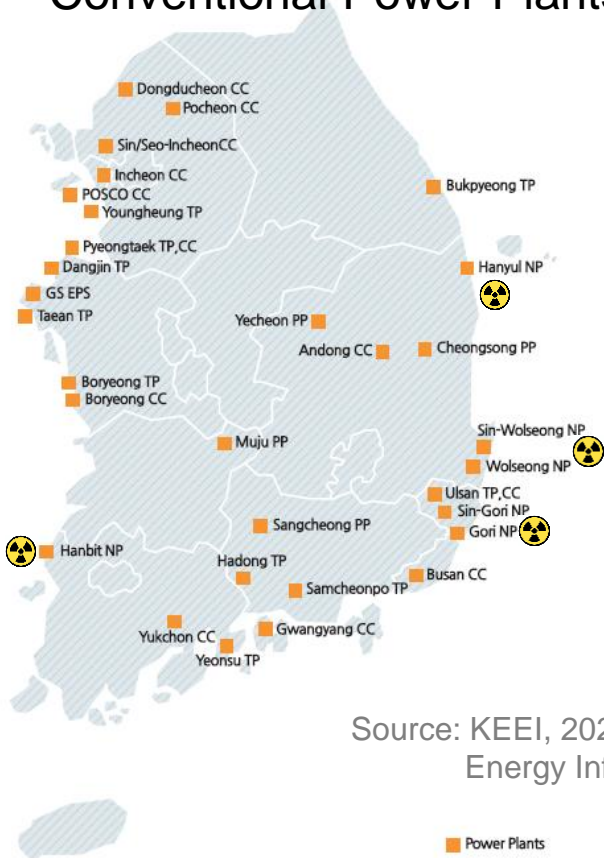
Electricity Generation by Energy Source: OECD Member Countries, China and India



Data: IEA, 2022, monthly Electricity Statistics

■ The Centralized Energy System of S. Korea

● The Current Status of Conventional Power Plants

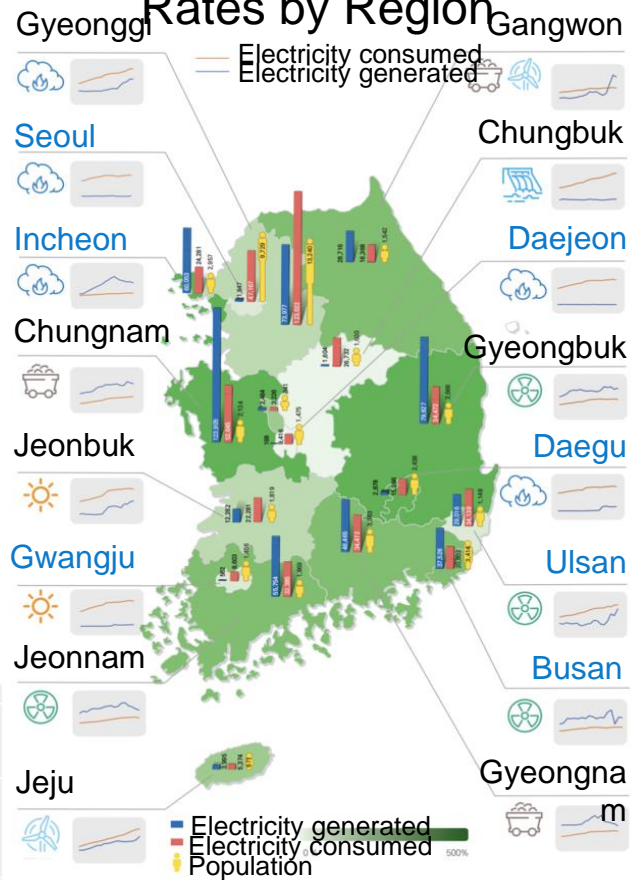


Source: KEEI, 2021,
Energy Info. 2021

● The Current Status of Transmission Lines



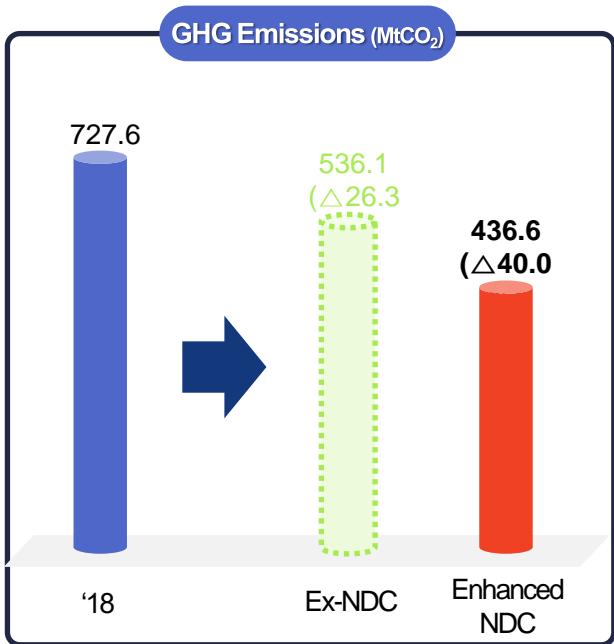
Electricity Independence Rates by Region



2030 NDC of ROK

2030 NDC

- ✓ 40% reduction from 2018 emissions (727.6MtCO₂)
- ✓ Targeted emissions in 2030: 436.6MtCO₂



Factors considered

- ✓ The Legislative Purpose of the FCCNGG, International Trends and Domestic Conditions
- ✓ Maximum domestic cut (35.4%) + Utilization of international cooperation (4.5%)

Significance of NDC Upgrade

- ✓ An ambitious target considering the late peak of emission, high proportion of manufacturing sectors, etc.
- ✓ High dependence on foreign trade requires proactive response

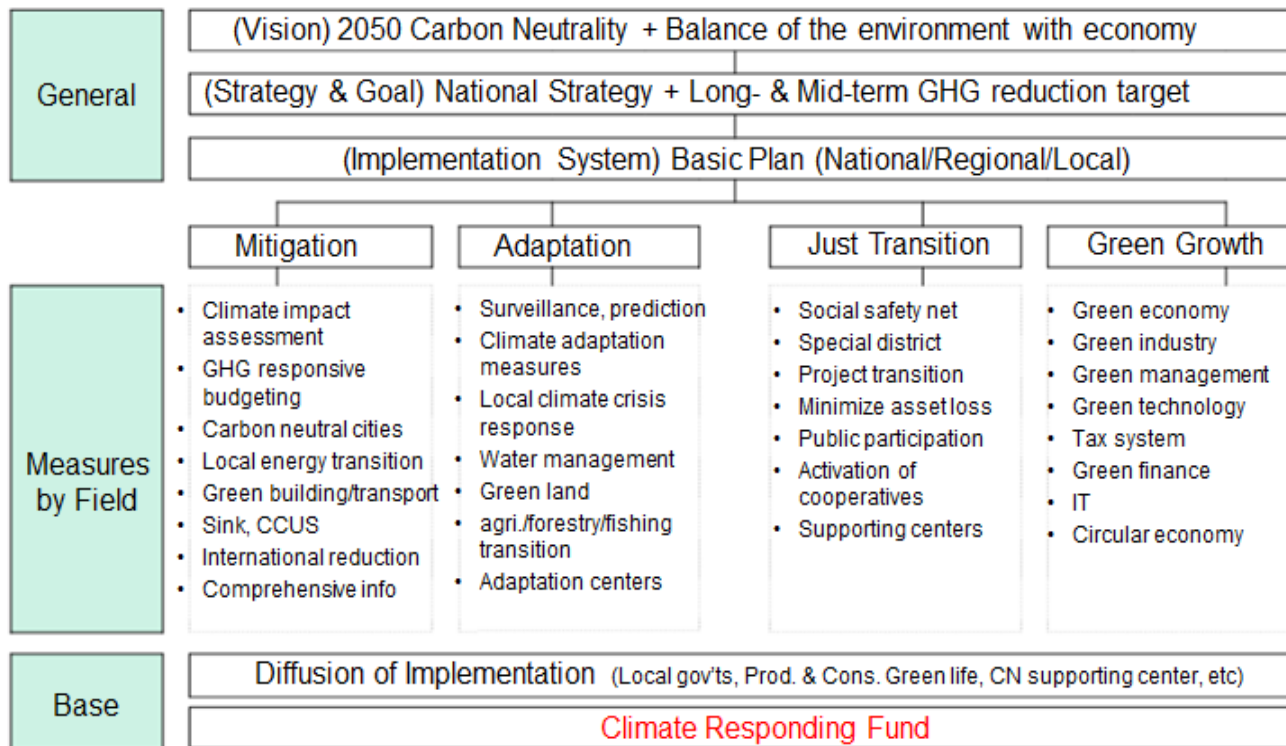
	Share of Manufacturing	Base year	NDC	Annual reduction rate (%)
US	11.3%	'05	50~52%	2.81%
EU	14.8%	'90	55%	1.98%
UK	8.8%	'90	68%	2.81%
Japan	20.7%	'13	46%	3.56%
ROK	29.1%	'18	40%	4.17%

2030 NDC Target by Sector

Sector		Base year (2018)	Existing NDC (from 2018)	New NDC (from 2018)
Total Emissions (Million tCO ₂ -eq)		727.6	536.1 (-26.3%)	436.6 (-40.0%)
Emissions	Transformation	269.6	192.7 (-28.5%)	149.9 (-44.4%)
	Industry	260.5	243.8 (-6.4%)	222.6 (-14.5%)
	Building	52.1	41.9 (-19.5%)	35.0 (-32.8%)
	Transportation	98.1	70.6 (-28.1%)	61.0 (-37.8%)
	Agricultural, etc	24.7	19.4 (-21.6%)	18.0 (-27.1%)
	Waste	17.1	11.0 (-35.6%)	9.1 (-46.8%)
	Hydrogen	-	-	7.6
	Others (incl. Leakage)	5.6	5.2	3.9
Sink & Removal	Sink	-41.3	-22.1	-26.7
	CCUS	-	-10.3	-10.3
	International	-	-16.2	-33.5

■ Framework Act on Carbon Neutrality & Green Growth

- 14th in the world to legislate for carbon-neutrality
- 2030 NDC: over 35% reduction from the 2018 level

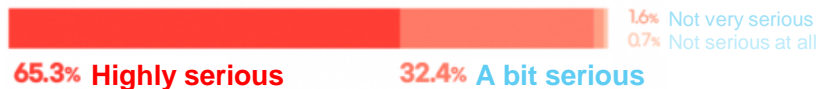


● Climate Responding Fund

- Financial resources
 - Government contributions
 - Transfers to other accounts and funds
 - Revenue from allocation of paid emission rights, etc
- Use
 - Reduction of greenhouse gas emissions
 - Conversion of industrial structure
 - Support for vulnerable areas and classes
 - Research and development
 - Human resource development
- 2.4 trillion Won in 2022

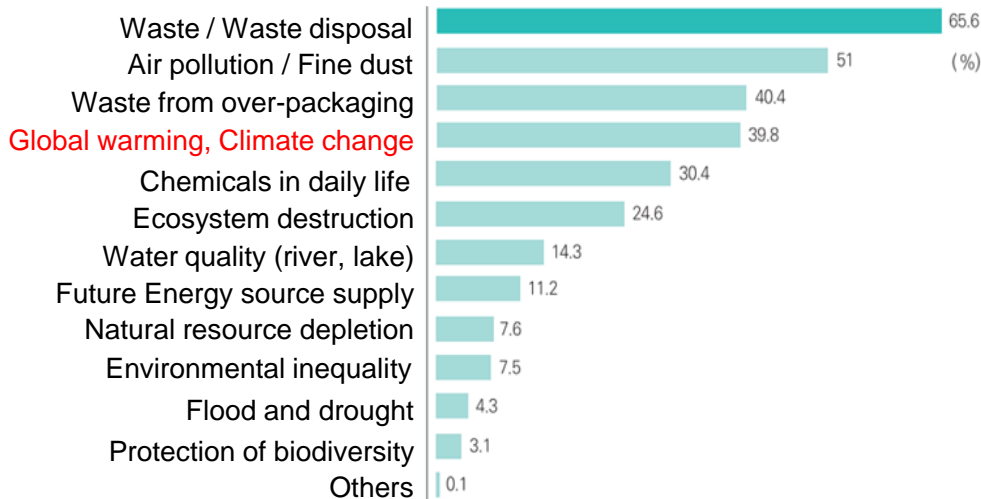
Citizens' Concern about Climate Change

Q: How serious climate crisis is?

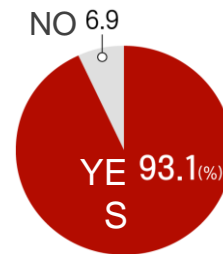


The most serious environmental problem (multiple responses)

- Research Agency: Korea Environment Institute
- A total of 5,050 adults aged 19 to 69 nationwide
- The maximum allowable sampling error at the 95% confidence level is $\pm 1.4\%$
- September 23 – October 25, 2021 Survey



Q: Does climate crisis affect your lives?



Voters' agenda for our Society

- Research Agency:: KBS (Korea Broadcasting S.)
- A total of 1000 adults
- The maximum allowable sampling error at the 95% confidence level is $\pm 3.1\%$
- Dec. 3 – 4, 2021 Survey
- Survey for experts: 110 experts

	Public	Expert
1	Stabilizing housing prices	Response to climate change
2	Job creation	Job creation
3	Media and Judicial reform	Balanced Regional development
4	Low birth measures	Addressing economic inequality
5	Addressing economic inequality	Restructuring education system
6	Disaster measures incl. infectious d.	Resolving social conflicts
7	Measures against aging	Stabilizing housing prices
8	Measures for youth	Measures against aging
9	Balanced Regional development	Low birth measures
10	Resolving social conflicts	Measures for youth

■ Suggestions

○ Increasing international pressure

- EU's Carbon Border Adjustment Mechanism (CBAM)
- EU's Corporate Sustainability Reporting Directive
- Inflation Reduction Act of the US
- Activating Climate Club (proposed by Nordhaus)

○ More aggressive climate actions from the private sector

- RE100
- ESG management.....

○ Mobilizing the civil society

- Improving willingness to pay + Carbon pricing
- Wise political votes and economic (money) votes
- Filing lawsuits: (e.g.) Youth climate suits, Baby climate suits
- Petitions for legislation: (e.g.) Petition for the enactment of de-coalization law to withdraw new coal power plants



ESG integration at BlackRock



Environmental (E)



Social (S)



Governance (G)



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Department of
Economic and
Social Affairs



UNOSD
UNITED NATIONS OFFICE FOR
SUSTAINABLE DEVELOPMENT



Ministry of Environment



Incheon
Metropolitan City



ASIA-EUROPE
FOUNDATION



Office for Sustainable Development
Korea Environment
Corporation



Incheon Tourism
Organization



THANK YOU!

Sun-J in Yun

Professor

Seoul National University