

Energy Transition and Democracy in Korea

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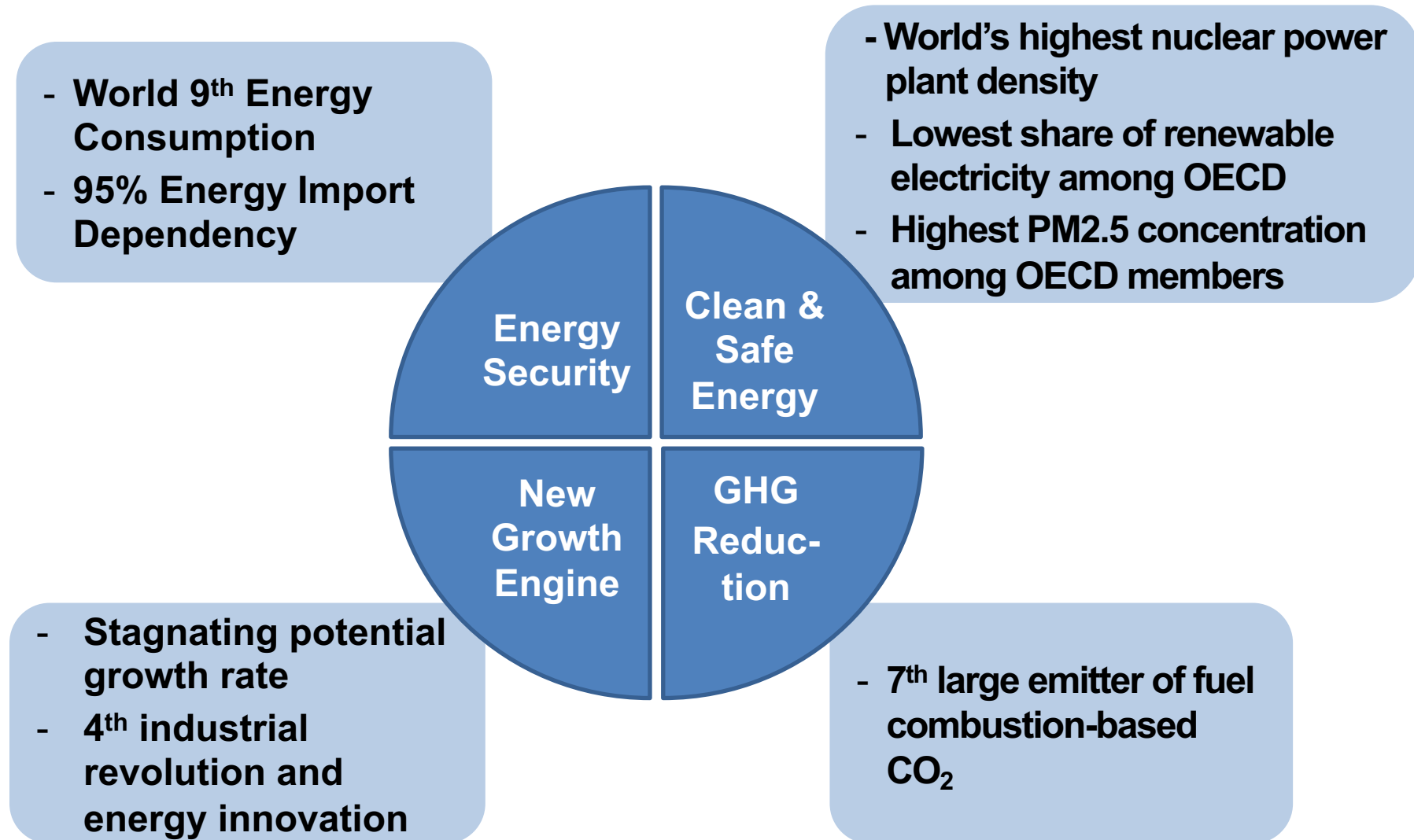
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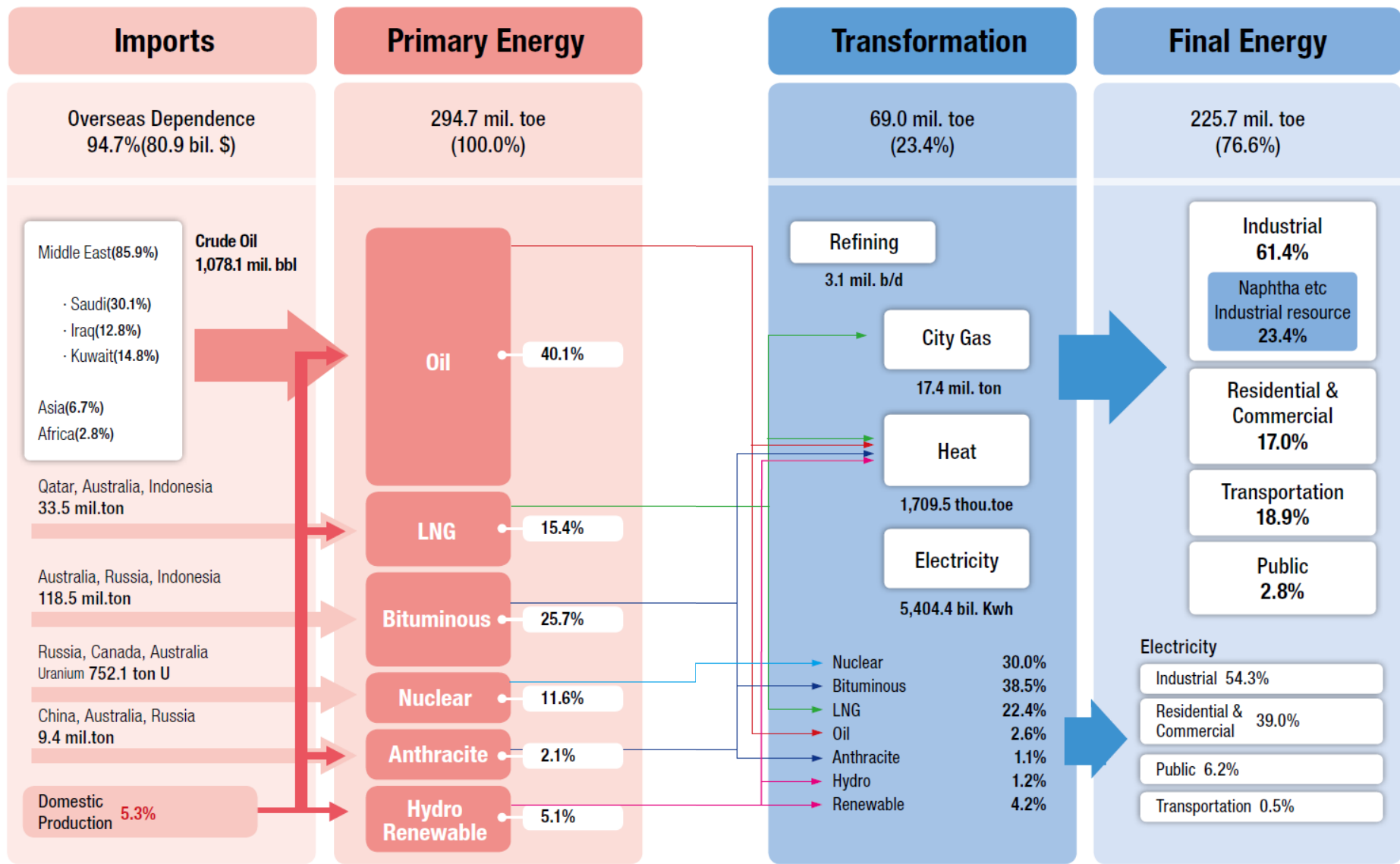
- 1. The Background of Energy Transition in South Korea**
2. Energy Transition Policy of the Moon Jae-in Government
3. Current Energy Transition Issues
4. Issues in Controversy

■ Major Issues in Energy Field in South Korea



1. The Background of Energy Transition in South Korea

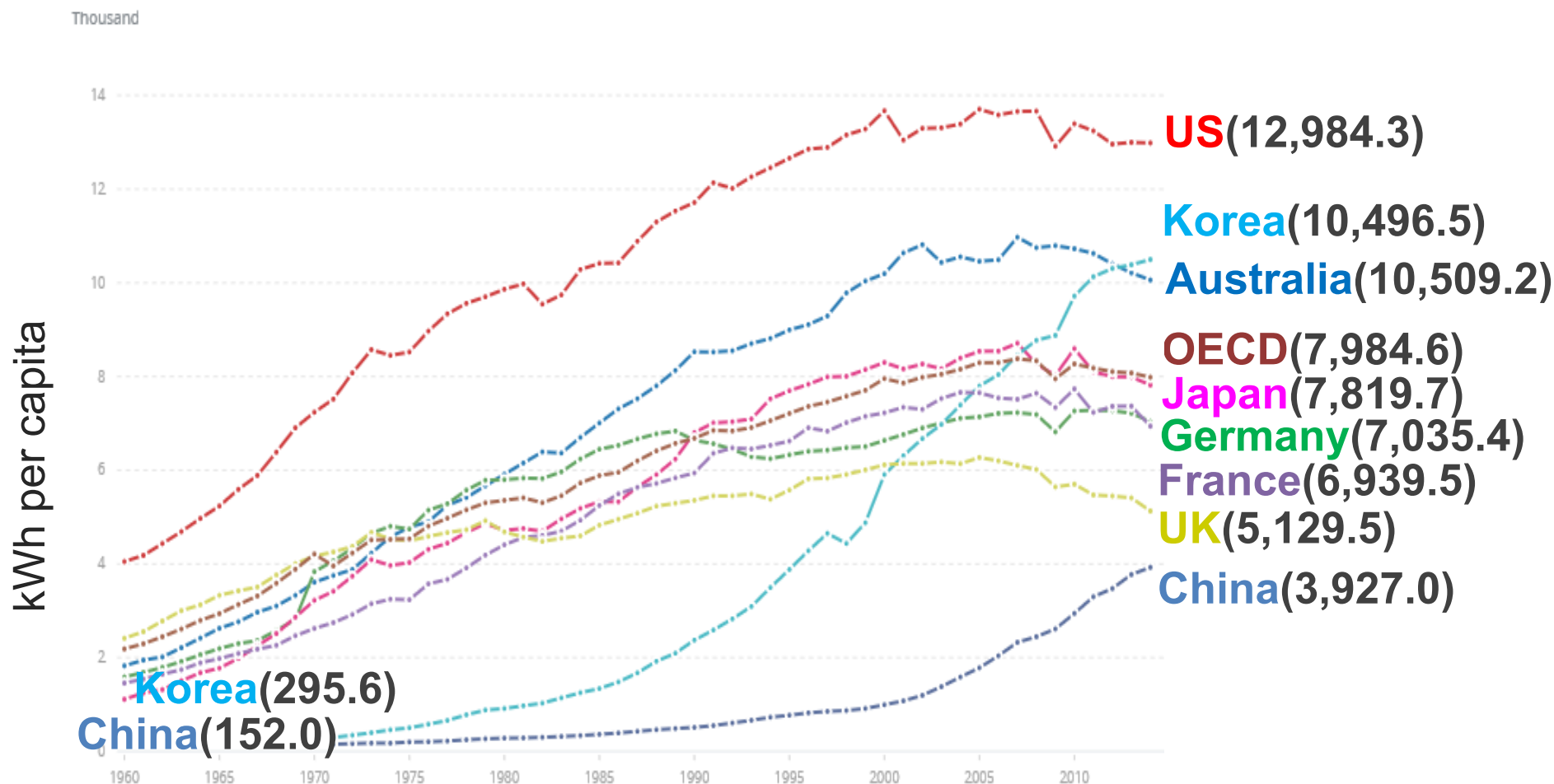
■ Energy Balance Flow (2016)



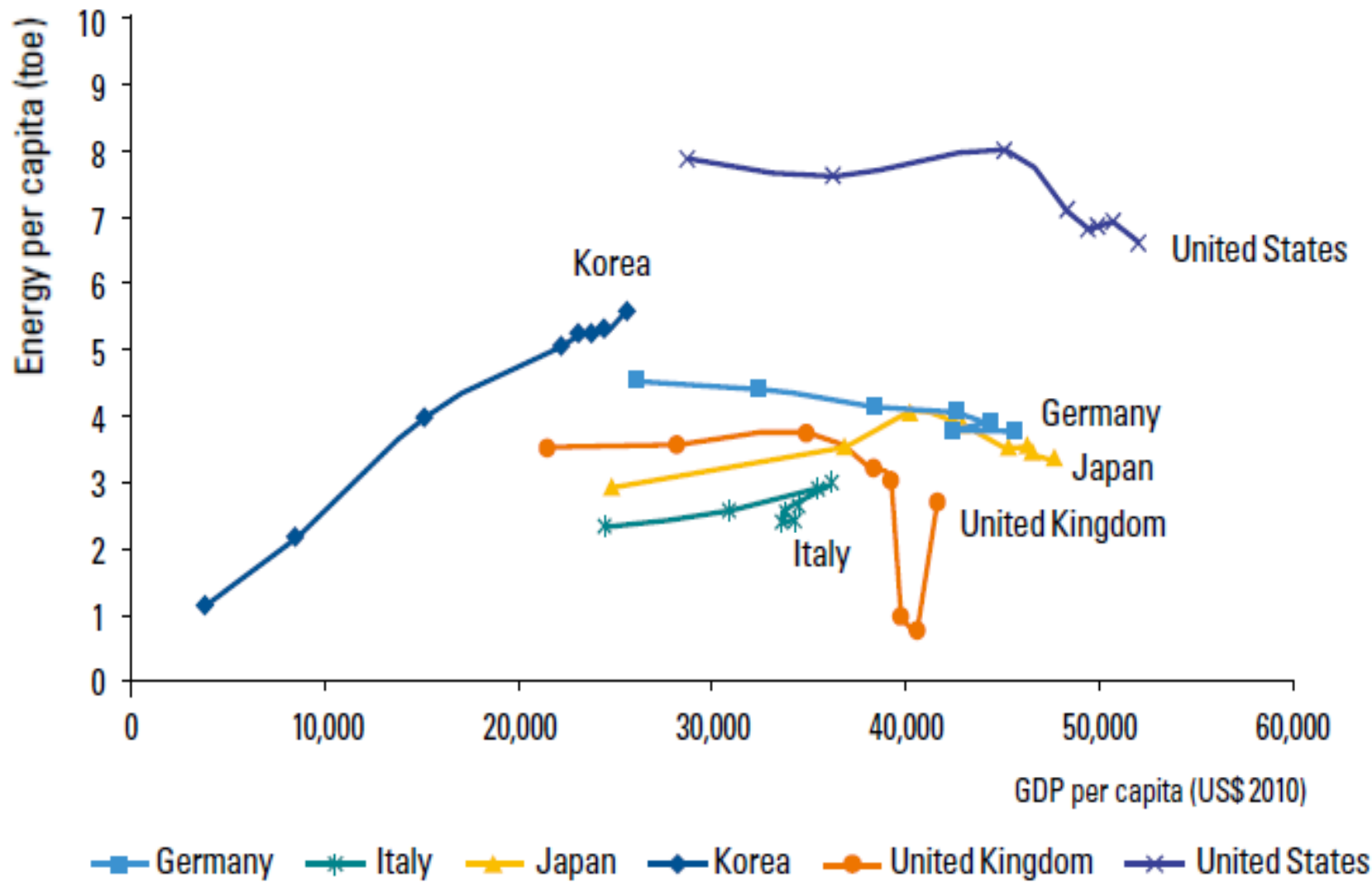
Source: KEEI, Energy Info. Korea 2017, 2018.

■ S. Korea is an electricity-intensive society

● Per capita electricity consumption of major countries (1960-2014)

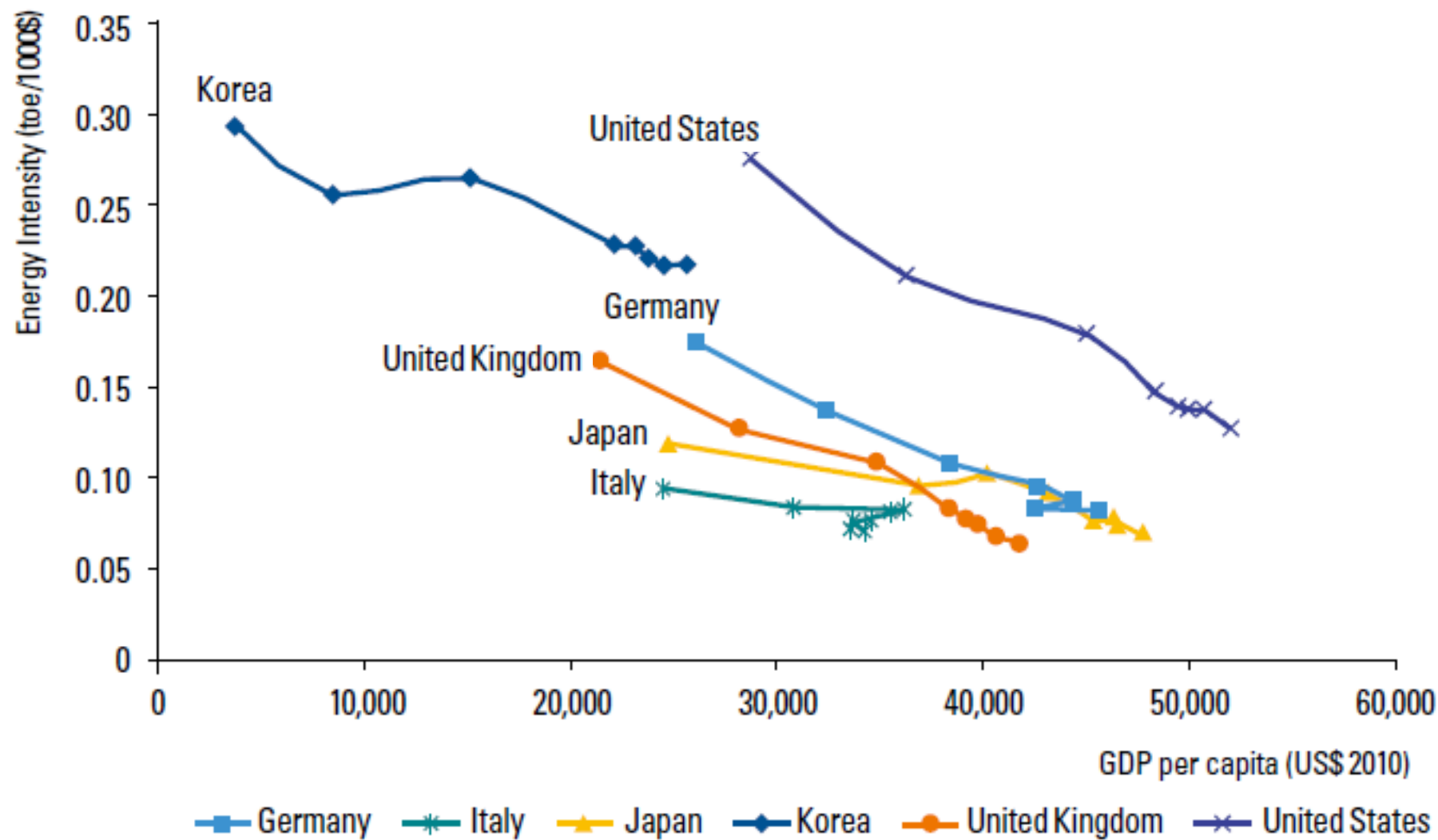


■ Energy Consumption per capita by Country



Source: KEEI, Energy Info. Korea 2017, 2018.

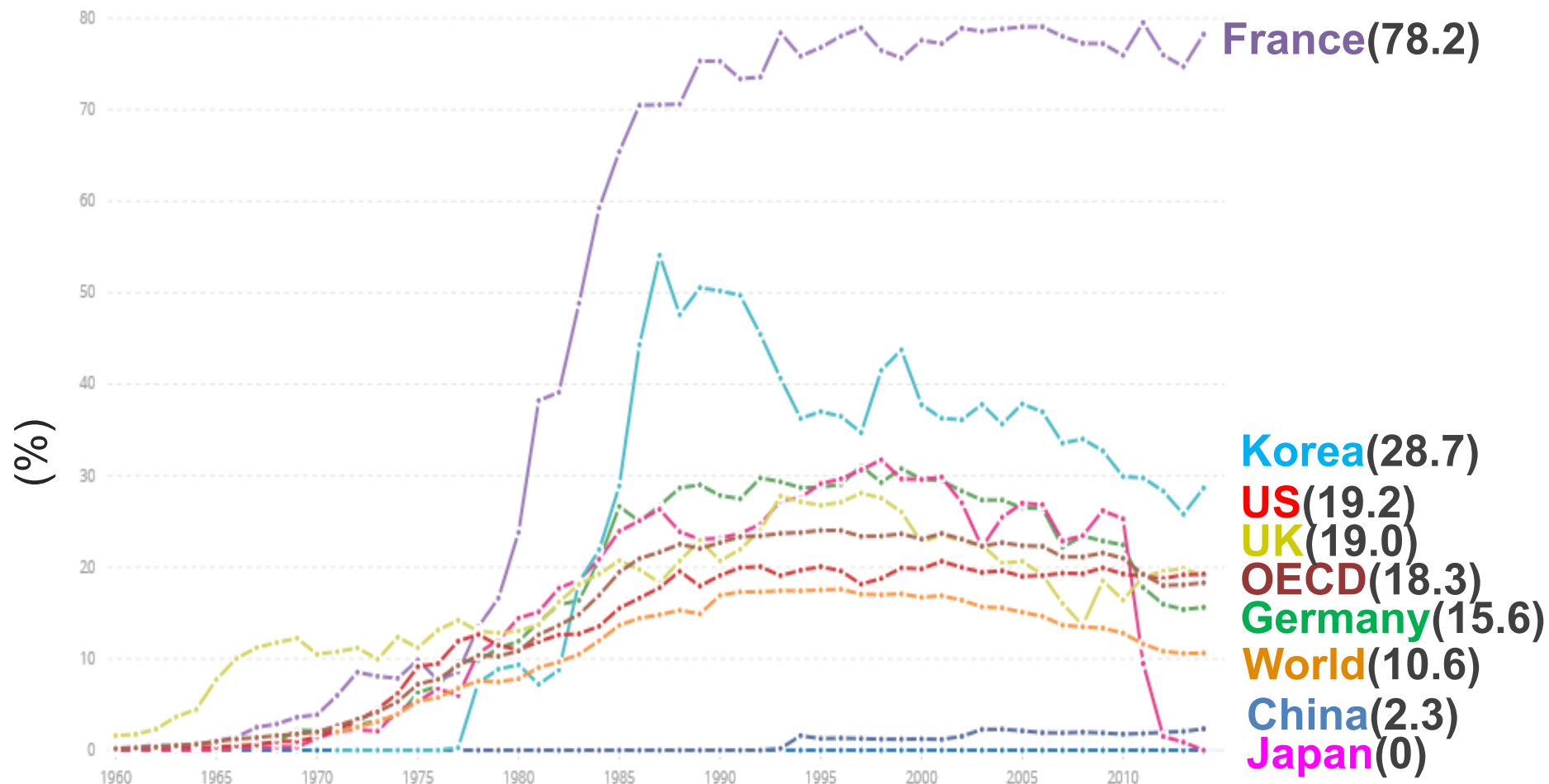
Energy Intensity by Country



Source: KEEI, Energy Info. Korea 2017, 2018.

■ S. Korea's nuclear share is relatively high

● Electricity production from nuclear power (1960-2014)



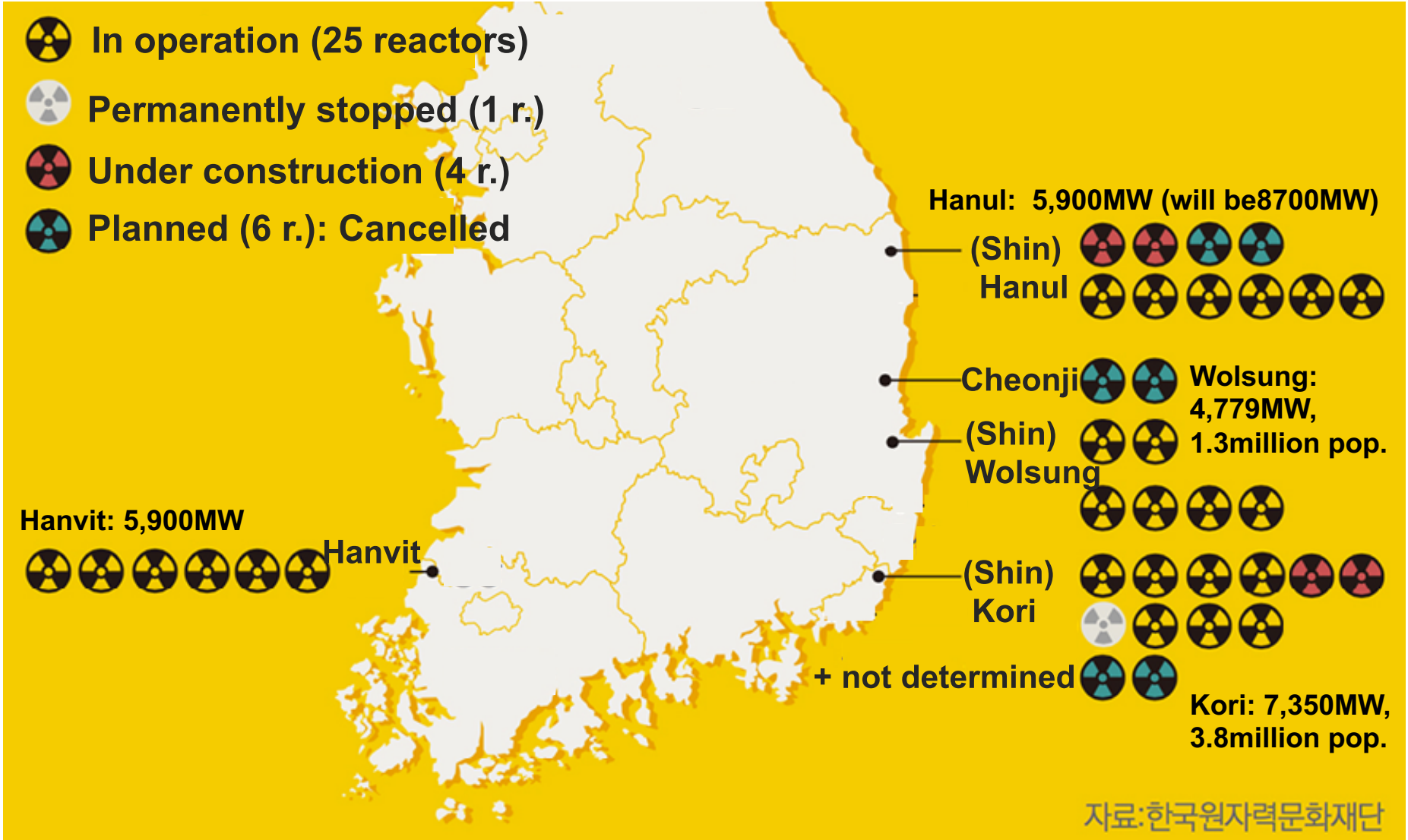
Source: The World Bank Data

■ Comparison of Nuclear Power Status

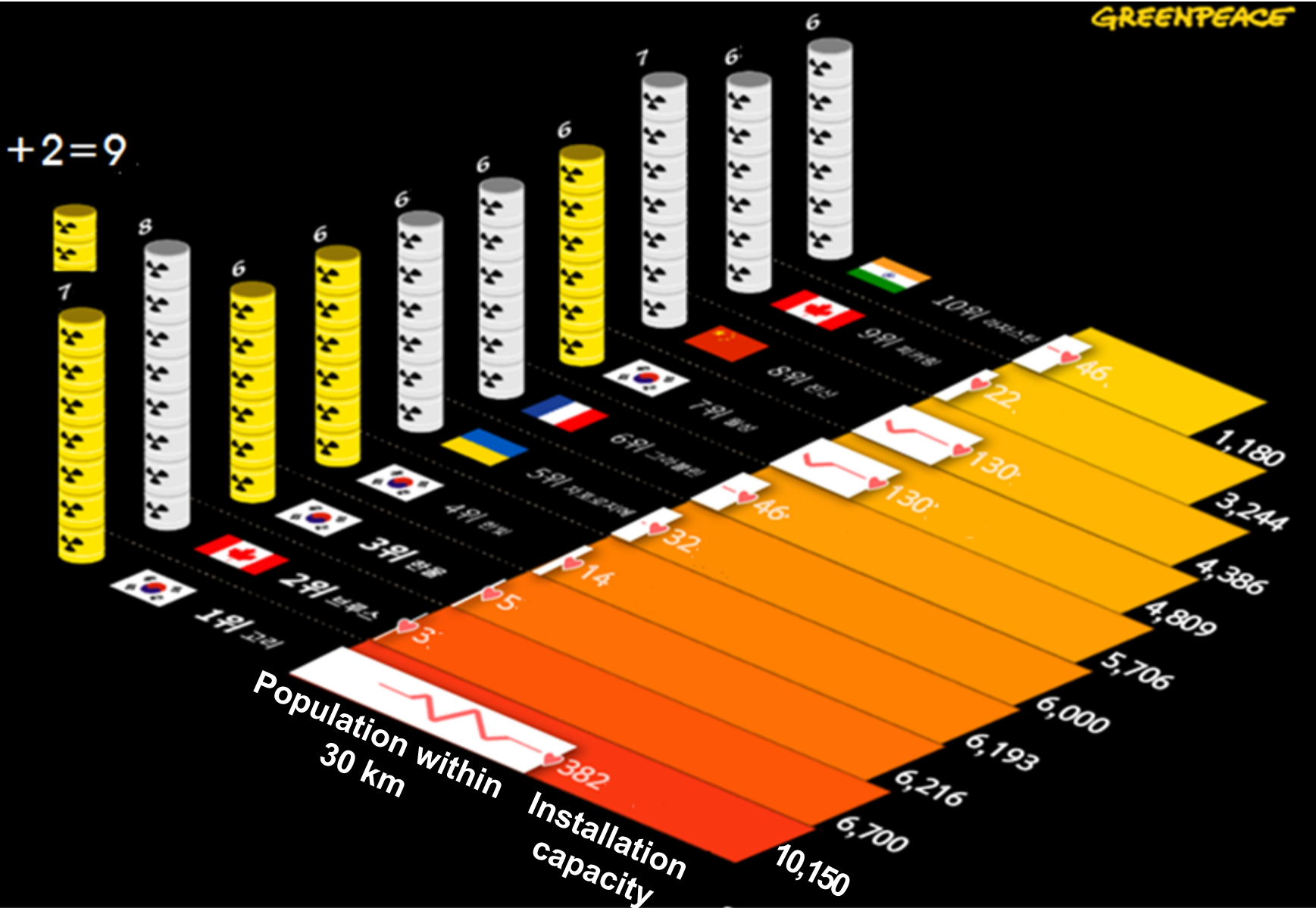
	1	2	3	4	5	6	World
Installation Capacity (GWe)	USA	France	China	Japan	Russia	Korea	399.0
	99.3	63.1	43.0	38.9	28.0	22.5	
Number of Reactors	USA	France	Russia	Japan	Russia	Korea	450
	98	58	45	40	36	24	
Reactors under Construction (Number(GW))	China	India	Russia	Korea	UAE	USA	62.0 (57)
	13(12.8)	7(5.4)	6(4.8)	5(7.0)	4(5.6)	4(5.0)	
Nuclear Power Generation (2015, TWh)	USA	France	China	Russia	Korea	Canada	2,519
	805.0	379.1	247.5	187.5	141.1	96.0	
Nuclear Density (kW/km ²)	Korea	Belgium	Taiwan	Japan	France	Swiss	-
	224.2	194.7	103.3	103.0	98.1	80.7	-

Source: IEA, 2017, Key World Energy Statistics 2018 (Data for 2016)

Condensed Location of Multiple Reactors (2019)



■ With Shin-Kori 5 & 6: the densest site



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Energy-related Presidential Pledges of Mr. Moon

현정 사상 최초! 정당 사상 최초!
정책쇼핑몰
문재인 1번가 GRAND OPEN
www.moon1st.com

지역, 세대, 관심사에 따라 필요한 정책 공약을 '쇼핑' 하세요
마음에 드는 정책은 SNS로 널리 알려주세요

4월 17일 문재인이 정책 쇼핑의 문을 엽니다!

문재인 공식사이트 60

전체 카테고리

17. Safe & Healthy Korea

The state will take responsibility for People's life

- Establishment of **Nuclear Zero** Post-Nuclear State **after 40 years**
 - Closure of aged nuclear power plants and **stopping new reactors'** construction
 - Accomplishment of **20% of renewable energy electricity by 2030**
- 30% Reduction of Fine Dust within Moon's Tenure
 - Stopping construction of new coal-fired** power plants and closure of aged ones
 - Temporary Shut-down of coal-fired** power plants during Spring season

BEST

안전하고 깨끗한 대한민국 에...
283,961 원

BEST

도시재생 뉴딜 NEW DEAL
229,182 원

BEST

이사 걱정 없는 대한민국
225,161 원

BEST

가계통신비 부담 절감 정책
215,600 원

■ President Moon pledged Nuclear-free Society

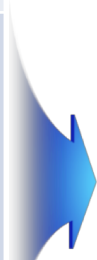
"The shutdown of KORI 1 is the beginning of a nuclear-free energy country, a paradigm shift for a safer Korea"(June 19, 2017)

- Nullifying construction of new nuclear power plants under preparation
- Prohibiting lifetime extension and closure of extended Wolsung 1
- Deriving social consensus on construction of Shingori 5 and 6 with consideration on safety, completion rate, given investment, compensation costs, electricity reserved margin and so on.



■ Energy-related Policy Tasks among 100 Ones

National Vision	A Nation of People, a Just Republic of Korea
Five Main Policy Goals	A Government of the People
	An Economy Pursuing Co-Prosperity
	<i>A Nation Taking Responsibility for Individual Lives</i>
	Well-balanced Development Across Every Region
	The Korean Peninsula of Peace and Prosperity

- 
- Safe Society Keeping People's Security and Life
 - Creation of Clean Air Quality without Worry about Fine Dust
 - **Energy Transition** through Post-Nuclear Policy toward a safe and clean energy society
 - Establishment of faithful implementation system of New Climate Regime

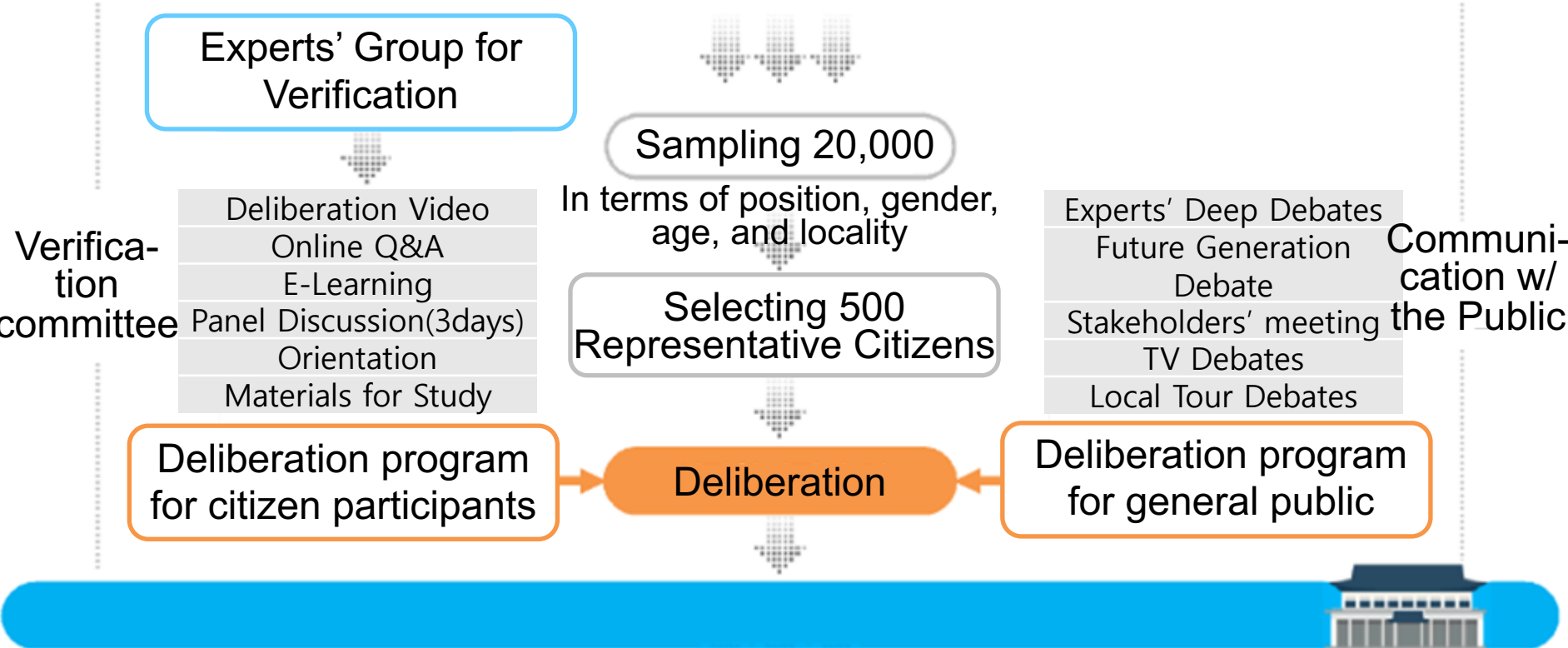


■ The Public Engagement Process on Shin-Kori 5 & 6

- Presidential Pledge: Stop of new NPP construction
- Celebration Speech in the Permanent Shut-down of Kori 1 on June 19, 2017: Suggestion of decision based on social consensus
- The President moderated cabinet meeting on June 27, 2017: Decision on Public Engagement Process
- Suspension decision on the construction on June, 14, 2017
- Establishment of Public Engagement Committee on Shin-Kori 5 & 6 on July 24, 2017
- Activities of the Citizen Representative Group from Sep. 16 to Oct. 15, 2017
- Submission of the Outcome of public engagement process on Oct. 20, 2017

Public Engagement Process

Public Engagement Committee on Shin-Kori 5&6



“Final decision by the government based on the people’s will”

Recommendation of the PEC

- Resuming suspended construction of Shin-Kori 5&6
- Promoting energy policy to make the share of nuclear power reduced
- Supplementary recommendations needs to be implemented as soon as possible

Distribution of Opinions Source: Report of the PEC, 2017

category	Resume	Stop	category	Resume	Stop
Male	66.3	33.7	Seoul	57.4	42.6
Female	52.7	47.3	Incheon·Gyeonggi	58.6	41.4
20s(+19)	56.8	43.2	Daejeon·Chungcheong	65.8	34.2
30s	52.3	47.7	Gwangju·Jeolla·Jeju	46.1	54.9
40s	45.3	54.7	Daegu·Gangwon·Gyeongbuk	68.7	31.3
50s	60.5	39.5	Busan·Ulsan·Gyeongnam	64.7	35.3
60s+	77.3	22.5	Total	59.5	40.5
Share of nuclear power		Reduce	Maintain	Enlarge	Don't know
		53.2%	35.5%	9.7%	1.6%

■ The Moon Government's Position on PEC's Recommendation

● Resuming Construction of Shin-Kori 5&6 + Confirming a Road map for Energy Transition

- Pushing for follow-up measures and complementary actions: Strengthening nuclear safety standard, expanding investment in renewable energy, preparing solutions for spent-fuel of nuclear power plants
- Strengthening nuclear safety standards: Strengthening safety evaluation of multiple reactors, Strengthening earthquake proof standard, Eradicating nuclear corruption
- Energy transition: Transition toward safe and clean energy, Scrapping the new reactor construction plan, nuclear-phasing out through prohibiting life-time extension of aged reactors, expanding the share of renewables to 20% by 2030

■ ET Policy Direction of the Moon Government

Post-Nuclear Road map

- Resuming construction of Shin-Kori 5 & 6
- 24 reactors in 2024 → 8 reactors In 2022 → 18 reactors In 2031 → 14 reactors 2041

The 8th Basic Plan for Electricity S&D

- Electricity supply and demand plan for 2017 to 2031
- Cancellation of planned construction of 6 reactors and Specification of 11 reactors' life expiration
- Fuel switch of 2 coal-fired power plants to LNG ones

Renewable Energy 3020

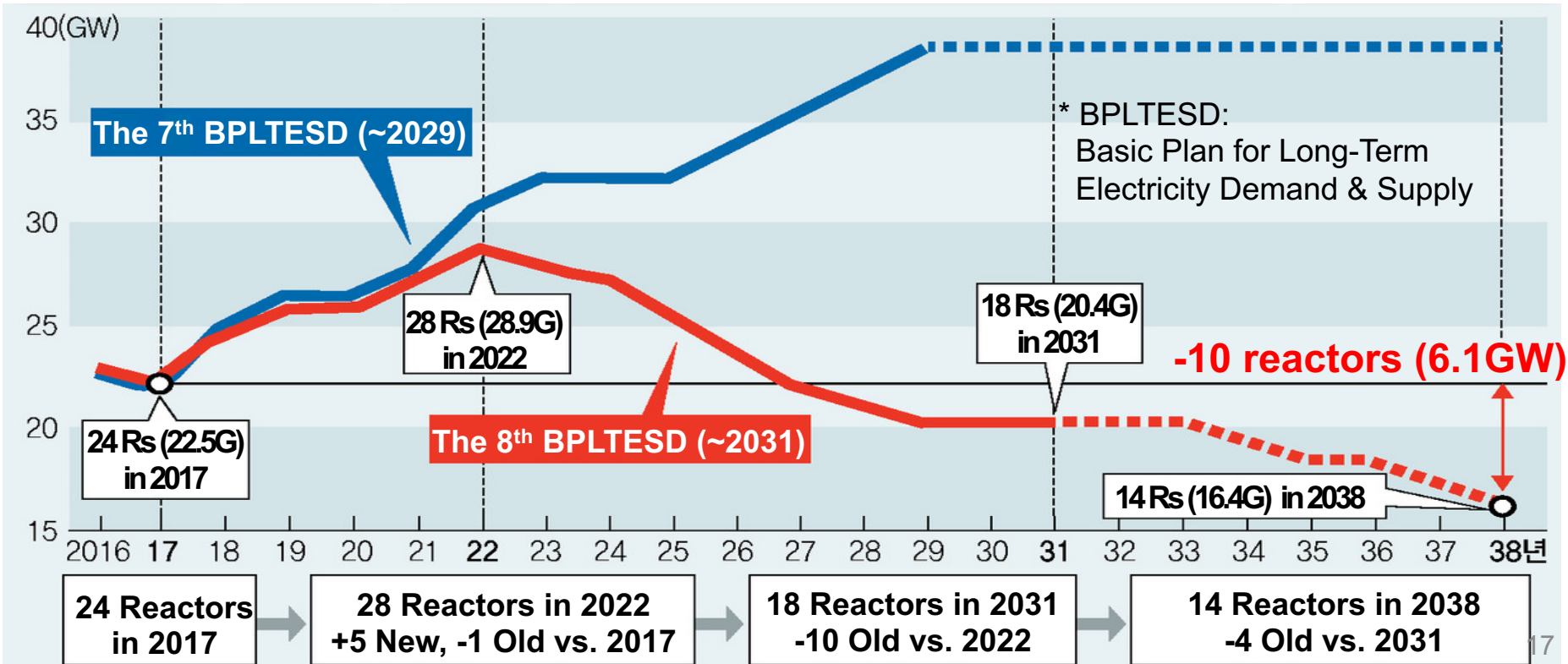
- RE capacity from 15.1GW in 2017 to 63.8GW in 2030
- Solar- and wind-centered RE expansion
- Participation of local governments and citizens focused

The 3rd Basic Energy Plan

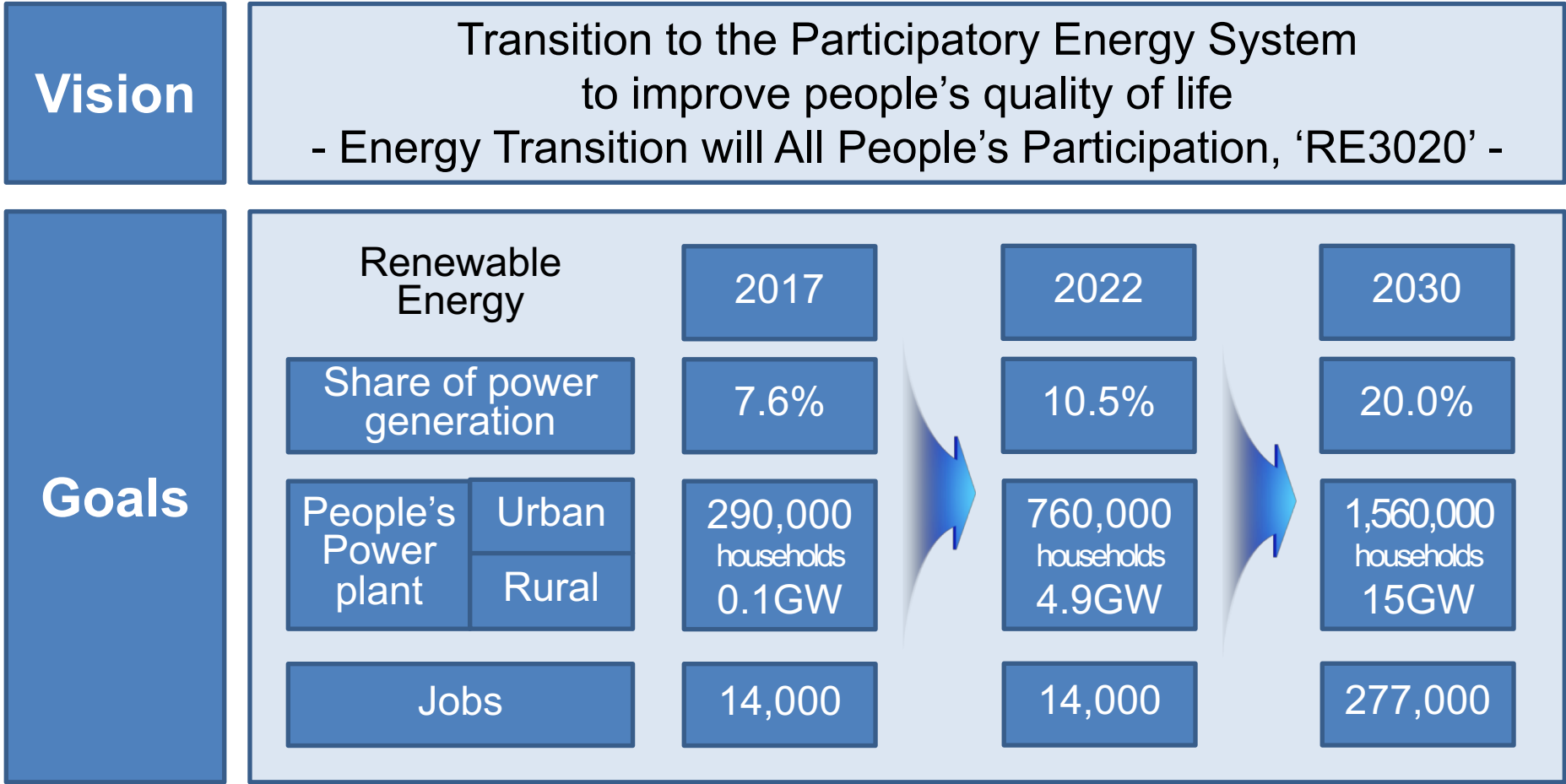
- Long-term national energy plan for 2018 to 2040
- Under establishment: government, experts and civil activists together; 5 working groups composed of demand, supply, conflicts & communication, and joint

The Roadmap of Nuclear Phase-out

	#	Capacity	Object	Project
New Reactor	6	8.8GW	Shin-Hanul 3·4, Cheonji 1·2, New 1·2	Nullification
Old Reactor	14	12.5GW	14 reactors by 2038(Kori 2~4, Wolsung 2~4, Hanbit 1~4, Hanul 1~4)	No lifetime extension
Wolsong 1	1	0.7GW	Wolsong 1	Early closure



Vision & Goals of Renewable Energy 3020



Policy Goal of Renewable Energy 2030 by Renewable Energy Sources



		PV	Wind		Hydro	Bio	Waste	Marine	Total
			On Shore	Off Shore					
Installed Capacity (GW)	New (2018~30)	30.8	4.6	12.0	0.3	1.0	-	-	48.7
	Existing (~2017)	5.7	1.2	0.03	1.8	2.3	3.8	0.3	15.1
	Total (share, %)	36.5 (57.3)	5.7 (9.0)	12.0 (18.8)	2.1 (3.3)	3.2 (5.2)	3.8 (6.0)	0.3 (0.4)	63.8 (100.0)
Power Generation (TWh) (Share, %)		46.1 (34.9)	11.1 (8.4)	31.5 (23.8)	4.0 (3.1)	16.2 (12.2)	22.8 (17.3)	0.5 (0.4)	132.3 (100.0)

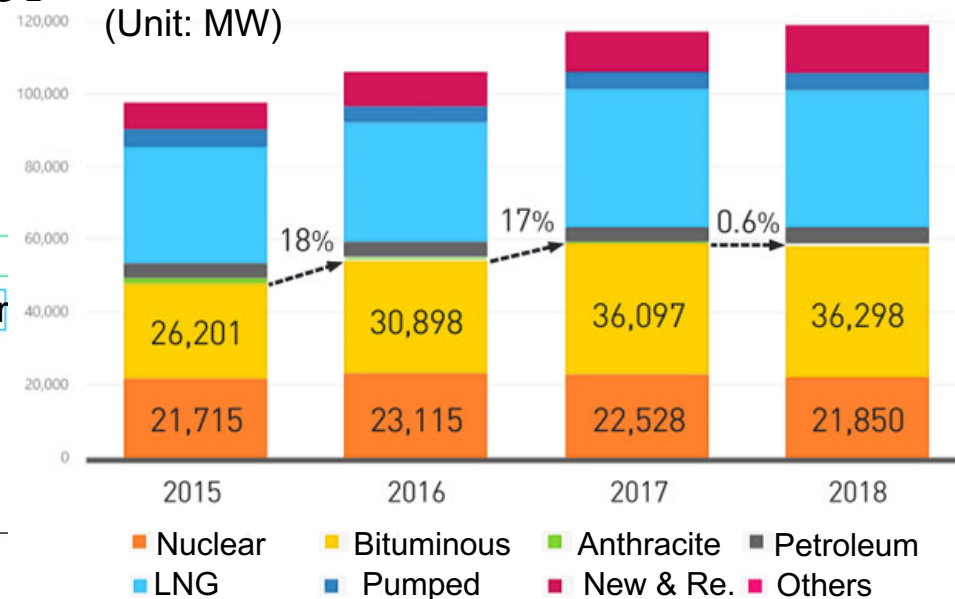
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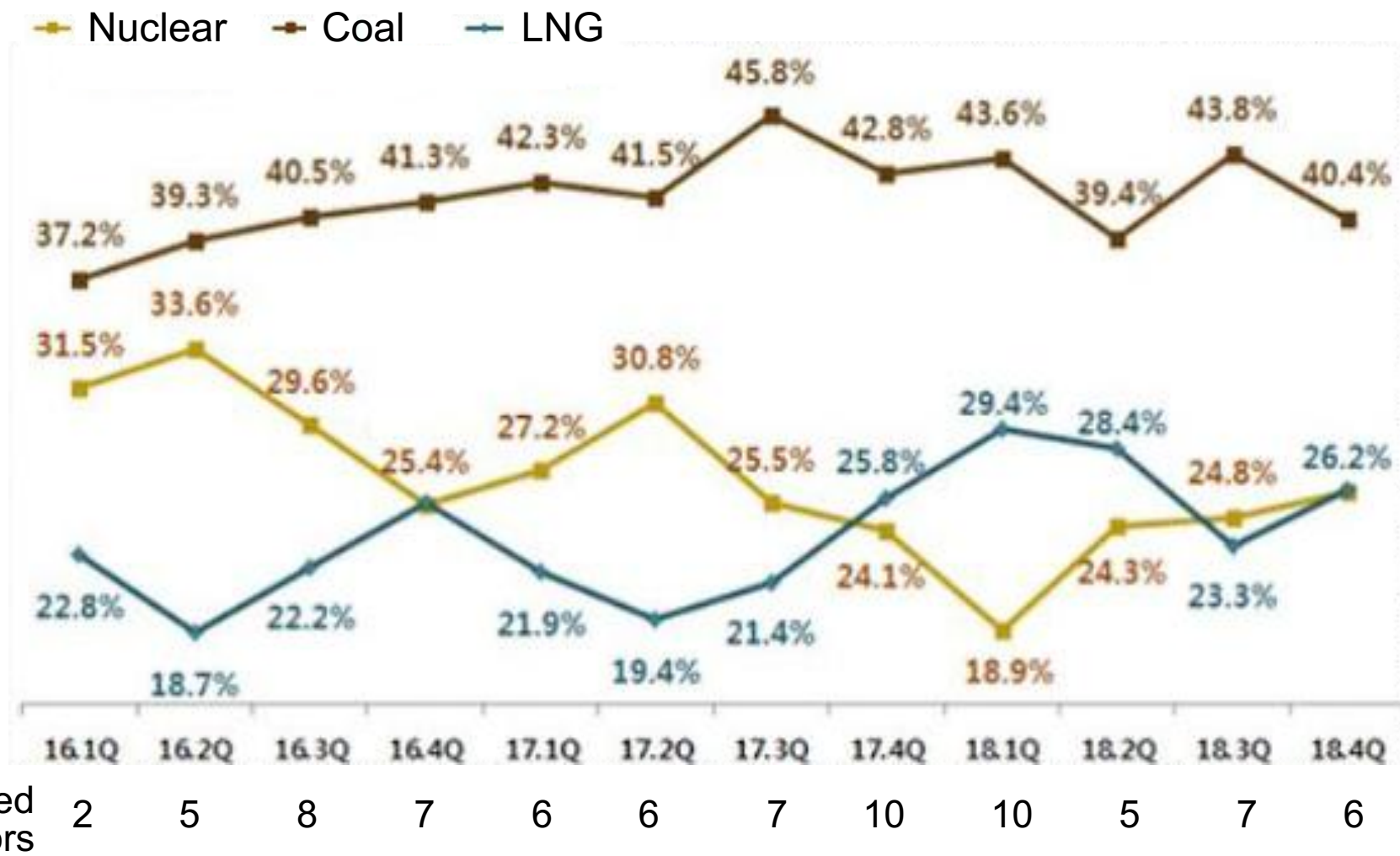
■ The Current Status of New & Renewables in Korea



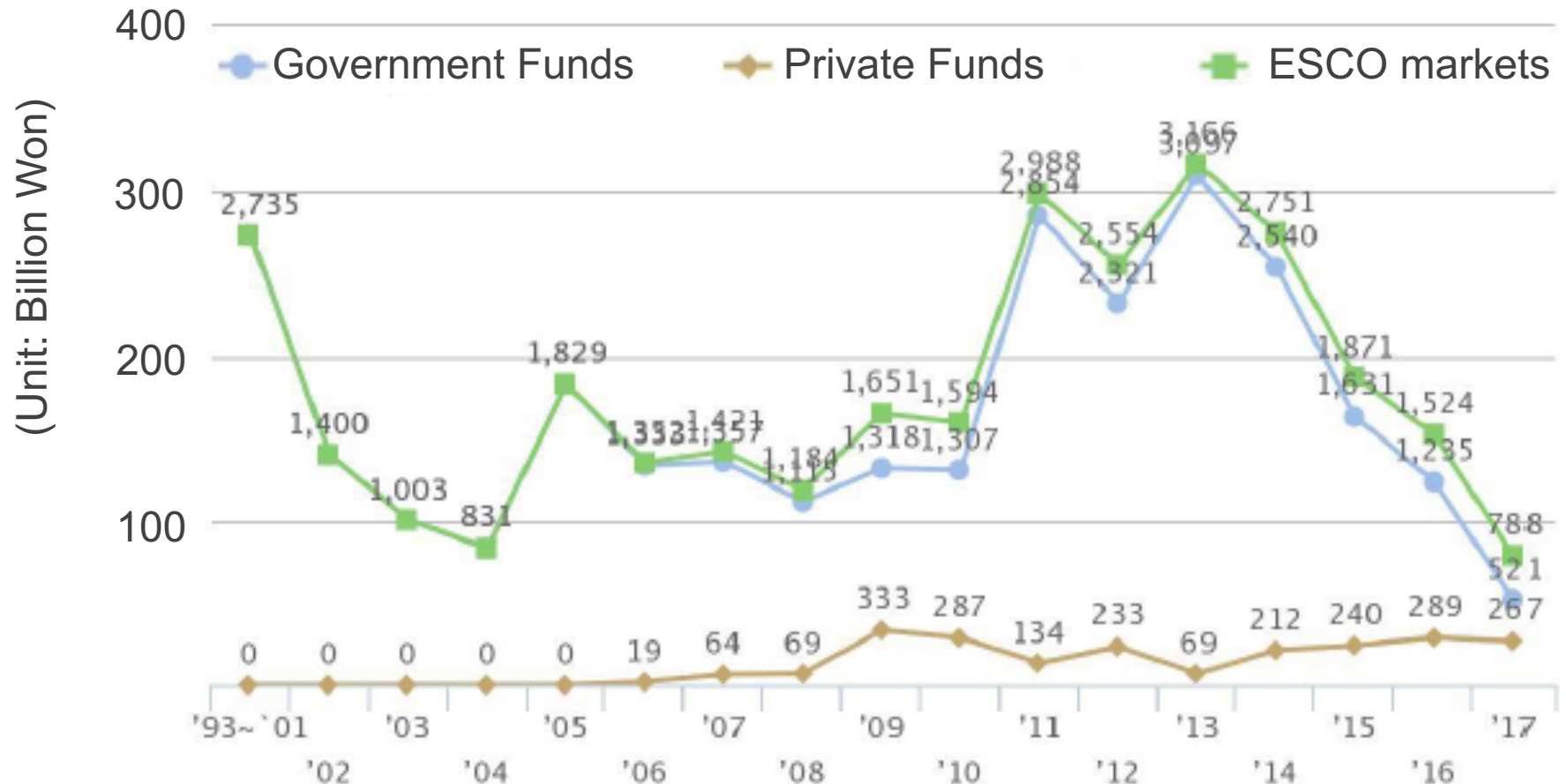
Electricity Generation by Sources



The Share of Electricity Generation by Energy Sources



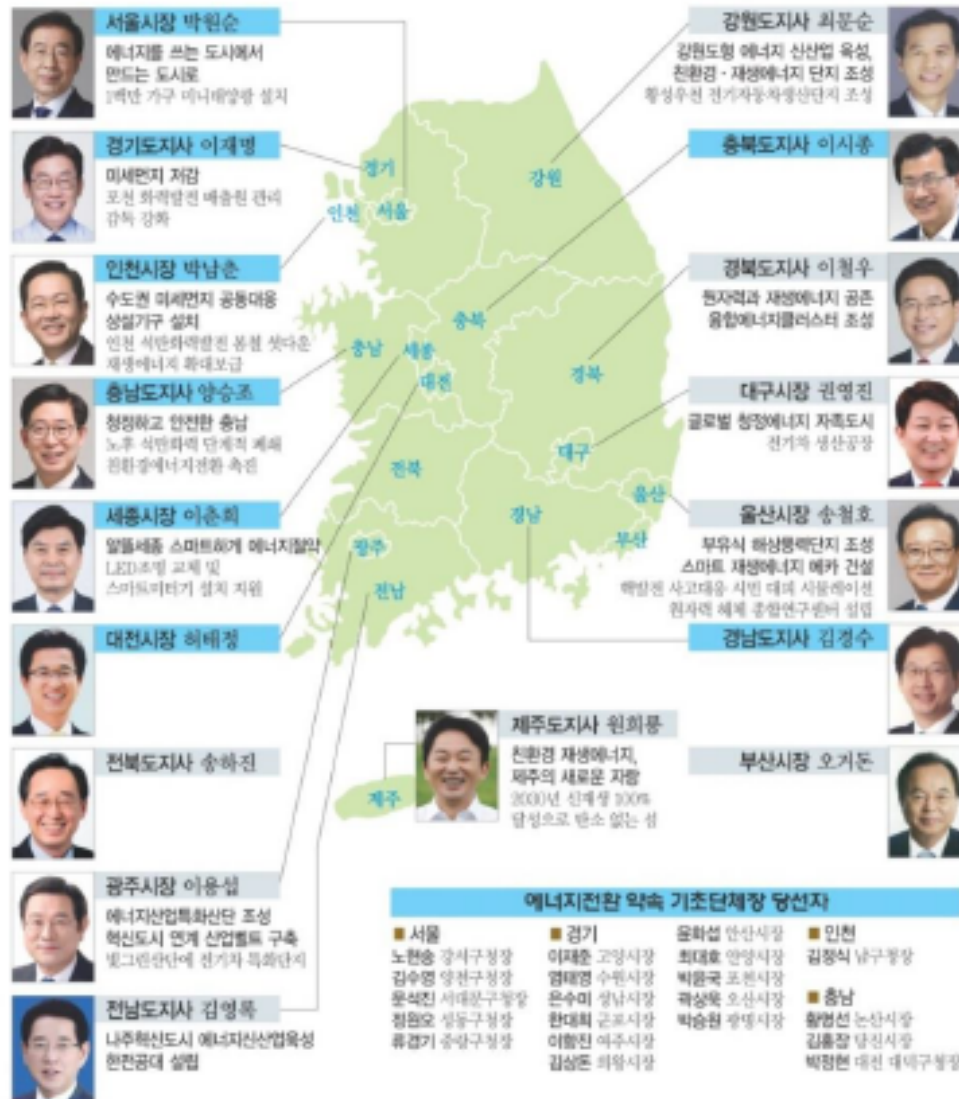
Declining Energy Efficiency Industry



- Worldwide ESCO industry sales increased 11% year-on-year in 2016
- In Korea, ESCO industry sales decreased almost half in 2016
- Korea's ESCO sales account for 0.5% of world total ESCO sales

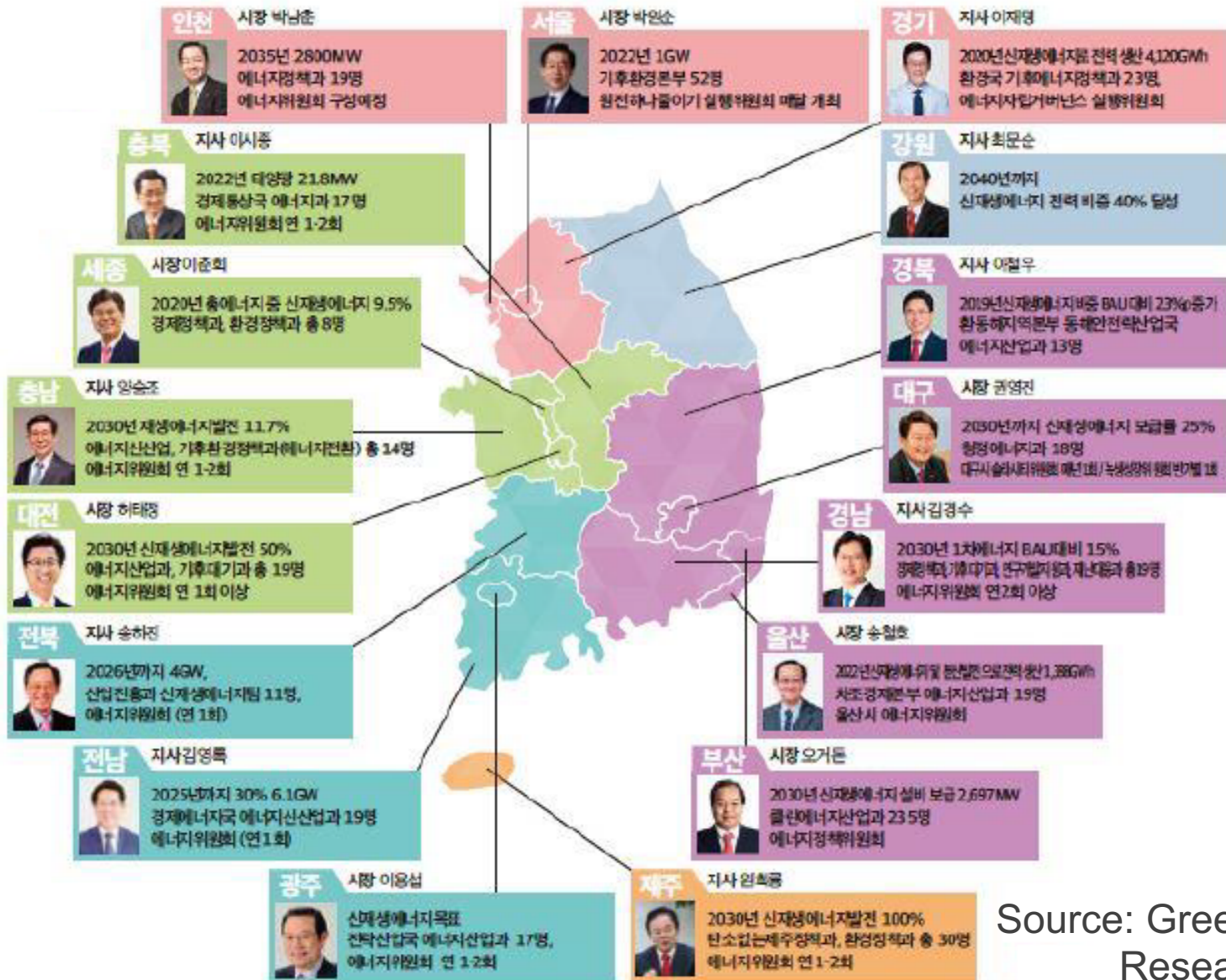
3. The Current State of Energy Transition

Increasing Participation of Local Leaders



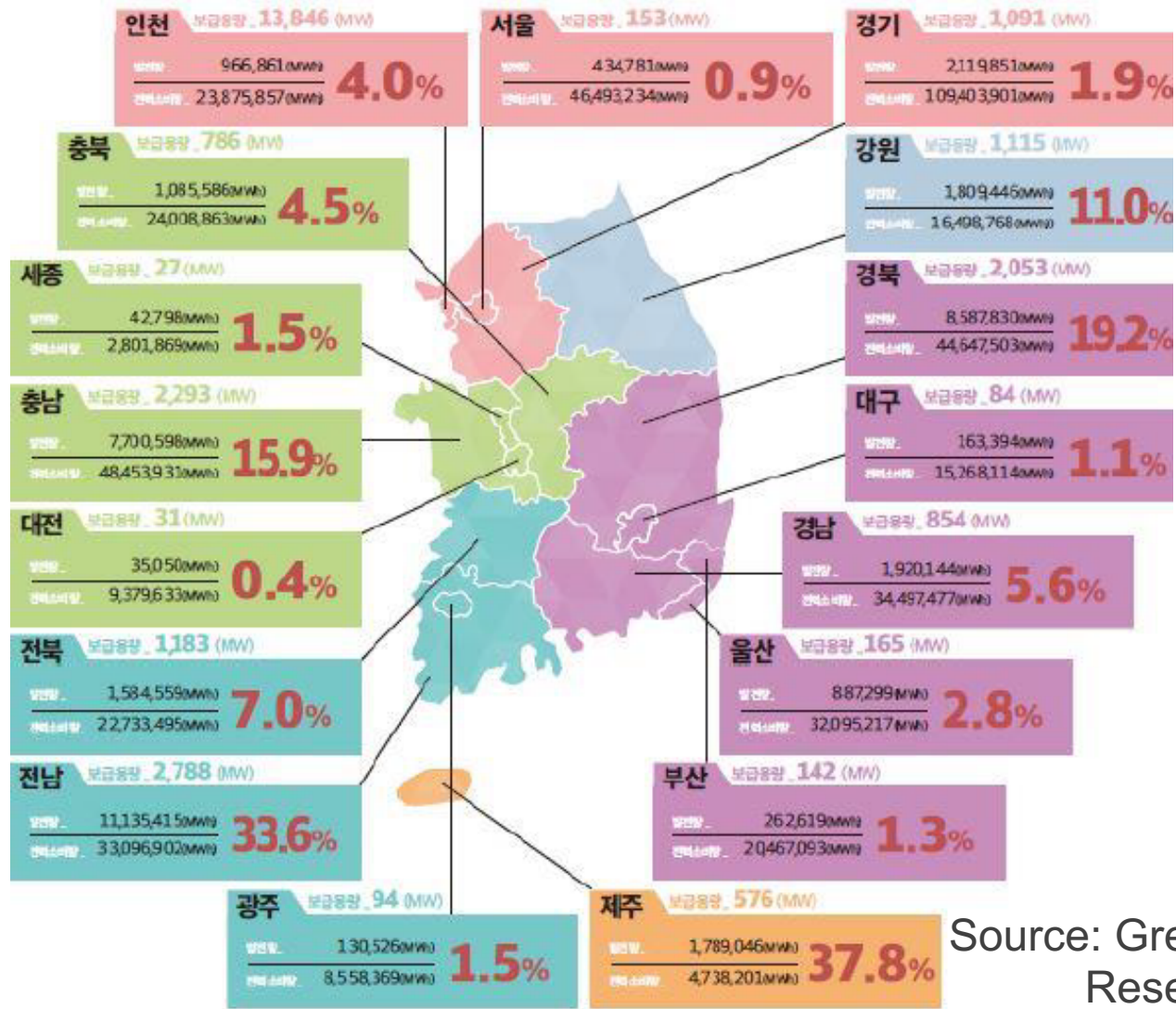
- Declaration of Post-Nuclear Energy Transition Cities in 2016 (46 local governments)
- One Less Nuclear Power Plant in Seoul in 2012
- Gyeonggi-do's Energy Self-Reliance in 2015
- Joint-Declaration for Local Energy Transition in 2015 (Seoul-Gyeonggido-Chungnam-Jeju)
- The 1st Local Governments' Council for Energy Transition in 2016
- Chungnam's Declaration of Coal Phase-out in 2017
- The 2nd Local Governments' Council for ET in 2018

The Map of Local Energy Governance



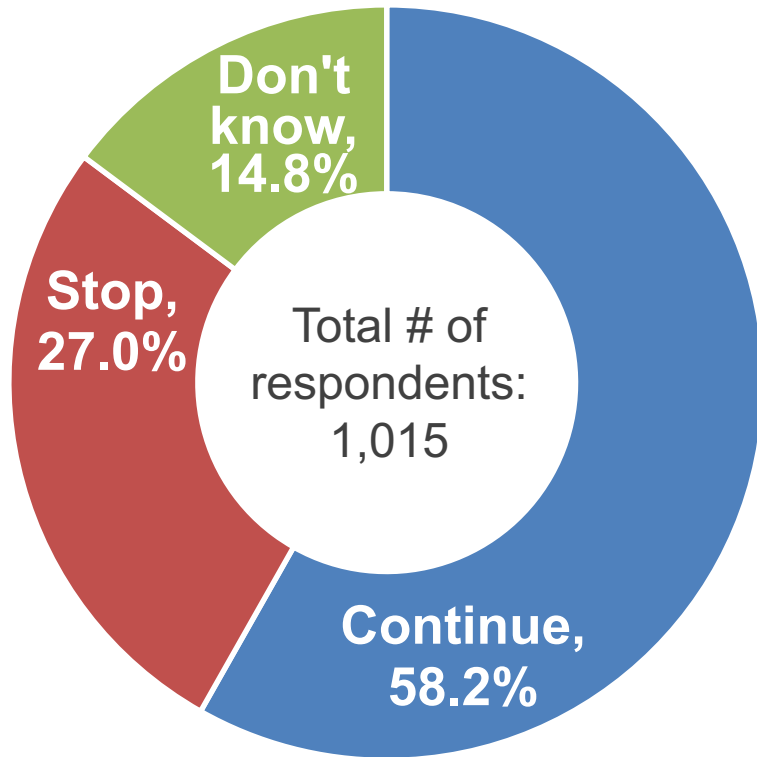
Source: Green Transition Research Institute

Installation of Renewable Energy Facilities and Electricity Generation of by Local

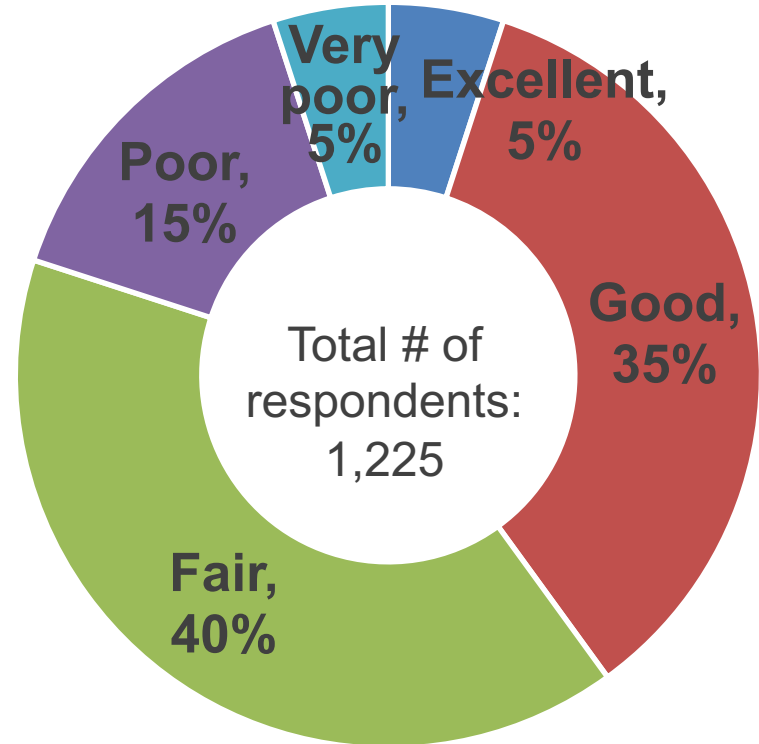


Source: Green Transition Research Institute

Public Opinion on Energy Transition Policy



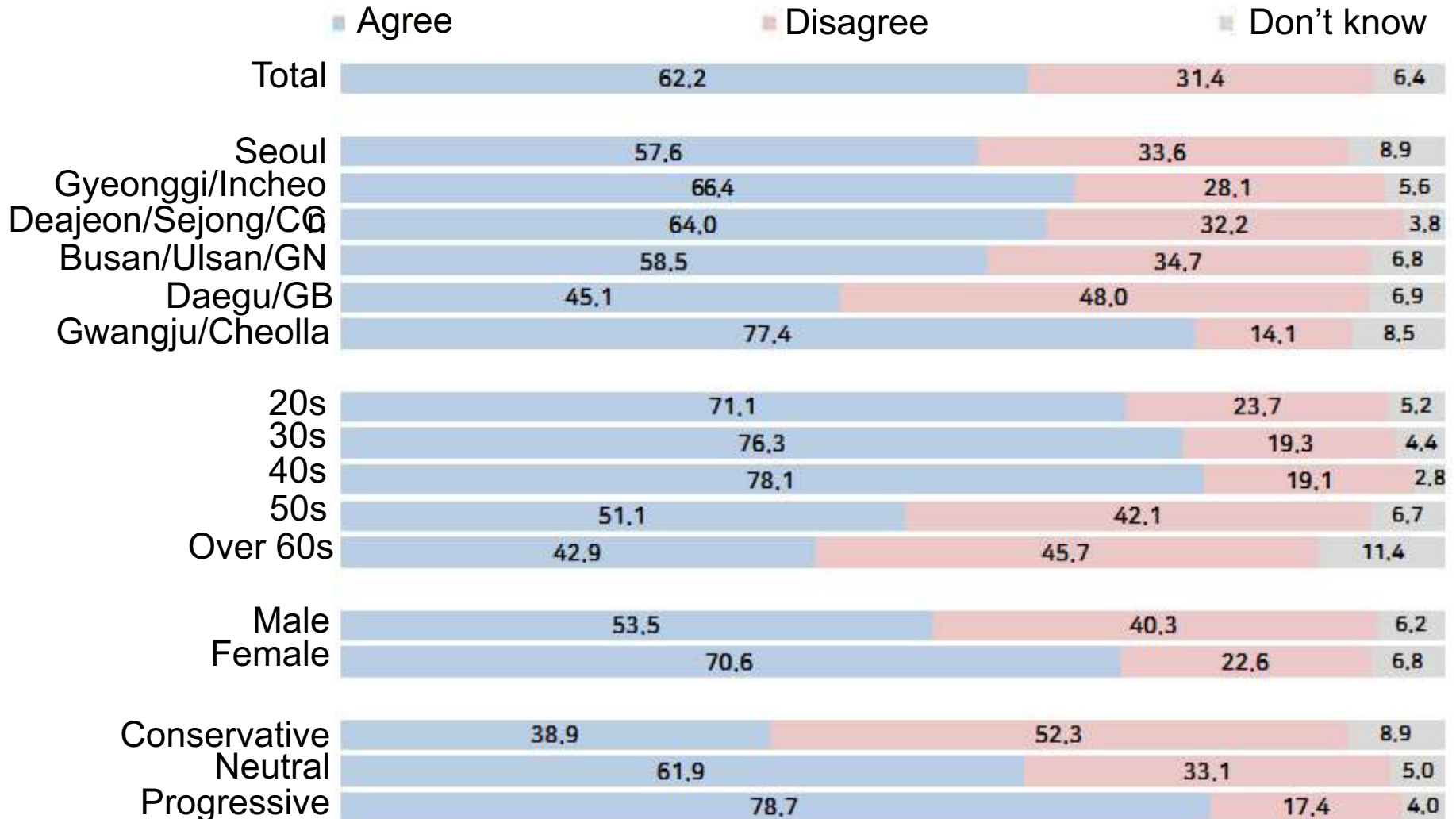
● Realmeter, 2017



● KEEI & Green Strategy
Research Institute, 2018

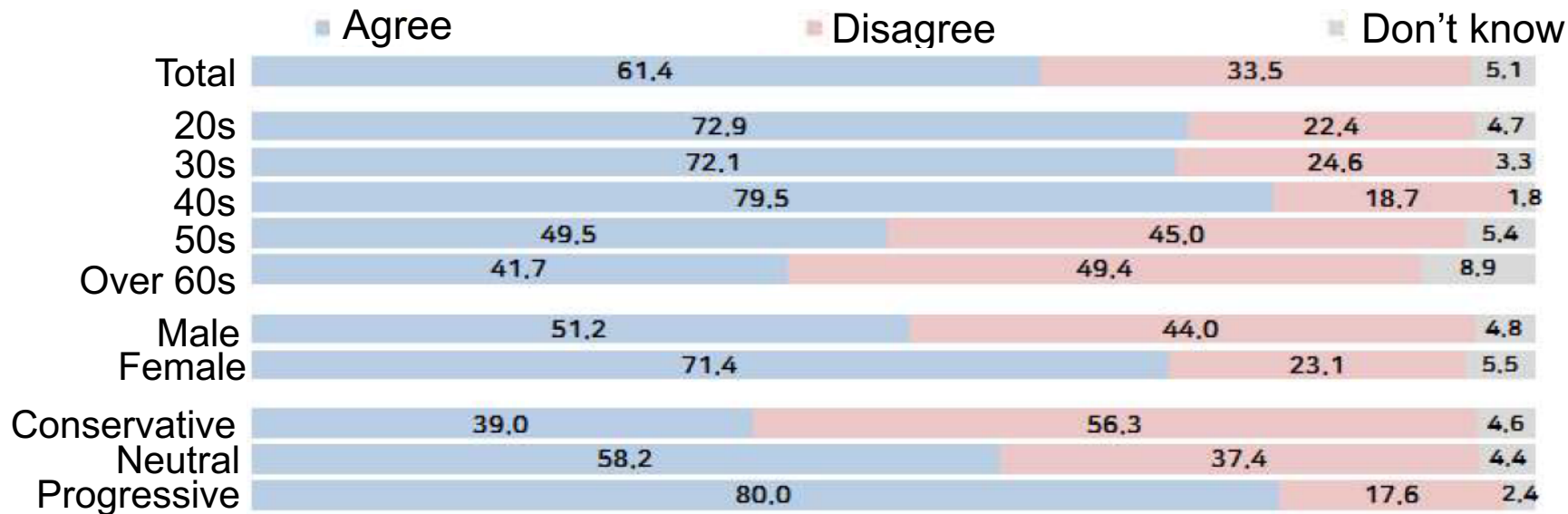
Public Opinion on Energy Transition Policy

Contents of Energy Transition Policy

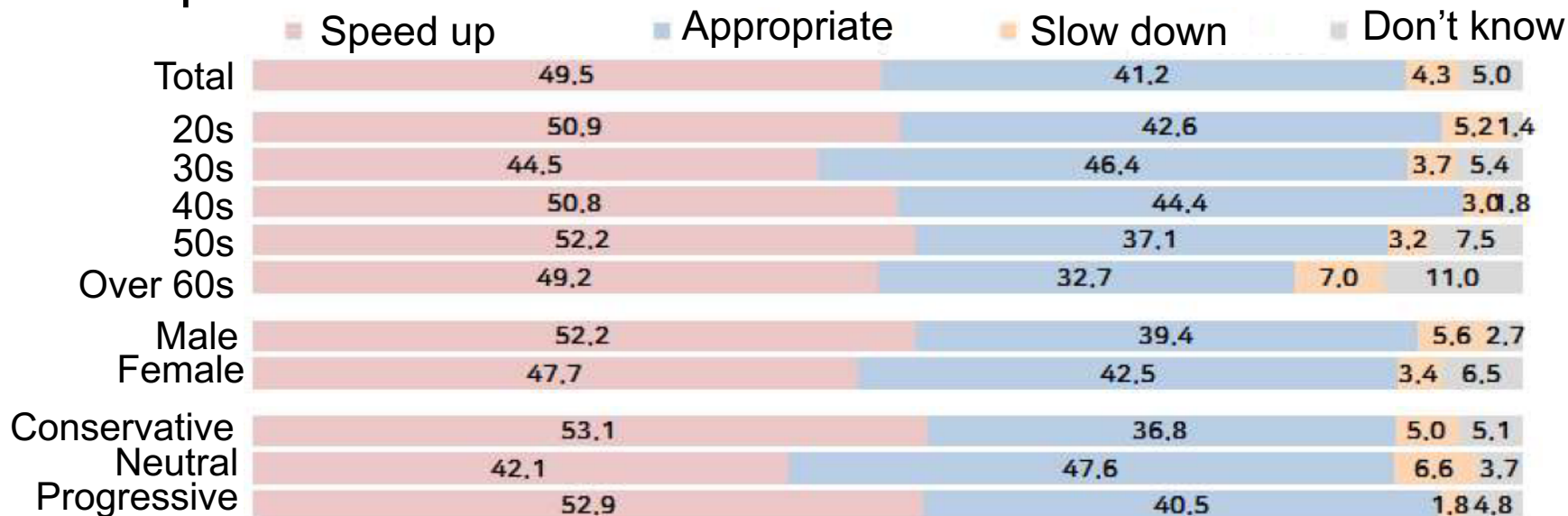


3. The Current State of Energy Transition

● Nuclear Phase-out Policy

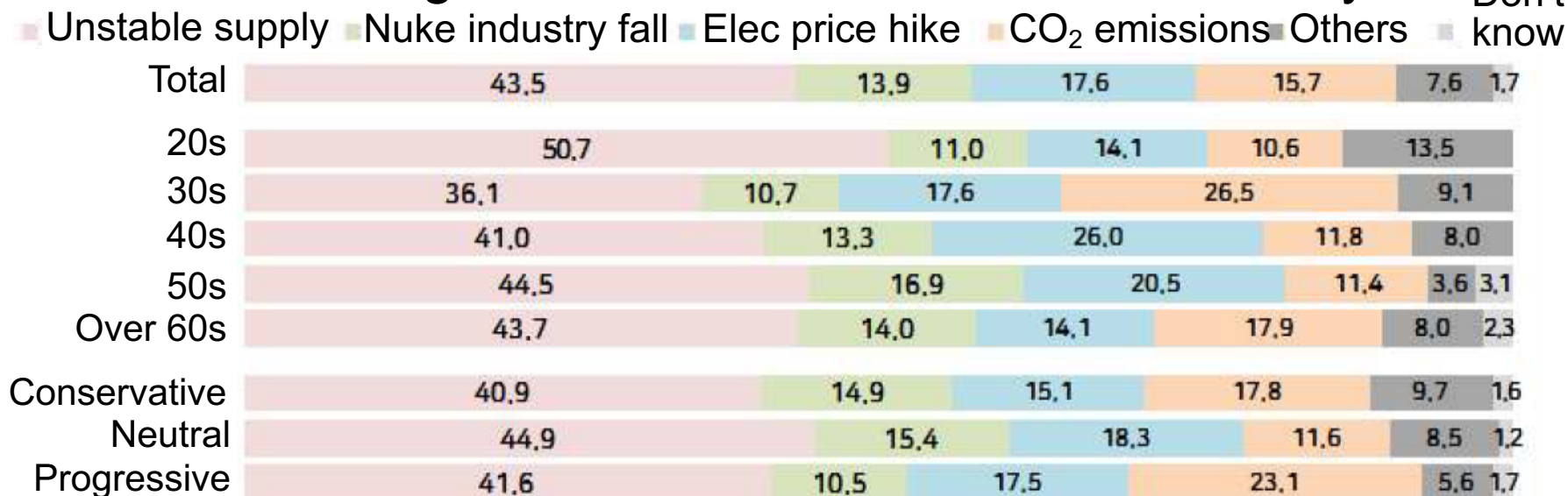


● The Speed of Nuclear Phase-out

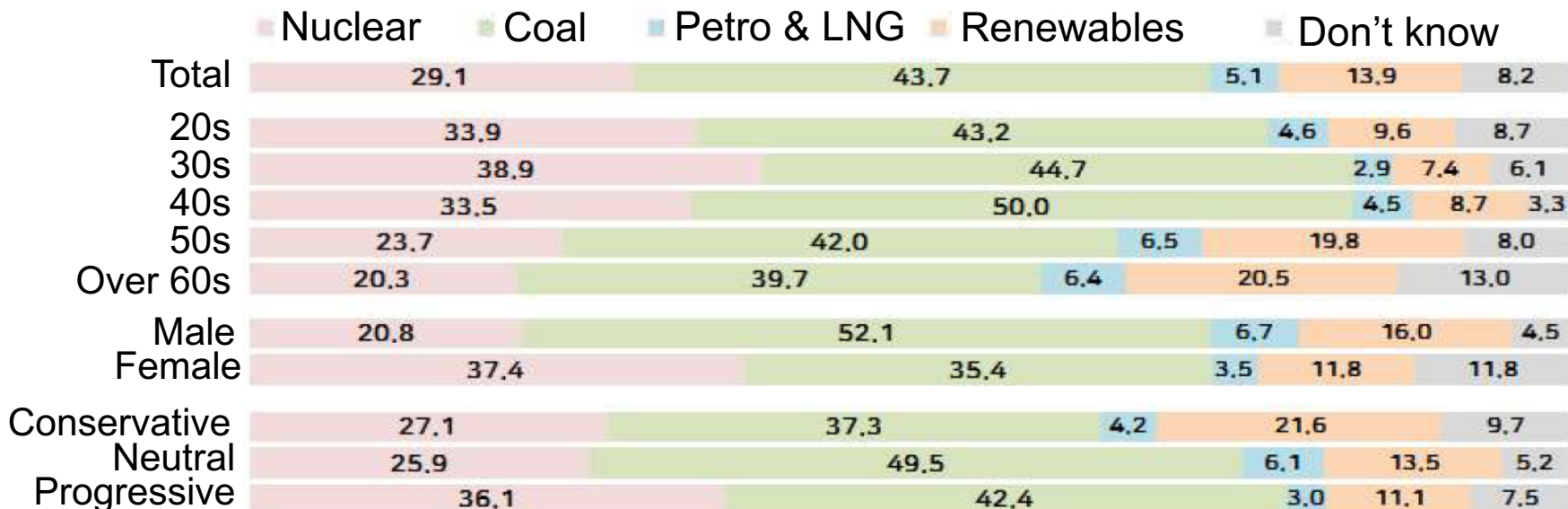


3. The Current State of Energy Transition

Reason for Disagreement of Nuclear Phase-out Policy



Preference to the Type of Power Plant for Closure

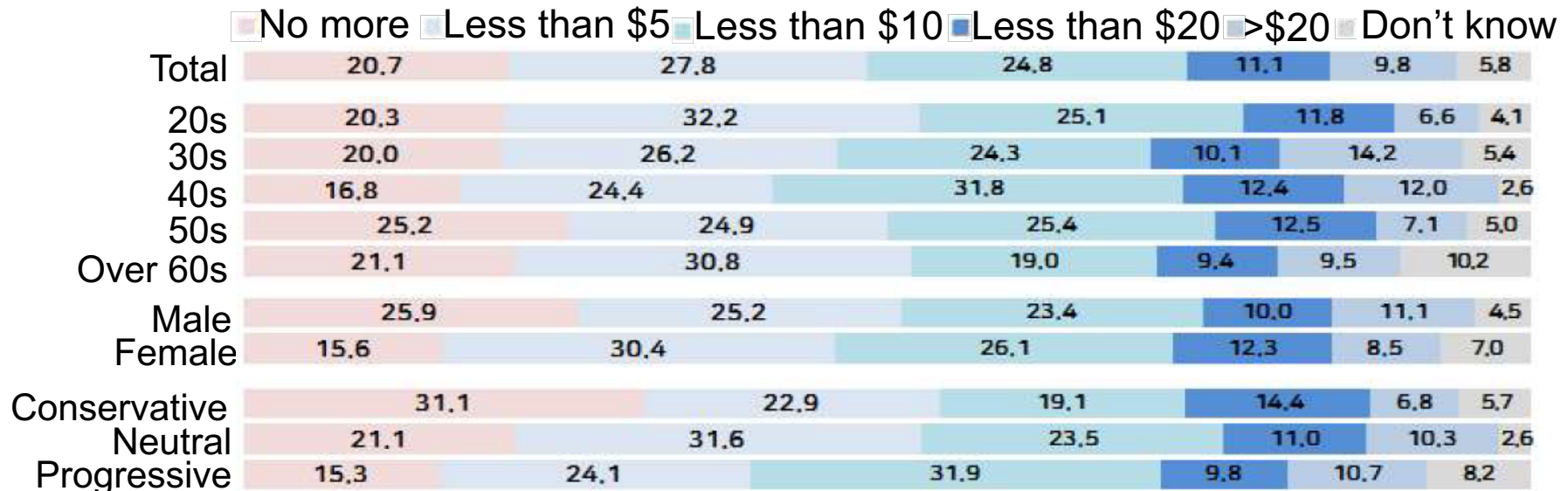


3. The Current State of Energy Transition

● Evaluation of the level of the current electricity charge



● Willingness to pay for electricity charge increase



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■ Increasing Tension and Conflicts between Energy Transition Advocacy Group vs. Anti-ET

A green leaf-shaped graphic with a jagged, organic border, containing white text.

Environmental &
Civil Movement Groups
Energy Transition Forum
Local Energy Transition Forum
Rural Energy Transition Forum
Energy Coops
Experts' Group (Professors,
Lawyers, and Medical Doctors)
Energy Self-Reliant
Villages

A grey leaf-shaped graphic with a jagged, organic border, containing white text.

Nuclear Academia,
Trade Union of Nuclear-
related Industries,
Governmental Officials,
Nuclear Power Plant
Construction Companies,
Nuclear Parts Makers,
Conservative & Business
Newspapers

The Emergence of New Stakeholders & Actors

- Energy Transition Forum
- Special committee for Climate Response and Energy Transition Industry Promotion of the Minjoo Party



- Nation-wide Network for ET



- Assemblymen's Group for ET



■ Consistent resistance from pro-nuclear camp

- Production and Dissemination of Fake news: environmental and health problems resulted from renewables
- Criticizing nuclear phase-out policy, describing as if every problem in the field of energy is caused by nuclear phase-out and energy transition policy: KEPCO's deficit, fine dust problem, unstable power supply and decreasing electricity reserve ratio, etc.
- Performing signature-collecting campaigns and people's appeal to Blue House in order to make cancellation decision of the construction of Shin-Hanul 3 and 4 which were cancelled out by the Moon government

■ Institutional and Policy Barriers to ET

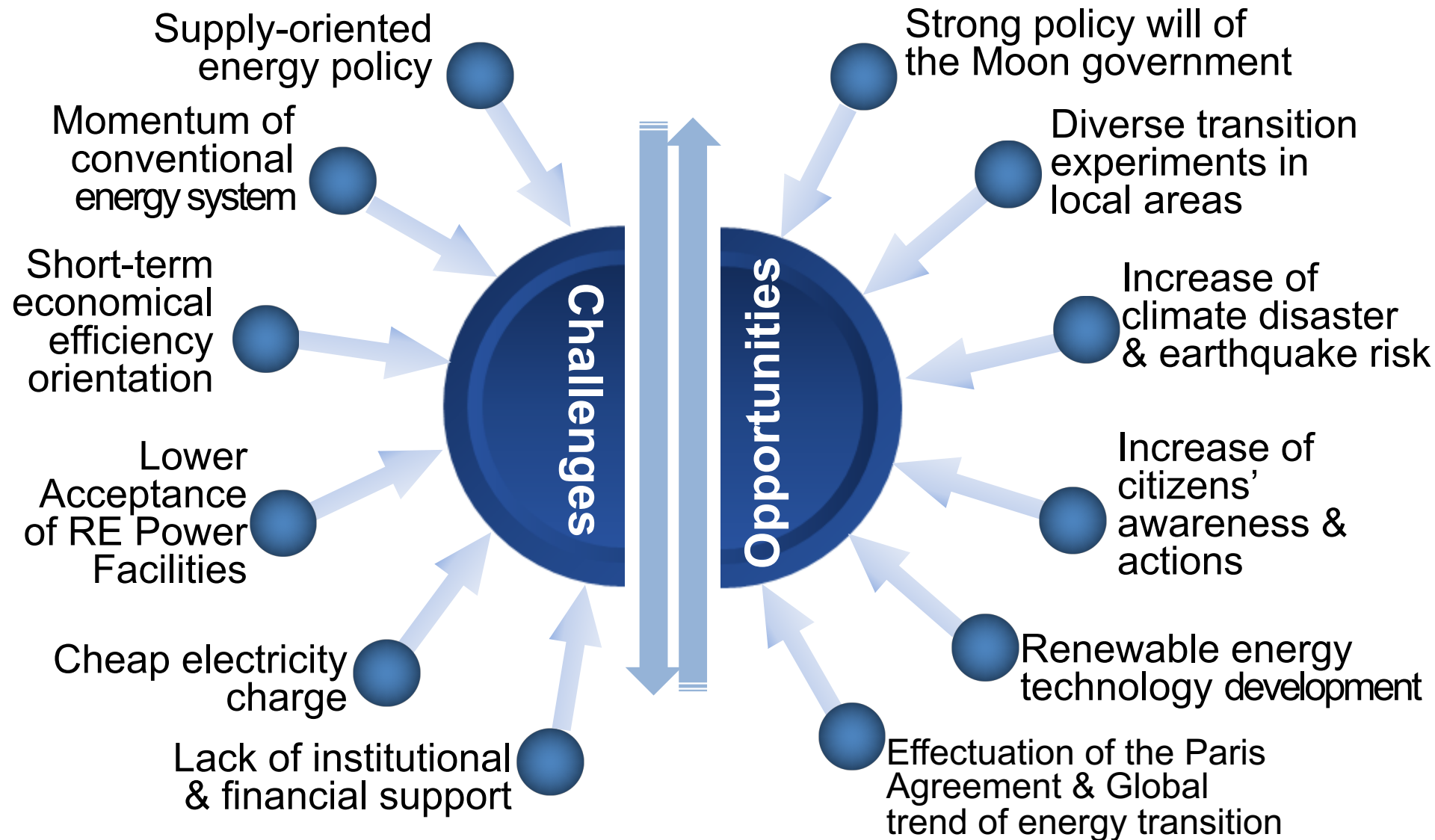
- Local governments' guidelines for separation distance for renewable energy facility installation on mountains with the slopes over 15 degree
- Strengthened regulation for the case of forest PV: declined weights of REC, prohibition of PV installation, permission for temporary use (20 years) and recovery of mountains from permanent use
- Prolonged license
- Delayed planned location plan
- Poor grid connection
- Stricter application of environmental impact assessment for renewables
- Limited opportunities for local residents to participate in Renewable energy installation processes and limited scope of benefit sharing
- Relavent ministries' inconsistent performance & guidelines

Increasing Social Conflicts Caused by RE



- Misunderstanding caused by fake news
- Alienation of local residents because of outsiders' investment
- Lack of lay people's understanding about energy transition
- Cultural perception difference including place attachment

■ Opportunities and Challenges



THANK YOU!

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