



Nuclear Power: Energy for Future Generations

2019 NERS
Praha, the Czech Republic

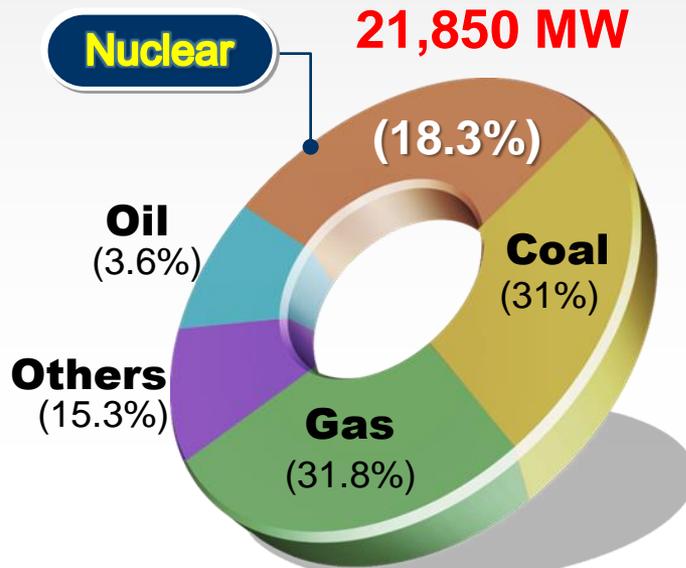


6 Nov, 2019

A large green square with a white border containing the number '1' in a bold, black, sans-serif font.

NPP Status in Korea

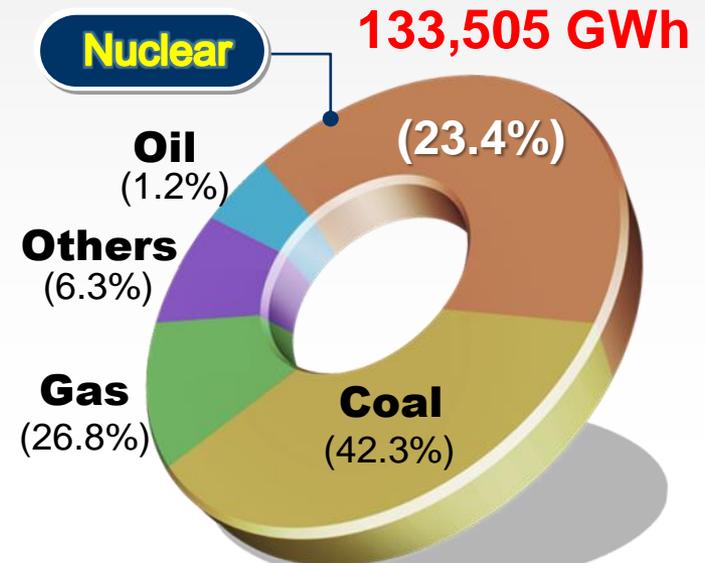
Installed Capacity (2018)



* Others: Hydro, Renewable(Solar, Wind, and etc.)

Total: 119,092 MW

Electricity Generation (2018)



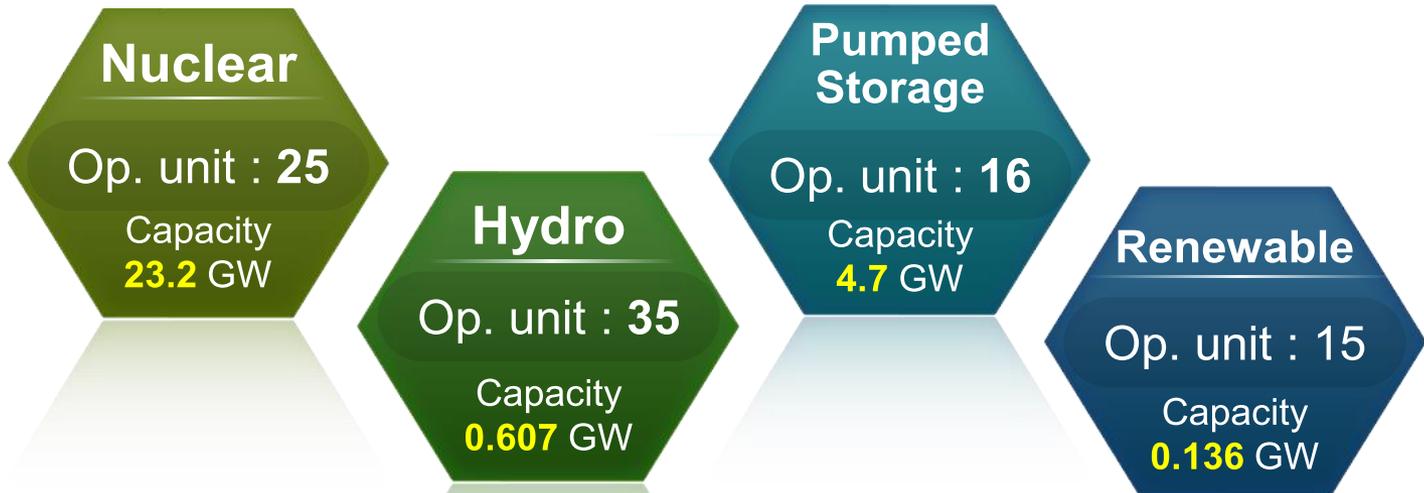
* Others: Hydro, Renewable(Solar, Wind, and etc.)

Total: 570,647 GWh

Nuclear power: Base load in Korea

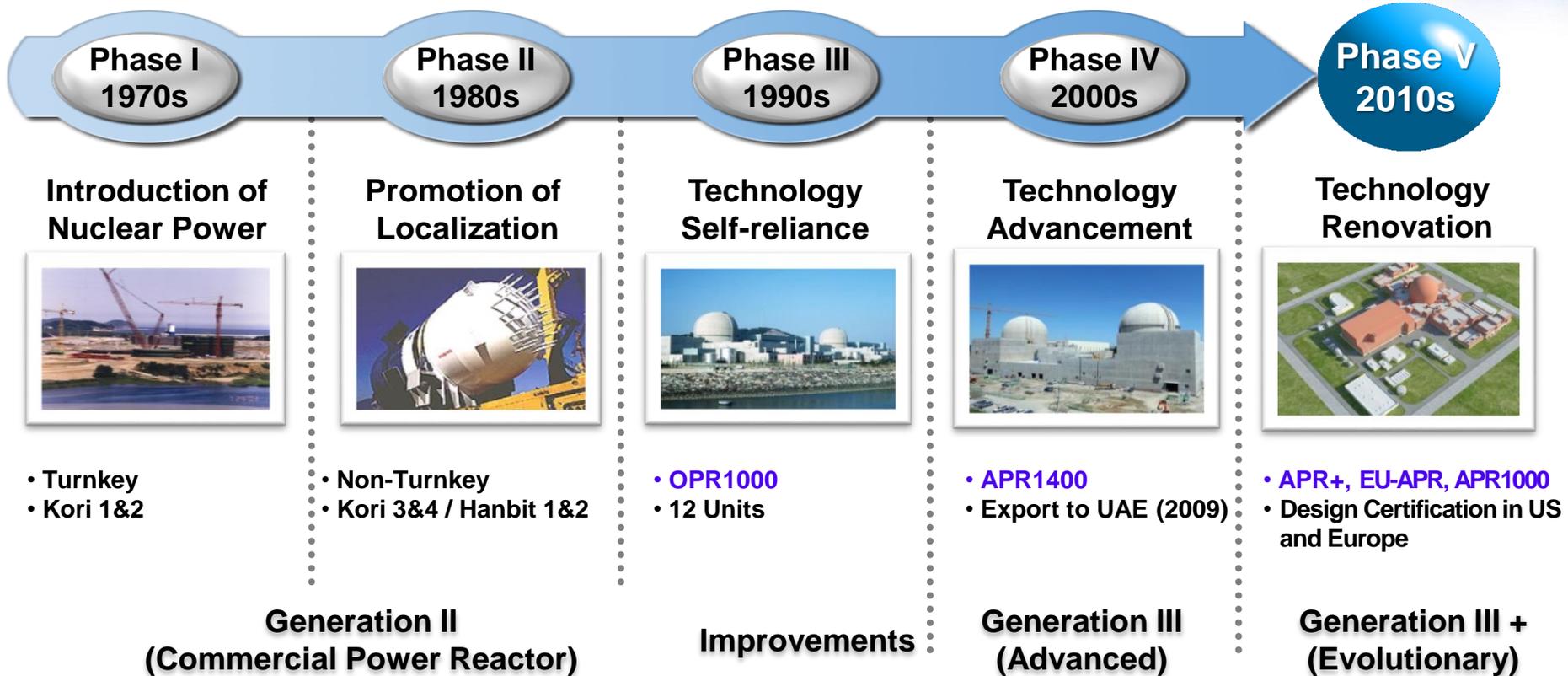
※ Source: KEPCO in Brief (April 2019)

Business	Nuclear, Hydro, Pumped Storage, Renewables
Staff	12,122 Persons
Credit Rating	AA (S&P), Aa2 (Moody's)
Total Assets	43 Billion EUR

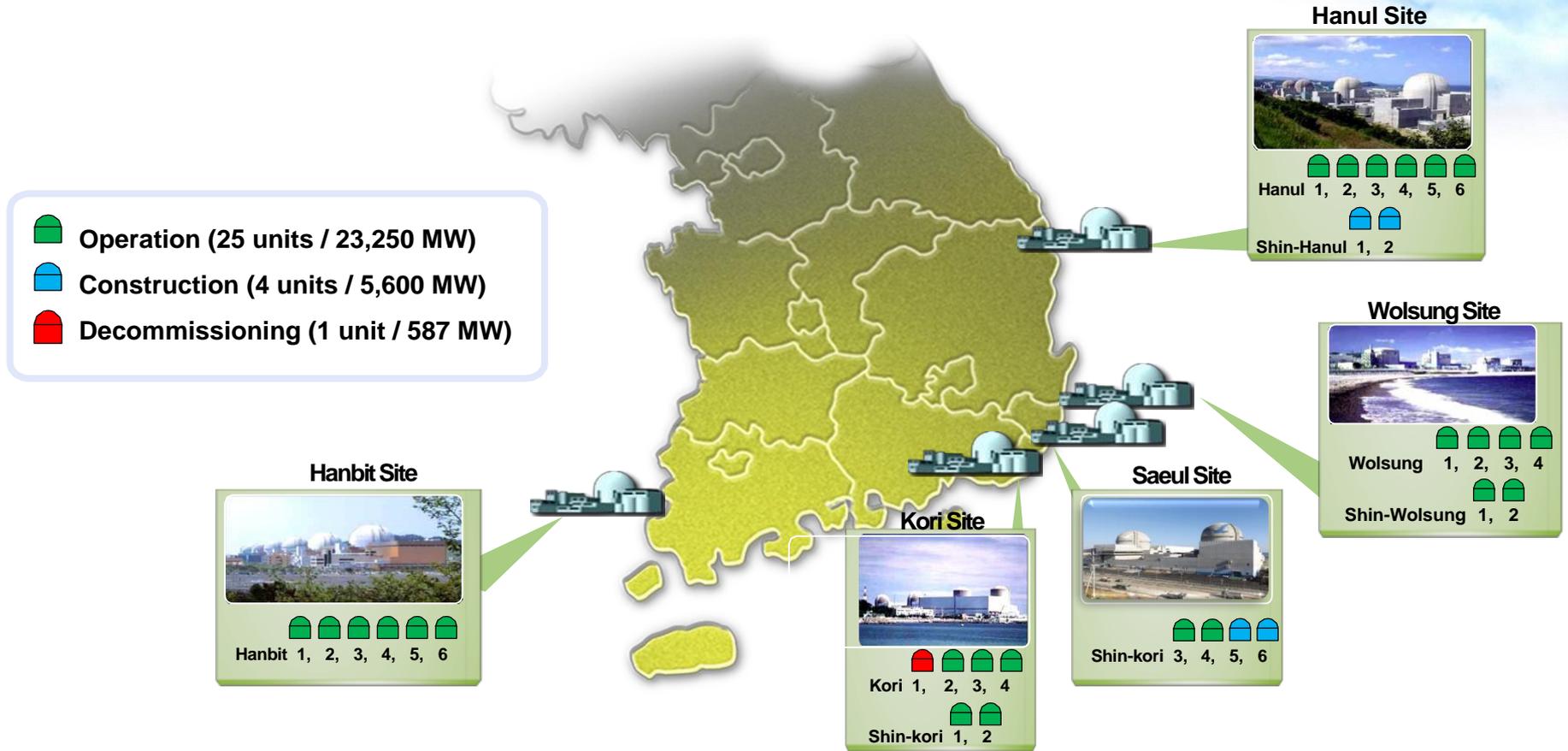


History of Nuclear Power Plants in Korea

- Large fleet of NPPs after introducing the first unit (Kori 1) in 1971
 - Total 25 operating units, 4 units in Korea under construction
 - 4 units in UAE under construction



NPP Status in Korea

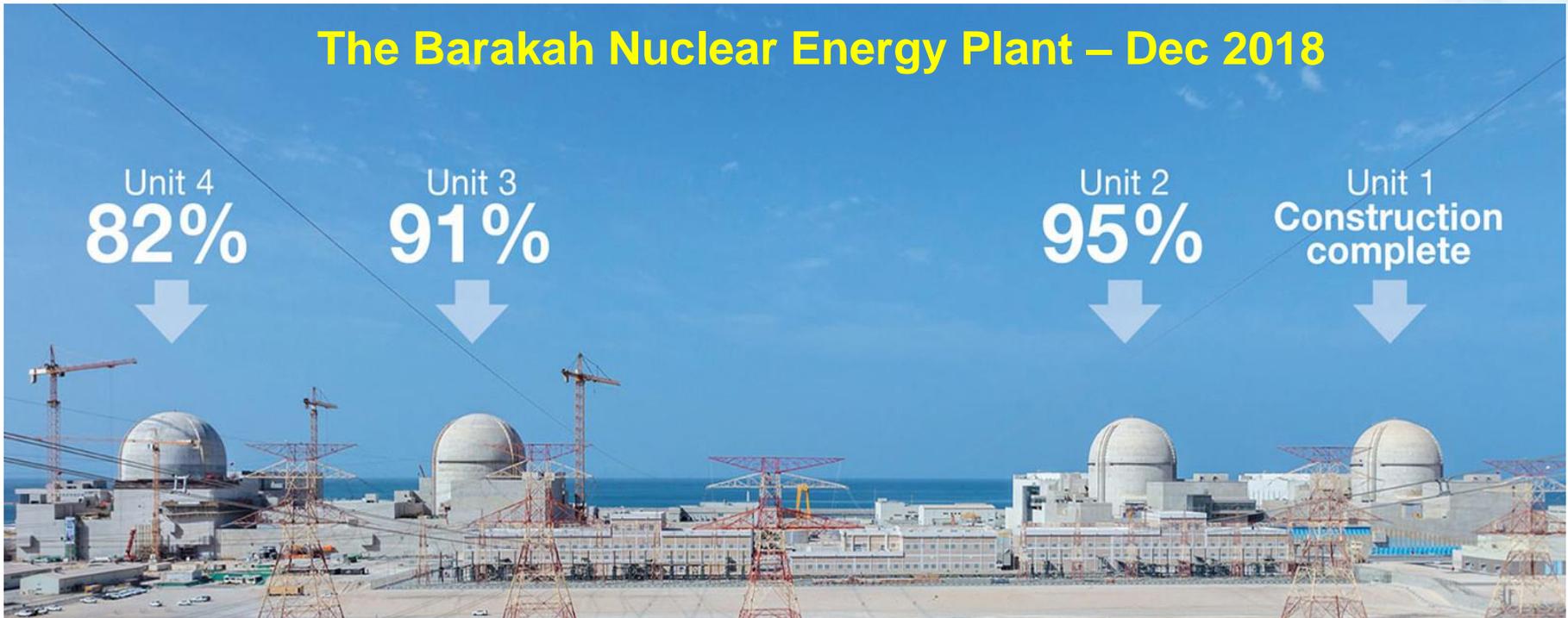


NPP Status in UAE

BNPP Unit 1 : Construction Complete
Unit 2~4 : Under Construction

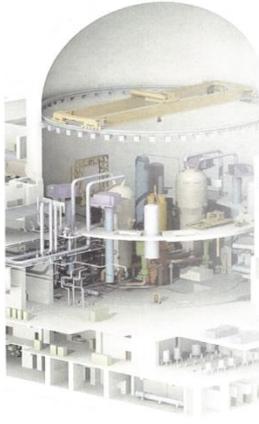
- Project Model : Turn-key
- Ref. Plant : Shin-kori units 3&4

The Barakah Nuclear Energy Plant – Dec 2018



※ Image: ENEC (Emirates Nuclear Energy Corporation) website

NRC Design Certification (Aug. 2019) EUR Certification (Nov. 2017)



The United States Nuclear Regulatory Commission certifies the

Advanced Power Reactor 1400 Standard Design

as set forth in Appendix F of 10 CFR Part 52


Frederick D. Brown
Director, Office of New Reactors


Annie Caputo
Commissioner, U.S. Nuclear Regulatory Commission

Dated the 26th day of August, 2019



EUROPEAN UTILITY REQUIREMENTS FOR LWR PLANTS

CEZ • EDF • EDF Energy • EnergoAtos • Fortum • EGAT Tractebel • Oso Energia • Iberdrola • JSCM-Paks II • NRG • RealEnergy.com • TVO • Varental • VOB Powerco

The European Utility Requirements (EUR) organisation certifies that the EU-APR design has successfully passed all the steps of the analysis of compliance vs. EUR Revision D with the contribution of KHNP, KEPKO E&C, KEPKO NF, and Doosan.

Following this analysis, a specific subset of the EUR volume 3 dedicated to the EU-APR design has been published by the EUR organisation.


November 21st 2017
Guillaume Jacquart, chairman of the EUR Steering Committee



Second APR-1400 unit starts commercial operation

02 September 2019

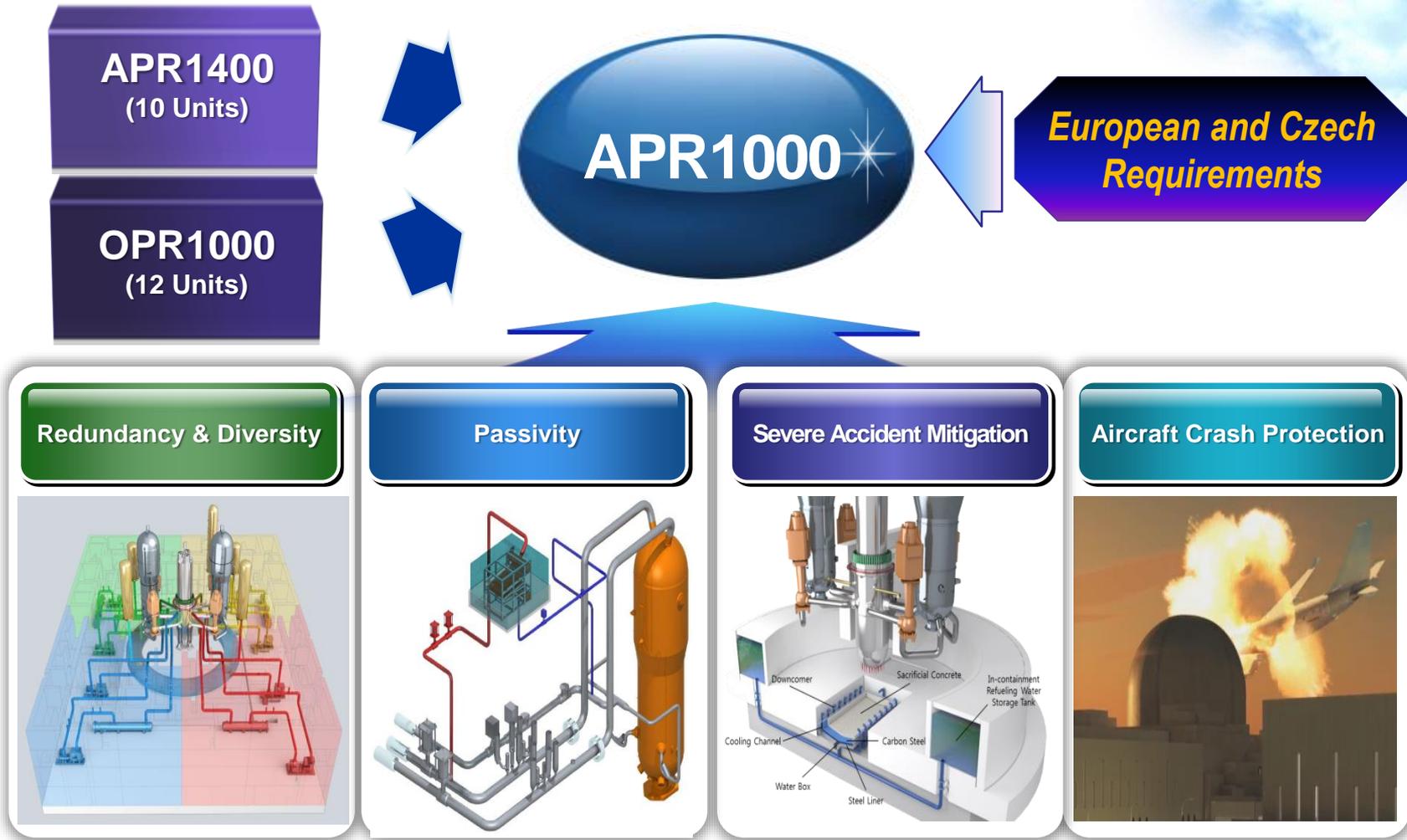


Unit 4 of the Shin Kori nuclear power plant entered commercial operation on 29 August, Korea Hydro and Nuclear Power (KHNP) announced today. Unit 3 of the South Korean plant became the first APR-1400 to begin supplying electricity to the grid in January 2016.



KHNP held a commemorative ceremony in the unit's main control room, attended by KHNP President Chung Jae-hoon (Image: KHNP)

Modern III+ Generation Reactor

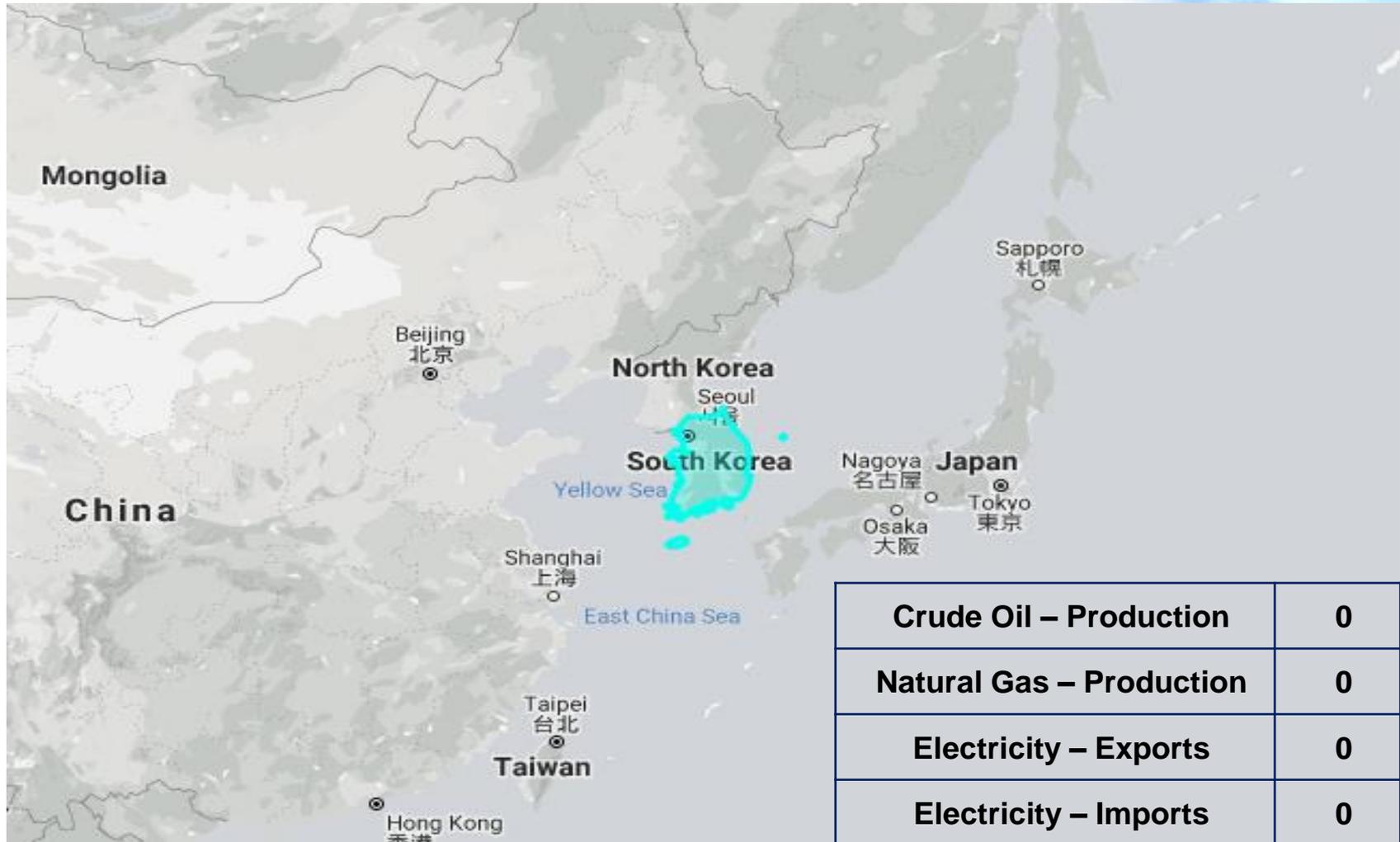


A large green square with a white border containing the number "2" in green, positioned to the left of the main title.

2

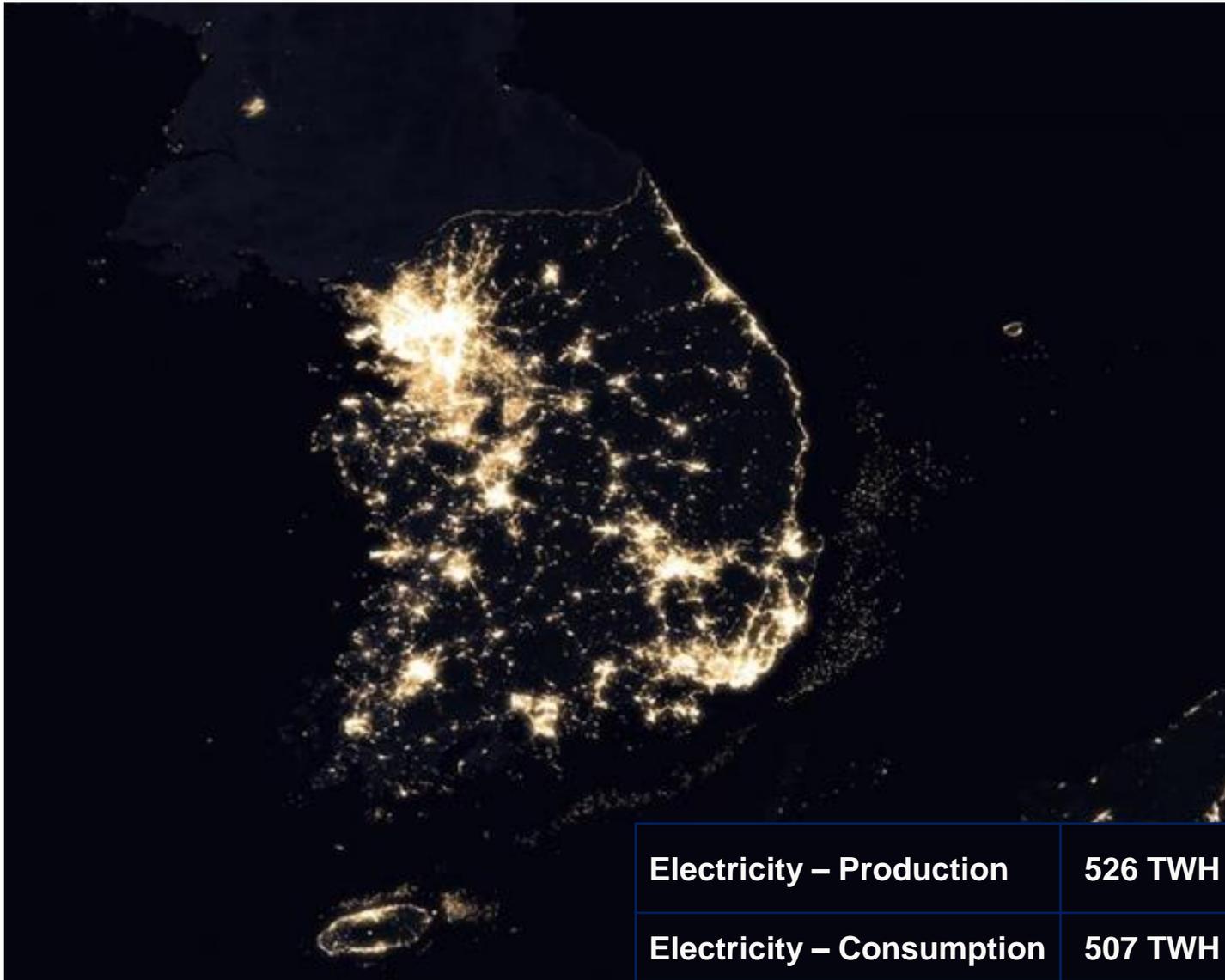
Role of Nuclear Power in Korea

Energy Environment of Korea



※ Source: The World Factbook

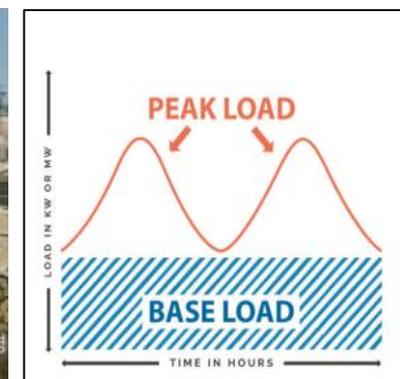
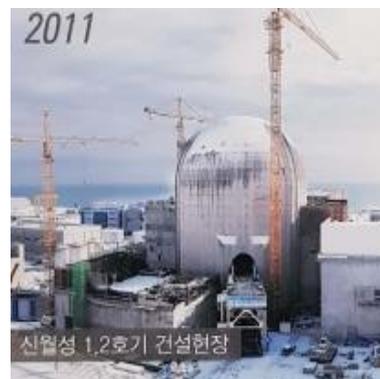
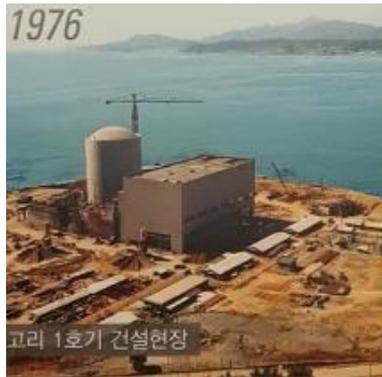
Economic Growth of Korea



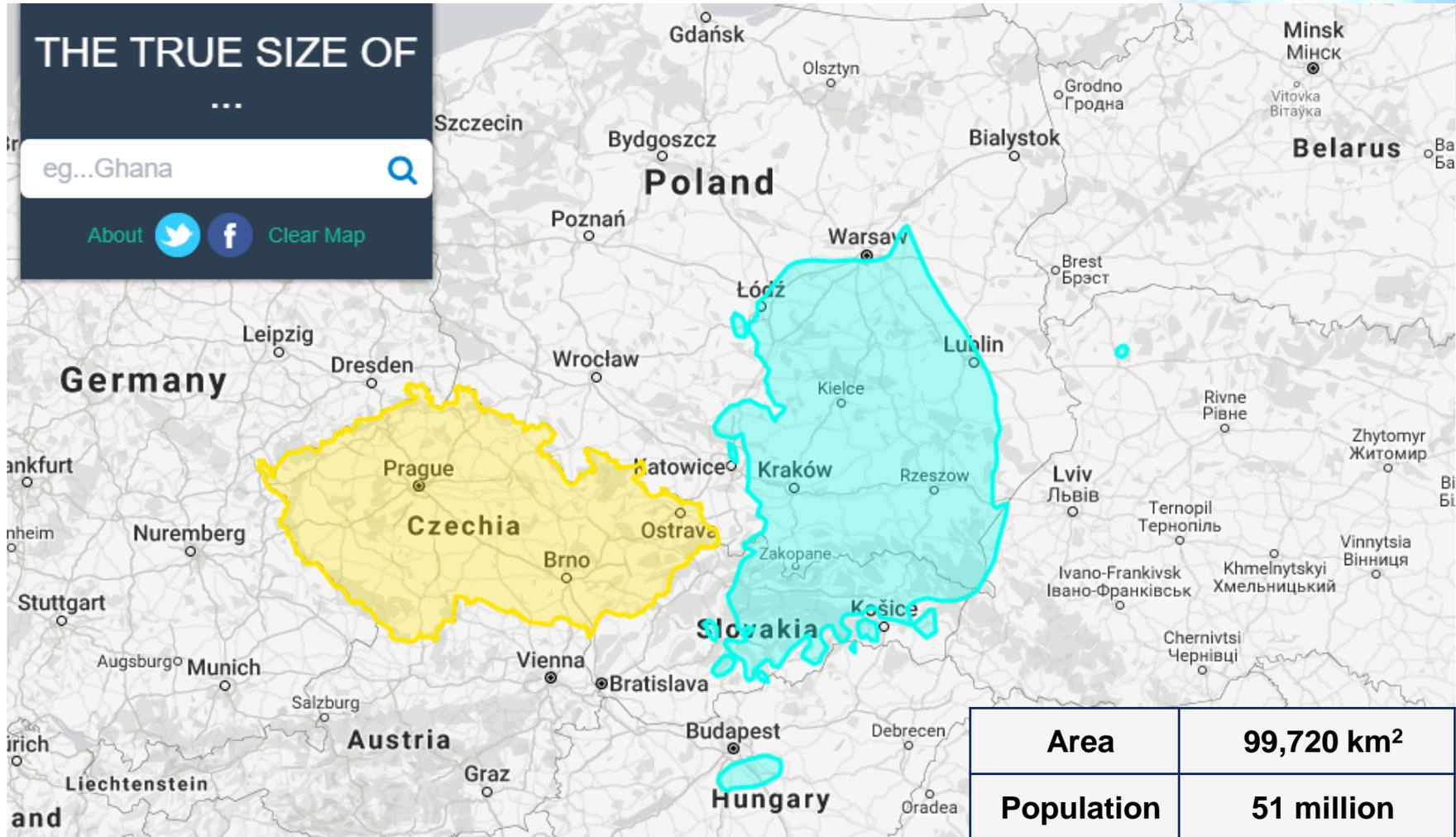
※ Source: NASA Earth Observatory Images, The World Factbook

Copyright © 2019. All rights reserved by KHNP.

Ongoing Construction of NPP



Area & Population of Korea



※ Source: The World Factbook

Korea, World's One of Nuclear Power House



Producers	TWh	% of world total
United States	839	31.8
France	398	15.1
People's Rep. of China	248	9.4
Russian Federation	203	7.7
Korea	148	5.6
Canada	101	3.8
Ukraine	86	3.3
Germany	76	2.9
United Kingdom	70	2.7
Sweden	66	2.5
Rest of the world	401	15.2
World	2 636	100.0

2017 data

Net installed capacity	GW
United States	100
France	63
Japan	40
People's Rep. of China	35
Russian Federation	26
Korea	22
Canada	14
Ukraine	13
Germany	10
United Kingdom	9
Rest of the world	60
World	392

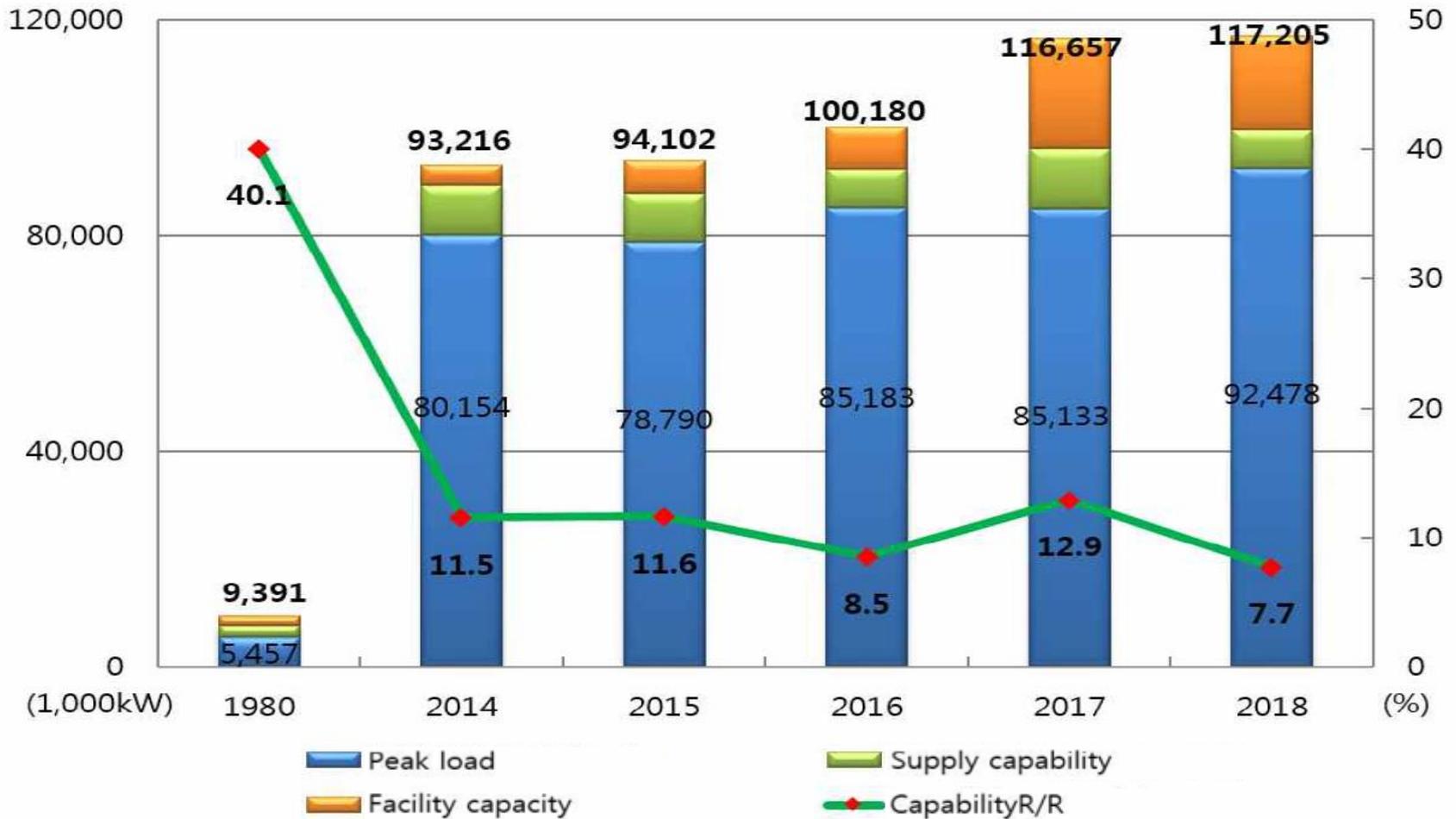
2017 data

Country (top ten producers)	% of nuclear in total domestic electricity generation
France	71.5
Ukraine	55.4
Sweden	40.0
Korea	26.4
United Kingdom	21.0
United States	19.7
Russian Federation	18.6
Canada	15.4
Germany	11.8
People's Rep. of China	3.8
Rest of the world ¹	7.4
World	10.3

2017 data

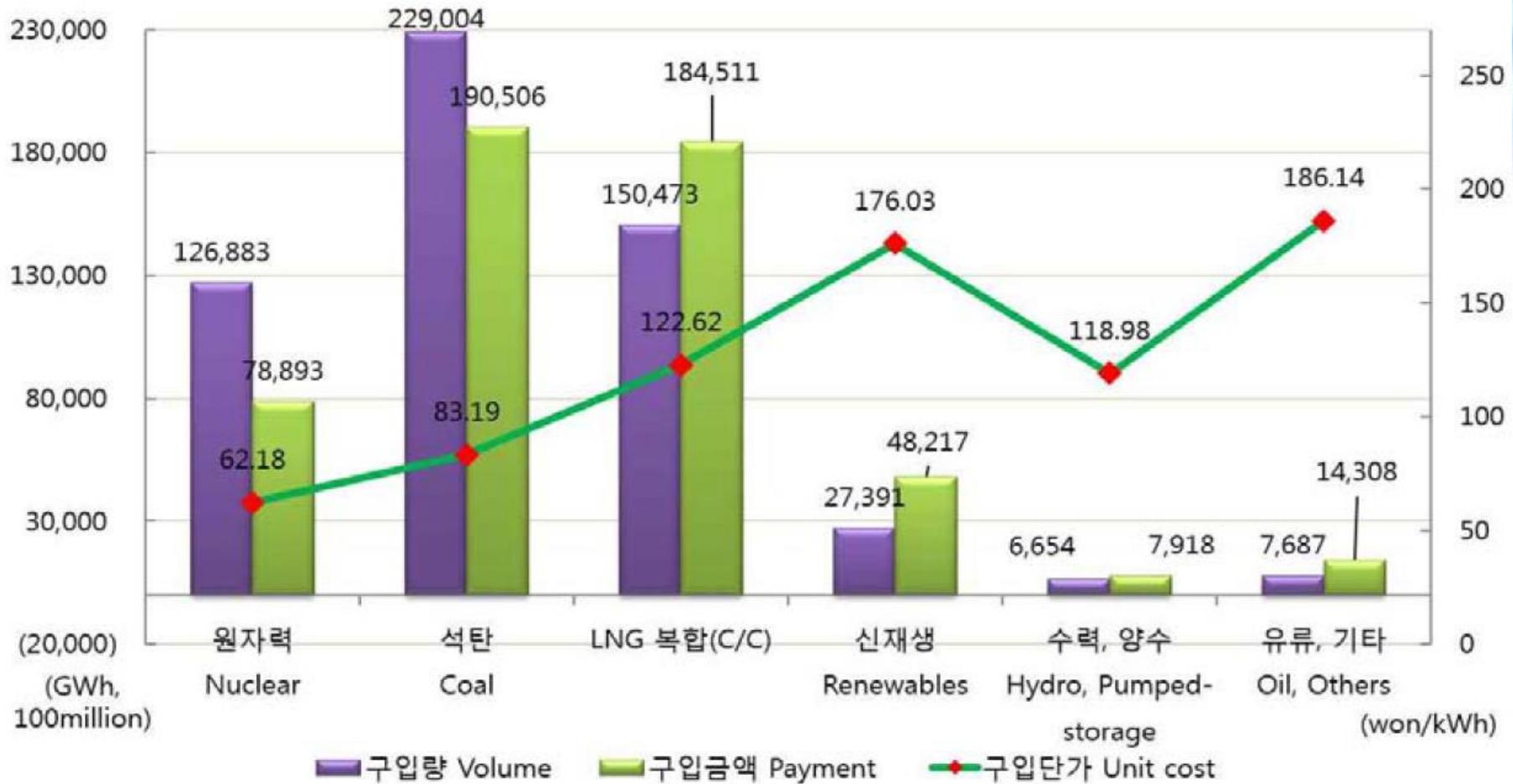
Sources:
[International Atomic Energy Agency](#)

Power Supply & Demand



※ Source: KEPCO in Brief (April 2019)

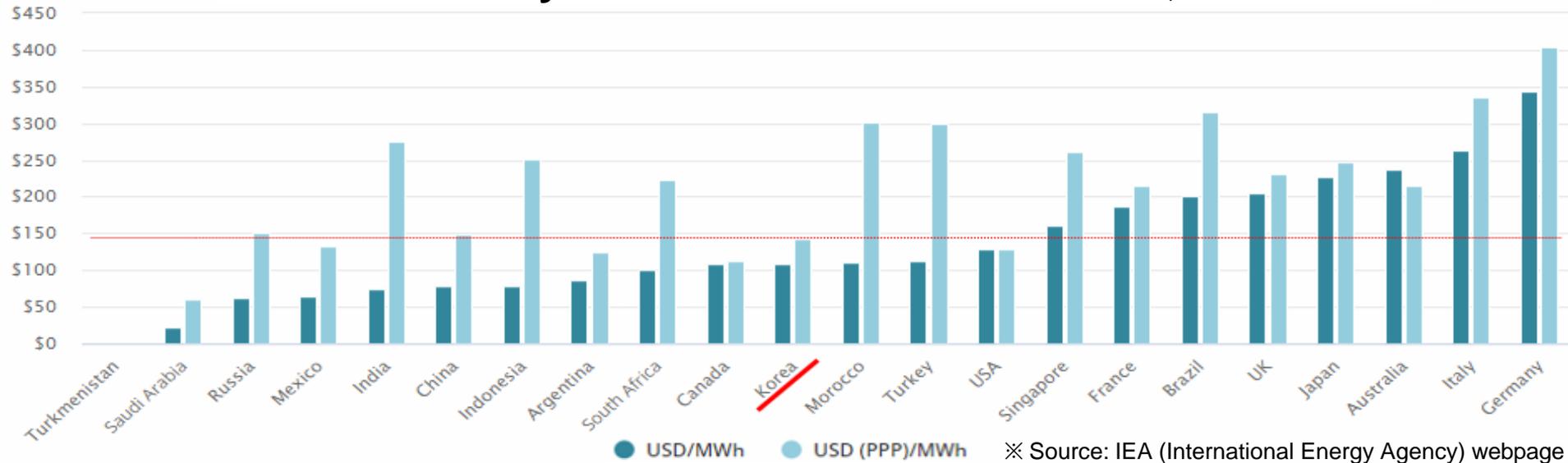
Purchase Results by Energy Sources



※ Source: KEPCO in Brief (April 2019)

Contribution to Korean Economy

Electricity Prices in Selected Economies, 2017



Contribution to Korean Economy



※ Source: KEPCO webpage

A large green square with a white background in the center, containing the number '3' in a bold, green, sans-serif font. This square is part of a decorative horizontal bar that is blue on the left and right, and green in the middle.

3

Nuclear Power: Energy for Future Generations

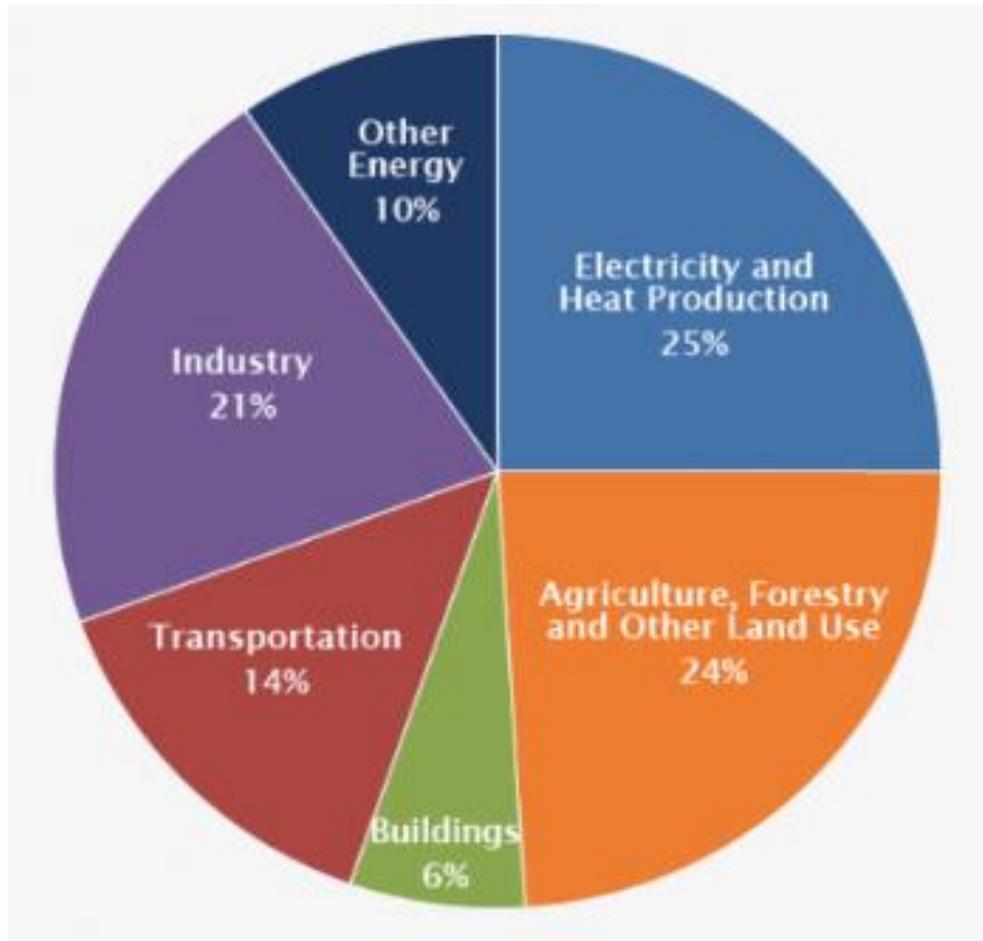
Climate Change vs. Climate Crisis



Climate Change vs. Climate Crisis

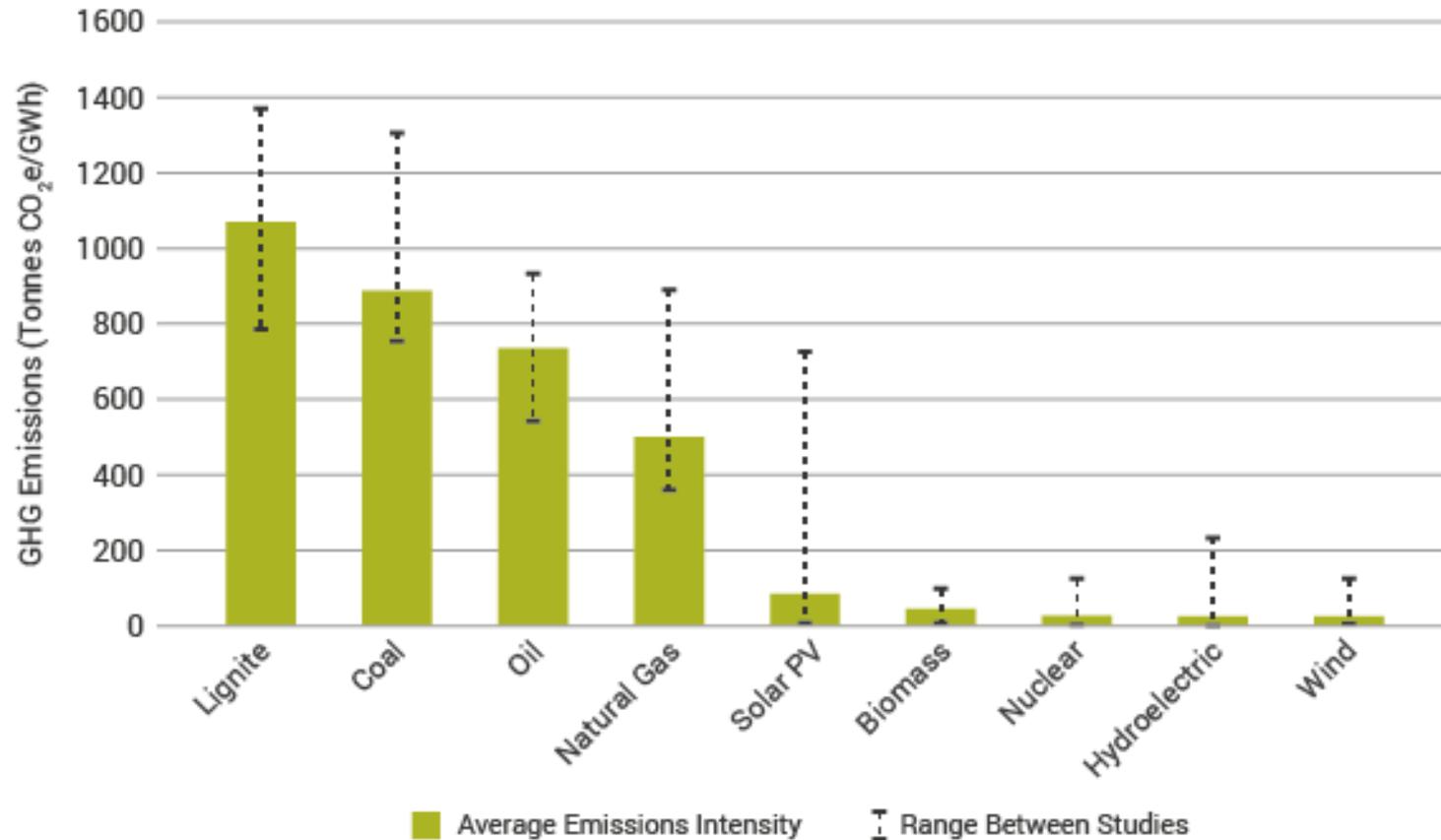


Global Emissions, by Economic Sector



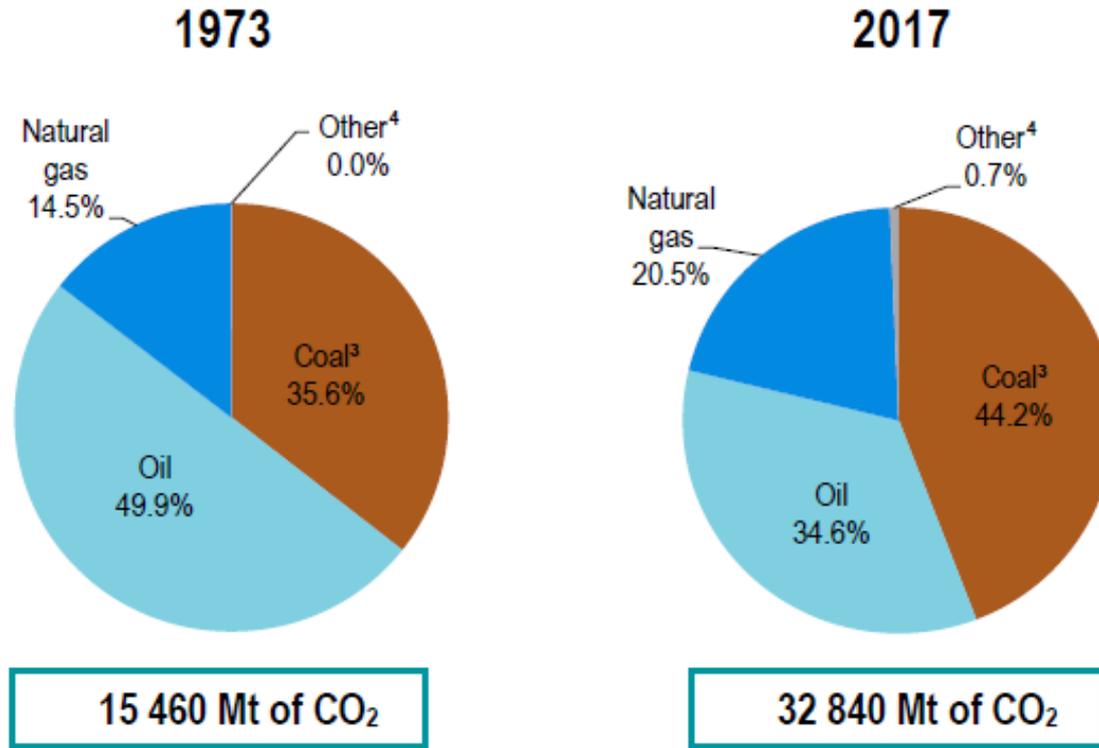
※ Source: IPCC (Intergovernmental Panel on Climate Change) "Climate Change 2014"

Average Life-cycle CO2 Equivalent Emissions



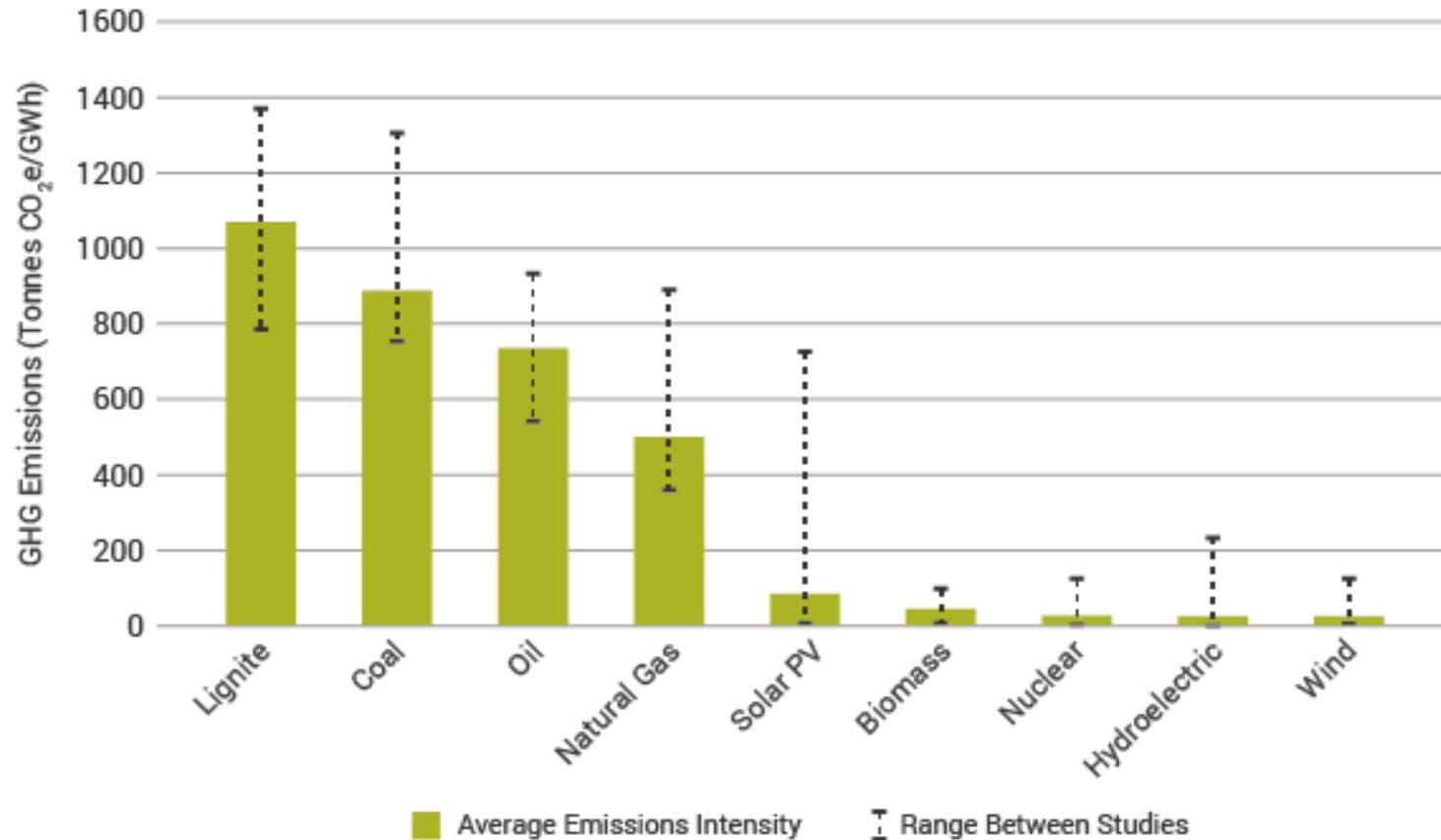
※ Source: WNA (World Nuclear Association) webpage

CO2 Emissions by Fuel Combustion



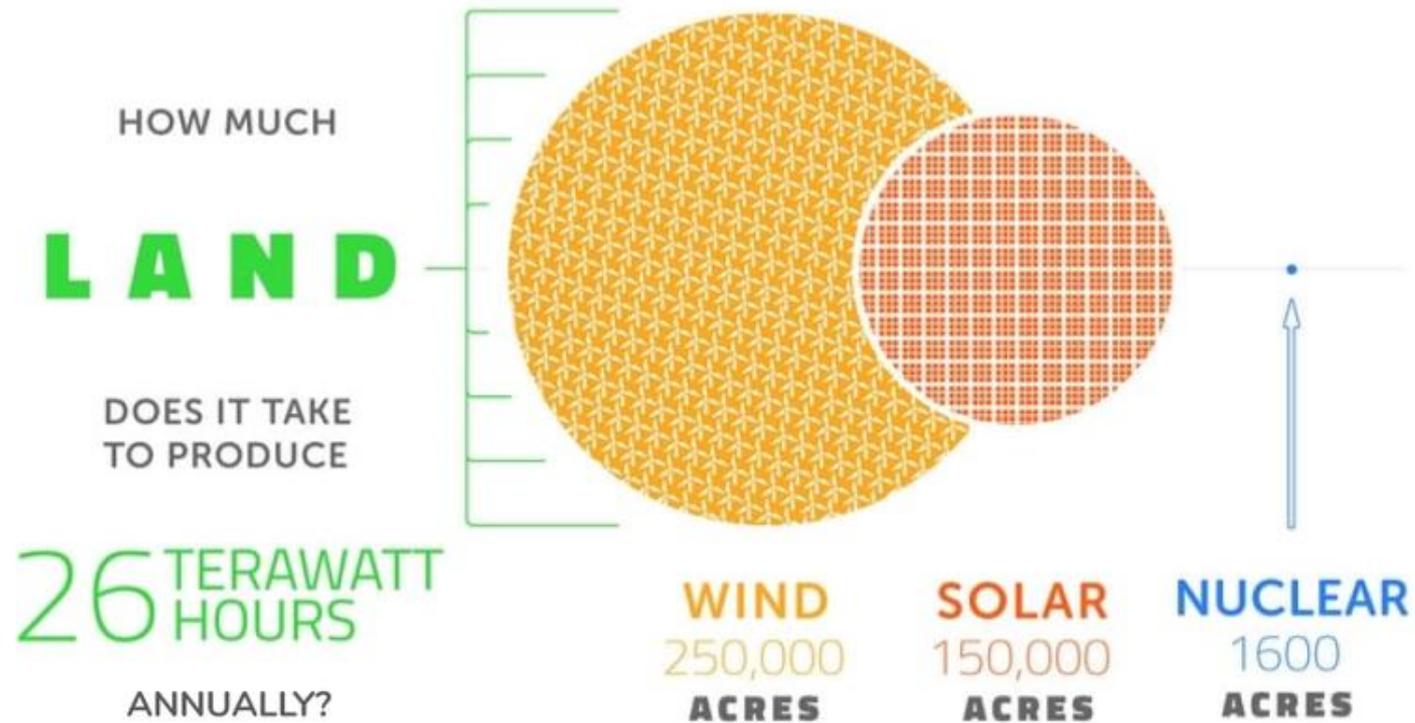
※ Source: IEA (International Energy Agency) "Key World Energy Statistics 2019"

Average Life-cycle CO2 Equivalent Emissions



※ Source: WNA (World Nuclear Association) webpage

Land Use: Nuclear vs Wind and Solar



Nuclear Power: Energy for Future Generations



Děkuji

