
KHNP
NUCLEAR ENERGY
IN THE LOW-CARBON TRANSITION
WITH INSIGHTS FROM ON-SITE EXPERIENCE
KGID 2026
6 May 2026

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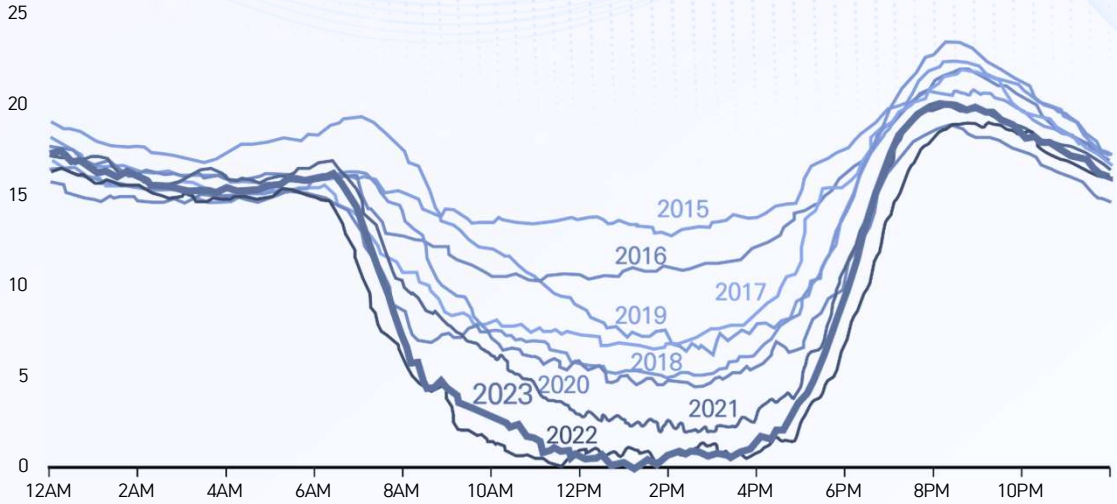
KGID 2026

RETURN TO NUCLEAR AMID CLIMATE CRISIS

DUAL THREATS: CLIMATE CRISIS AND ENERGY SECURITY

Renewables are not enough to provide power 24/7
An energy mix including nuclear is a must

Lowest Net Load Days During Spring (Mar-May '15-'23, GW)

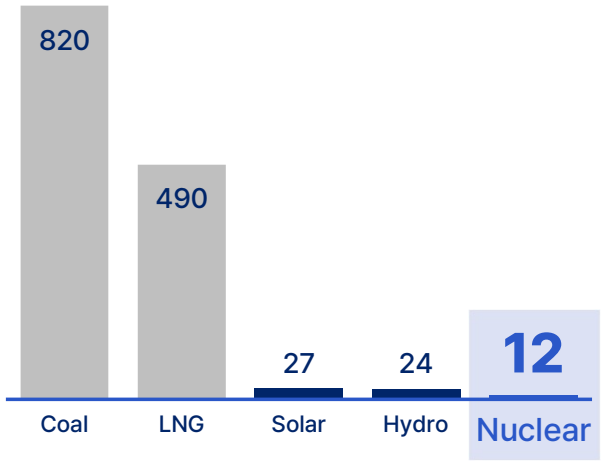


*Source : As solar capacity grows, duck curves are getting deeper in California (EIA)

The Choice for Net Zero

CO2 Emissions per kWh Production

(Unit: g CO2eq/kWh)



*Climate Change 2014 Mitigation of Climate Change (IPCC)

A TWO-TRACK STRATEGY

Short & Mid-Term

Long-Term Operation
for an immediate decrease of carbon emissions

Long-Term

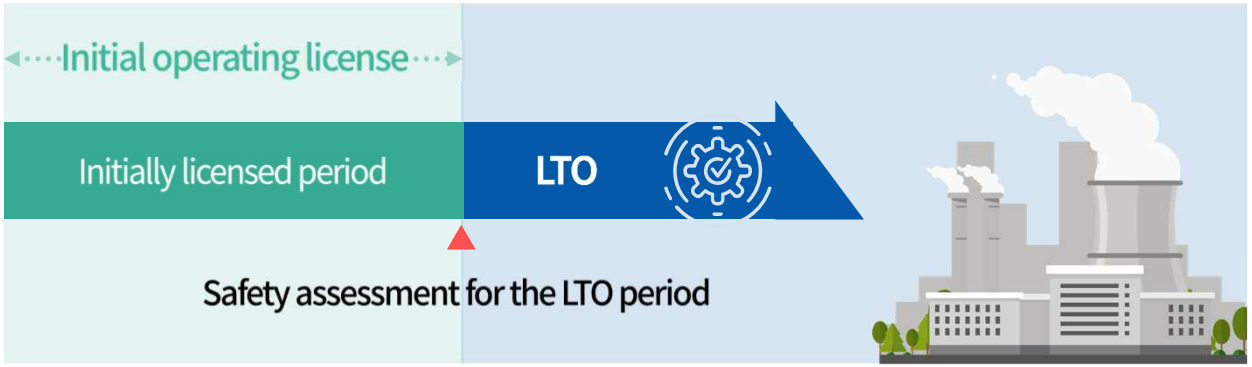
New builds
to set infrastructure for sustainable energy

LTO and new builds for today's stability and tomorrow's security

LTO: THE FASTEST AND MOST EFFICIENT ENERGY TRANSITION

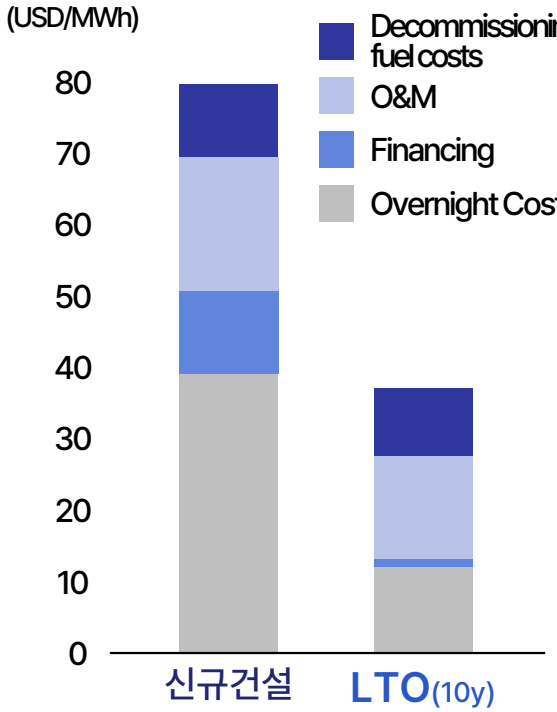
Long Term Operation (LTO)

Continued operation of a nuclear reactor beyond its initially designed time frame by satisfying safety standards required by related statutes



Various Terms	License Renewal	Continued Operation	Long Term Operation	Lifetime Extension
	U.S.	U.K. and more	IAEA	Others

LCOE: New Build v. LTO



LTO AROUND THE WORLD

Case of Korea

- (Kori Unit1) The first LTO in Korea. 10y of LTO after exceeding its 30-year design life in '07. Decommissioning in process
- (Kori Unit2) Initial operating license expired in '23. Restarted in March '26 after the approval by NSSC in '25 * Nuclear Safety and Security Commission (NSSC)
- (Wolsong Unit1) A Canadian PHWR. LTO approved in '15 after its operating license expiration in '12
- In addition, Kori Units3,4 / Hanbit Units1,2 / Hanul Units 1,2 / Wolsong Units2,3,4 are preparing for LTO

Cernavoda Unit 1

- Construction (retube, refurb), infrastructure and project management ('25-'30)
- Same type of reactor as Wolsong #1

Case of USA

- ~90 reactors: LTO widely implemented
- Most units approved for 60-year operation
- 10+ units under review for 80-year operation

* U.S. NRC (Nuclear Regulatory Commission)

Case of France

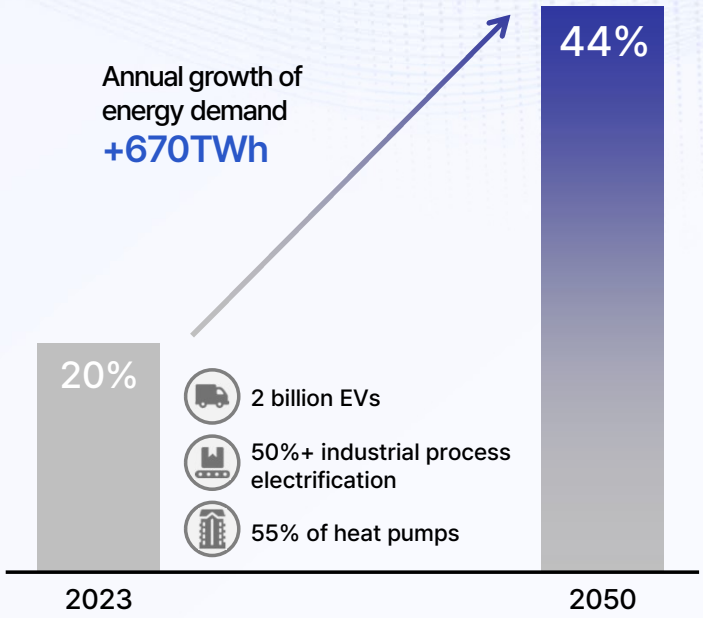
- ~56 reactors: majority targeting 50-year extension
- Nationwide LTO policy
- EDF–led Fleet-wide modernization

* French ASN (Regulatory)

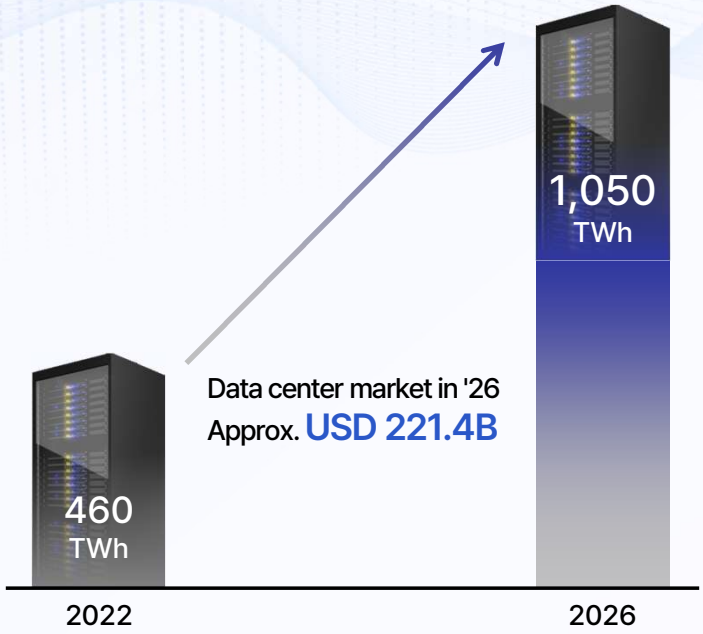
NEW BUILDS: A SOLUTION FOR SURGING ENERGY DEMAND

Nuclear is not an option, but a must in the era of AI and electrification

Electrifying Everything



Energy to Power Tech Giants



Nuclear Policy in Major Countries

- +300GW by '50
- +94 units or more by '35
- +14 units by '50
- +24GW by '50
- +2 units by '35
- +10 units by '45
- Restart of 14 units

* Source: IEA(2025), BloombergNEF(2023.3.), brightlio.com(2023.12.), Enerdata(2023), WSJ(2024. 3.)

RISK MANAGEMENT: WHY DOES IT MATTER WHO YOU PARTNER WITH

Project Management Capability

- 50 years of experience
- 'On-time & Within budget' for BNPP
- The only NPP export project without delay within the OECD countries since '09

BNPP in UAE

"Key Strengths"

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Price Competitiveness

Construction cost per unit ($/kW)

	🇰🇷		🇺🇸	🇫🇷
WORLD NUCLEAR ASSOCIATION	3,571	<	5,833	7,931
Bloomberg	3,717		11,638	7,809

- Source : WNA('21), Bloomberg('18) reports

Value Chain

- KHNP is capable of managing the full scope of work for reactor projects with "Team Korea"

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kepco E&C · kepco NF · DOOSAN · HYUNDAI · SAMSUNG · DAEWOO E&C · DAELIM · SK ecoplant · KORAD

CONFLICT MANAGEMENT BEYOND TECH CHALLENGES

Anti-nuclear Civic Movement

Protests against nuclear in Taiwan

The 4th NPP in Taiwan

Construction on halt due to opposition

The Bataan NPP (The Philippines)

Construction stopped in '86 following the Chernobyl disaster (Progress: 98%)

Social license: a necessary factor for stable project execution

HOW TO REACH AN AGREEMENT

A SOCIAL LICENSE MODEL: Shin-Kori Unit 5 & 6

Moving beyond conflict to confidence:
Transparent information disclosure & public deliberation

Public Deliberation for Shin-Kori #5 & 6

"Restart of construction"

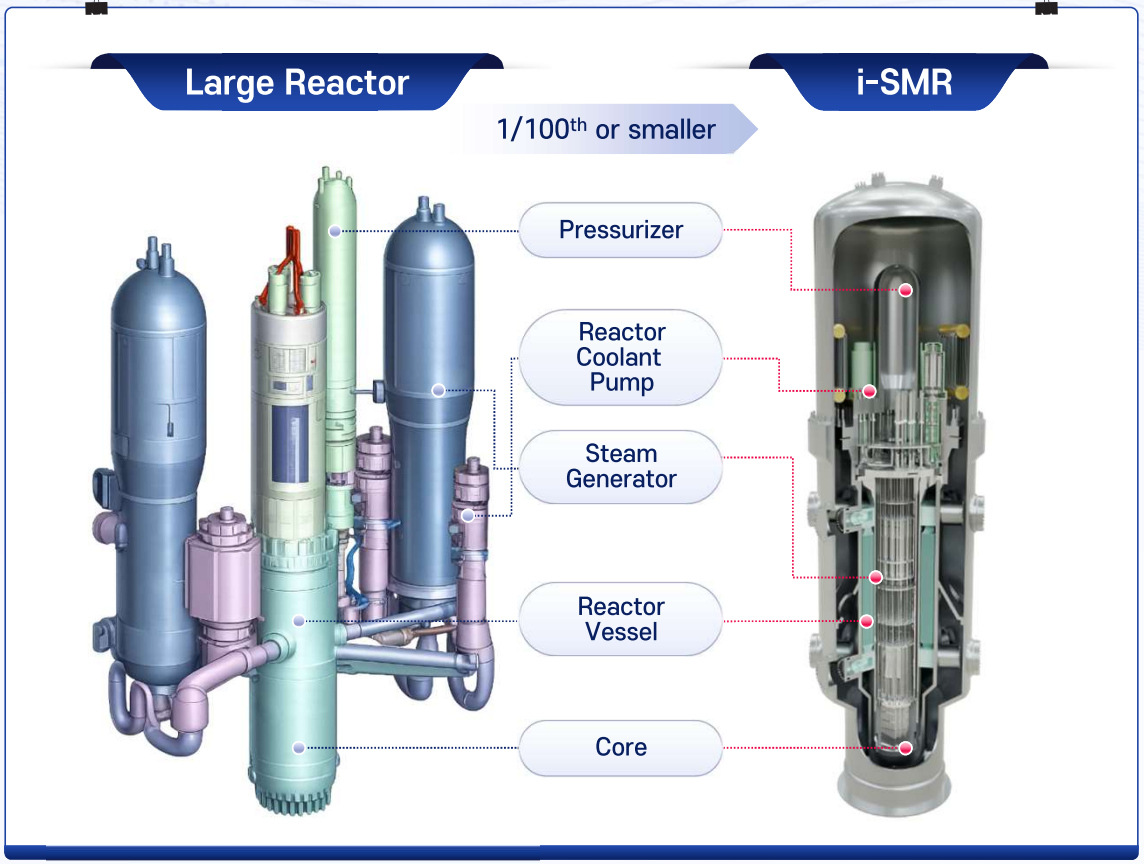
Policy recommendation

Deliberation of the citizen participation groups and the public

Launch of the Public Opinion Solicitation Committee for Shin-Kori #5 & 6

TECHNOLOGY THAT POWERS THE FUTURE

RISE OF A GAME CHANGER, SMR



Economic Efficiency

- Low cost and short construction period
- Effectively responding to global carbon emission regulations, such as the EU CBAM

Safety

- Zero severe accidents through an integrated reactor and fully passive safety design
- Minimizing spent fuel and radiation leakage

Flexibility

- Complementing the intermittency of renewables
- Versatile applications: district heating (hot water supply), desalination, and hydrogen production

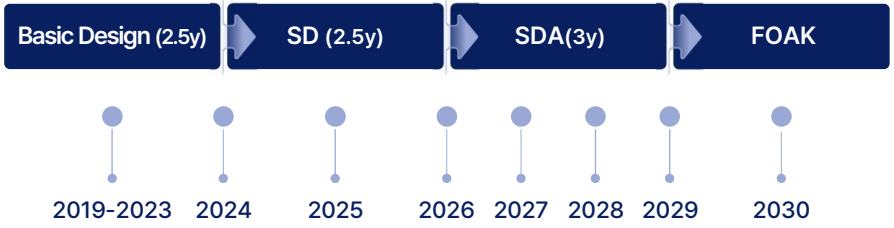
i-SMR AND GLOBAL MARKET TRENDS

Global SMR Development Status

127+ SMR Designs in Global Development Race

출처 : The NEA Small Modular Reactor DASHBOARD (2025), Advanced in Small Modular Reactor Technology Development(2022), IAEA

Development Status of i-SMR



- Goal : SDA approval by 2028, FOAK operation in early 2030s
- Proprietary SMR Development & Business Partnerships

* SDA : Standard Design Approval, FOAK : First Of A Kind

TRUE PARTNERS ARE THE ONES

who are ready to go through
both success and failure together.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Q&A