

Nuclear Energy Policy Challenges for 2026

—Ongoing Discussions to Reduce Business Uncertainty—

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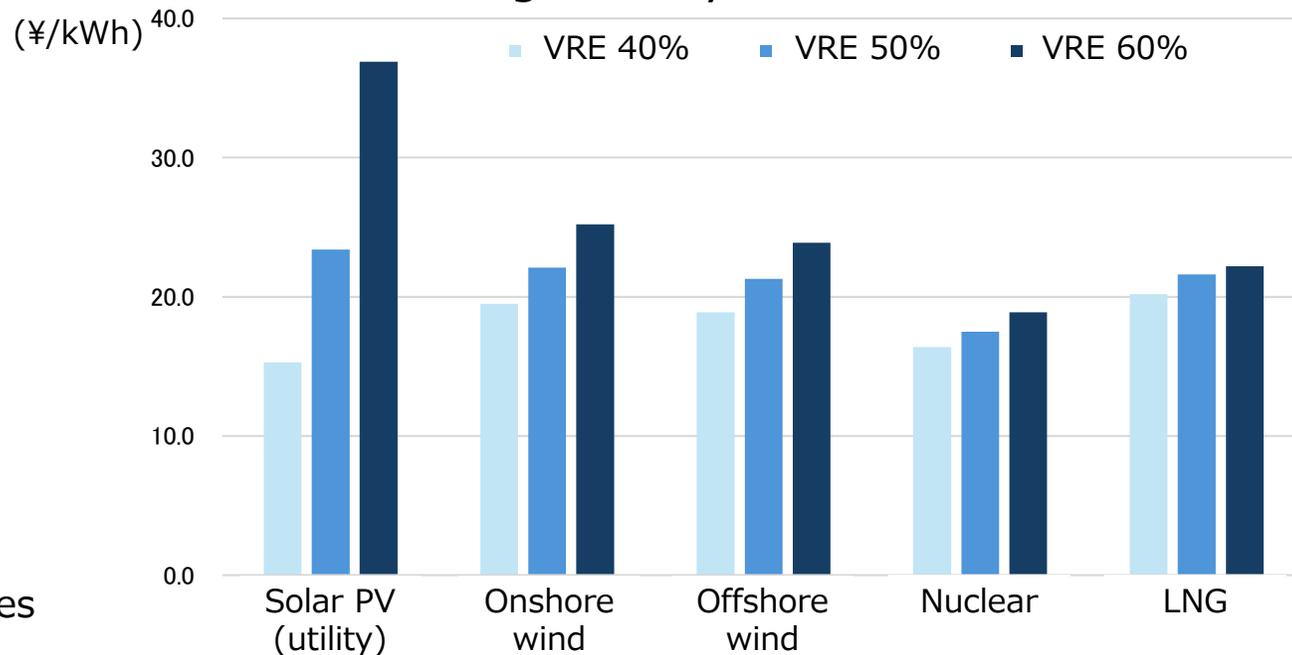
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Recent situation surrounding nuclear energy

- Since around 2015, many countries have announced ambitious GHG reduction targets, drawing attention to nuclear power as a zero-emission baseload source.
- Later, soaring fossil fuel prices and Russia's invasion of Ukraine heightened the importance of energy security.
- More recently, electricity demand has been rising due to AI usage and data-center expansion.
- Several analyses indicate that when large amounts of variable renewables are introduced, nuclear power can remain competitive when considering total system costs.

Generation cost considering part of integration costs

As the share of variable renewable energy (solar/wind) increases, especially solar costs rise significantly.



* Another example of overseas analyses provided at the end of this material.

Source: METI, Working Group on Power Generation Cost (2024)

Notable global trends: the U.S.

- In the U.S., executive orders were issued in May 2025 to promote the use of nuclear power.
 - The regulator is required to decide on new-build approvals within 18 months and license renewals within one year.
 - An \$80-billion partnership was formed with companies, including Westinghouse, for LWR construction.
- Recently, IT firms with data centers have also begun investing in nuclear power.

Category	Projects
Existing	<ul style="list-style-type: none"> ● AWS acquired a data center directly connected to the Susquehanna NPP (Pennsylvania) from Talen. ● Due to co-location issues, supply contract expansion moves toward a grid-connected “front-of-the-meter” approach.
Existing	<ul style="list-style-type: none"> ● Meta signed a 20-year PPA with the Clinton NPP (Illinois).
Restart	<ul style="list-style-type: none"> ● Constellation will restart TMI-1 (closed 2019) to supply electricity to Microsoft.
Restart	<ul style="list-style-type: none"> ● Google signed a PPA with the Duane Arnold NPP, planned for restart.
New build	<ul style="list-style-type: none"> ● Fermi America plans a clean-energy-powered AI data center in Texas.
Advanced	<ul style="list-style-type: none"> ● Google signed a future PPA with Kairos Power, developer of a fluoride-salt-cooled high-temperature reactor.
Advanced	<ul style="list-style-type: none"> ● Climate funds including Amazon invested in X-energy (HTGR developer); Xe-100 to be built at Dow’s Texas site.
Fusion	<ul style="list-style-type: none"> ● Microsoft and Google each signed power-purchase agreements with fusion companies.

Notable global trends: Europe

- In the UK, the final investment decision for Sizewell C was made in July 2025.
 - Government support includes the RAB model and £14.2 billion in direct investment.
 - ※RAB model provides appropriate returns and allows cost recovery during the construction phase.
 - In Sweden, a new nuclear-support bill was passed in May.
 - Eligible facilities: 300 MW or more, up to a total of 5,000 MW
 - Key points:
 - ① Low-interest government loans during construction (later transitioning to private finance)
 - ② CfD-style support after the start of operation
 - ※CfD pays the difference between a pre-set strike price and average market price
 - ③ Minimum revenue guaranteed if profitability falls below expectations after operation (excess profit returned to government/consumers)
- ➔
- Important measures to reduce uncertainty for operators.
 - Their effectiveness in actual projects will be important to monitor after 2026.

Notable global trends

- Other Major Global Trends (2025)

- Western countries are moving toward new nuclear builds or revisiting phase-out policies.
- China's domestic construction and Russia's export projects continue steadily.

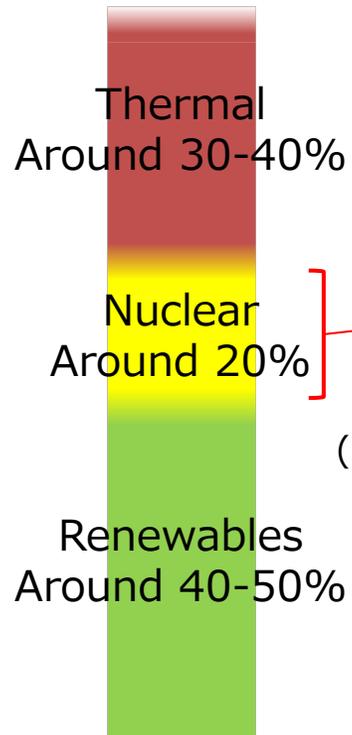
Country	Topics
U.K.	<ul style="list-style-type: none"> • November: Wylfa in North Wales selected as an SMR site (Rolls-Royce SMR).
Sweden	<ul style="list-style-type: none"> • January: Construction began on spent-fuel deep geological repository.
Belgium	<ul style="list-style-type: none"> • Nuclear phase-out halted; Doel-4 and Tihange-3 life extended.
Spain	<ul style="list-style-type: none"> • February: Proposal to reverse nuclear phase-out approved by parliament.
Russia	<ul style="list-style-type: none"> • Kazakhstan selected Rosatom to build its first NPP. • Uzbekistan project expanding.
China	<ul style="list-style-type: none"> • May: Approved new construction at 5 sites (10 units).
Taiwan	<ul style="list-style-type: none"> • May: Last operating unit shut down. • August referendum favored restart but did not meet validity threshold. • Later assessment found 2nd (Kuosheng) and 3rd (Maanshan) plants restart-capable.
India	<ul style="list-style-type: none"> • PM Modi announced target of 100 GW nuclear by 2047 • A new nuclear energy act (SHANTI) that approves private sector to participate in nuclear business and redefines liabilities of operators completed legislative process.

Notable trends in Japan: The 7th Strategic Energy Plan

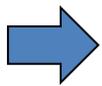
- In February 2025, Japan's 7th Strategic Energy Plan was approved.
 - Nuclear is expected to supply about 20% of electricity in FY2040.
 - Mentions the possibility of replacement reactors.

- Given 2050 targets, existing and under-construction reactors may be insufficient.
- In November 2025, Kansai Electric resumed geological surveys in the Mihama area for potential new site development.

FY2040 Total Power Generation
1,100-1,200TWh

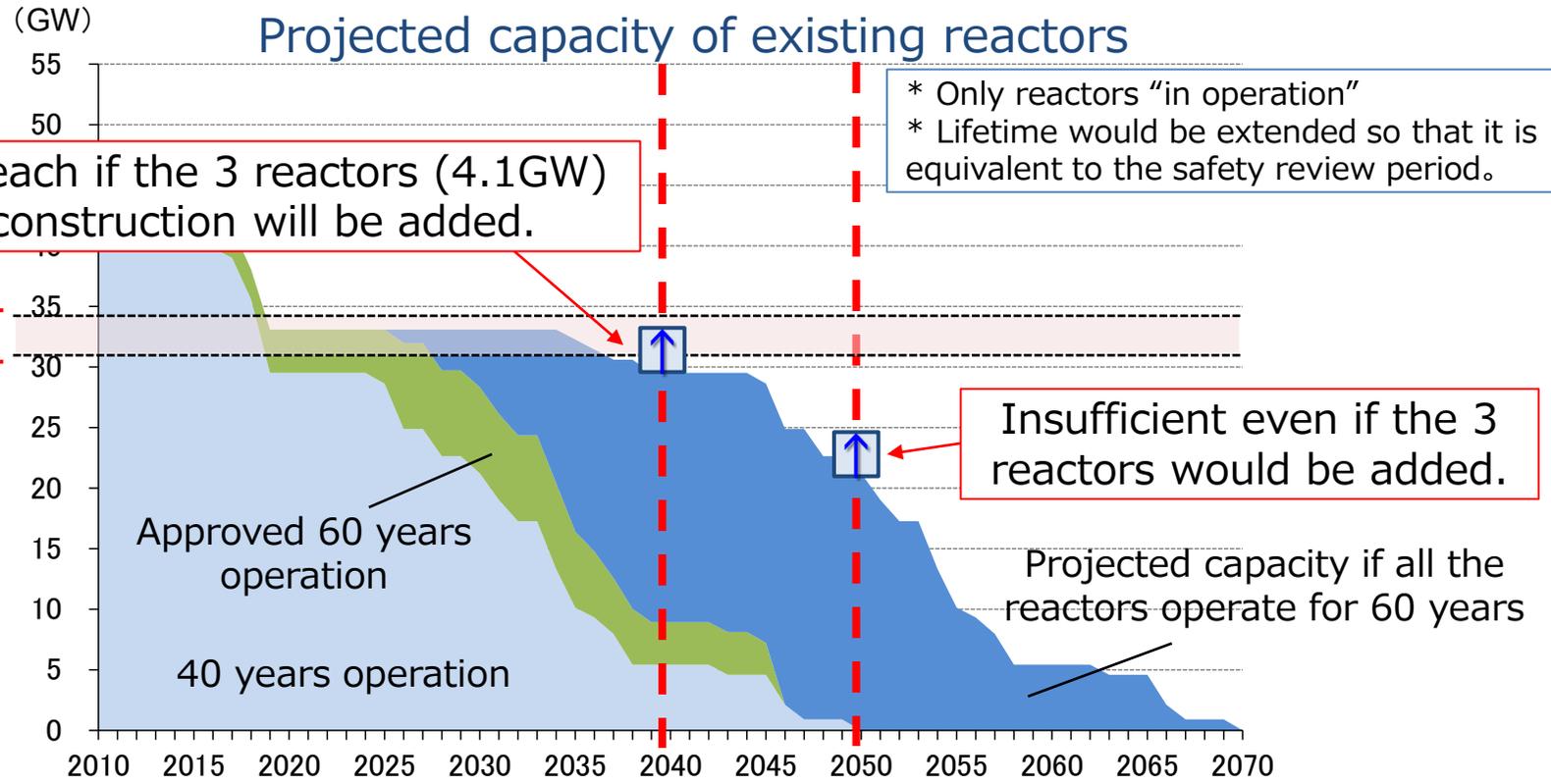


Generating capacity
Around 31-34GW
(Capacity factor 80%)



It would reach if the 3 reactors (4.1GW) under construction will be added.

Projected capacity of existing reactors



Source: prepared by author based on METI documents

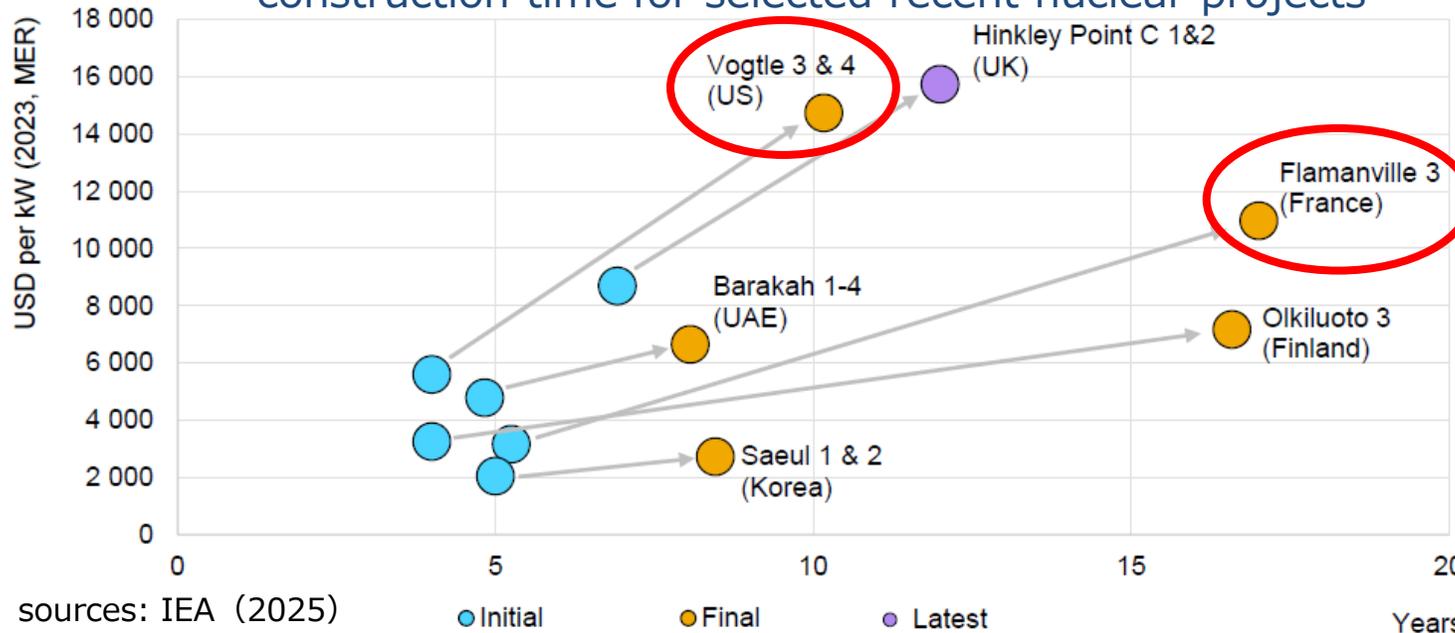
Source: prepared by author based on JAIF documents etc.

Notable trends in Japan: improvement of business environment

- Improvement of the investment environment for nuclear projects
 - In the 2nd auction round for long-term decarbonized power generators, 3 reactors won bids for safety-investment support.
 - For the 3rd round scheduled for FY2025, it was decided that retrospective support would be provided for cost increases up to 1.5 times* the bid price.
 - Public financing for a certain share of large-scale, long-term projects was also discussed.

* Inflation and interest-rate fluctuation will be treated separately.

Initial and latest capital cost estimates and construction time for selected recent nuclear projects



sources: IEA (2025)

● Initial ● Final ● Latest

Years

- Progress in project risk mitigation and financing facilitation
- However, in Europe and the U.S., costs have in some cases risen to over twice the original estimate (see left chart).
- Need to learn from lessons and enhance efficiency

Notable trends in Japan: restart of existing reactors

- Progress in restarting of existing reactors
 - Late 2024–early 2025, Onagawa-2 and Shimane-2 (BWR) restarted commercial operation.
 - July 2025, Tomari-3 obtained installation modification approval.
 - November 2025, Hokkaido Governor expressed his agreement for the restart.
 - At the Kashiwazaki-Kariwa (KK)-7, construction of the Specialized Safety Facility (SSF) was not completed in time, and it is expected to be finished in August 2029.
 - In November, the Governor of Niigata Prefecture agreed to the restart of KK-6; however, its SSF faces a completion deadline in September 2029, and actual completion is expected in September 2031.

What is the Specialized Safety Facility (SSF)?

- Backup facilities for remotely operating essential functions if the main facilities are damaged by aircraft impact or terrorism.
- Must be completed within 5 years after construction plan approval; otherwise, operation must stop.
 - A grace period exists because all safety functions must be secured in the main facility before restart.
 - Deadline was originally “5 years from July 18, 2013,” but revised to “5 years after the plan approval.”

⇒For Onagawa-2, which has already restarted operation, the deadline for its SSF is December 2026, whereas completion is currently planned for August 2028.

Key topics in Japan from 2026 onward

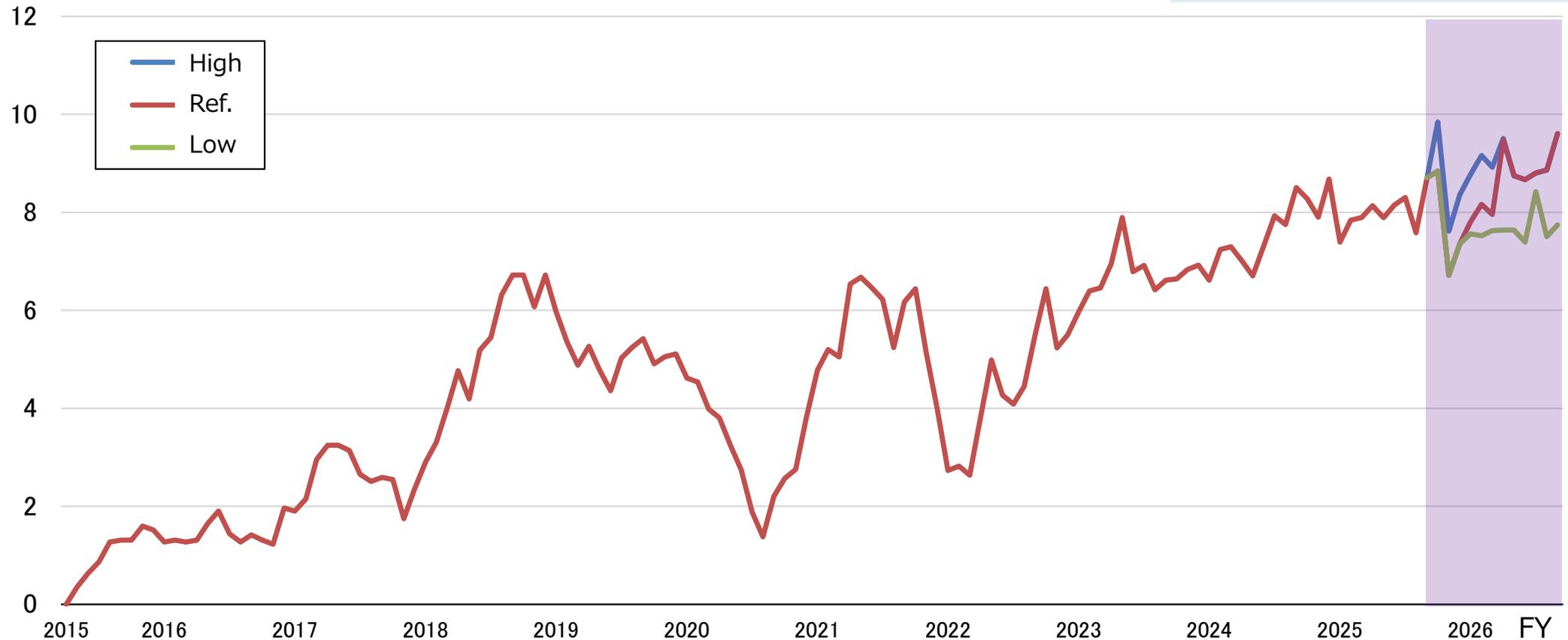
- Policy and institutional issues
 - Further discussion on the business environment
 - Investment-recovery for the construction phase, public finance, etc.
 - Specialized Safety Facility
 - Oct 2025, operators requested a 3-year extension (labor-market changes, etc.)
 - Is the 5-year deadline appropriate?
 - Local economic development of the nuclear-hosting communities
 - Attracting manufacturing bases or data centers aligns with GX (green transformation) policies of Japan.
 - Whether concrete incentives can be offered to attract private companies will be a key point to watch.
- Business issues
 - Progress toward additional restarts
 - Tomari-3 (restart planned in 2027), Tokai-II (under construction for safety improvement)
 - Backend issues
 - Rokkasho reprocessing plant is scheduled for completion in 2026.
 - If completed, it would be a major step to reduce spent-fuel storage.
 - On the other hand, the steady progress of MOX fuel operation will become a key challenge.

Reference: short-term outlook for nuclear power generation in Japan

- Reference case is based on announced utility operating plans and restart progress.
 - High case: faster-than-expected restarts
 - Low case: no new restarts during the period

Expected generation in FY2026: 92-107 TWh

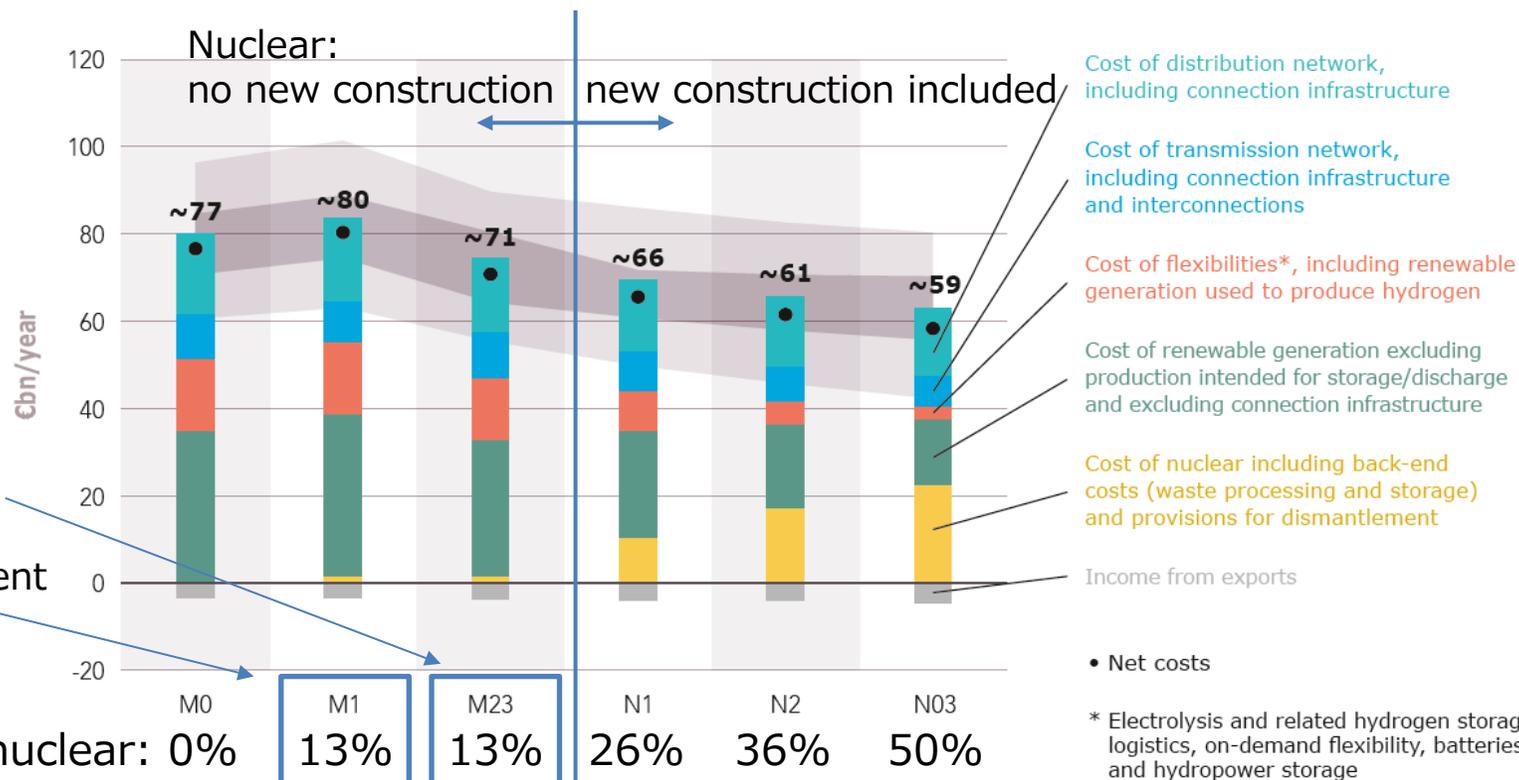
(TWh/month)



Reference: scenario analysis in France

- French transmission system operator RTE published a scenario analysis for achieving carbon neutrality by 2050.
- Six scenarios range from “100% renewables (0% nuclear)” to “50% renewables / 50% nuclear.”
- The “50% nuclear scenario” includes construction of 14 large LWRs plus several SMRs.
 - Consistent with President Macron’s February 2022 announcement.

Annualised full costs of scenarios in 2060



Driven notably by large-scale wind farms
 Very robust development of distributed REs

This analysis shows including nuclear energy would help to reduce total system costs.

2050 share of nuclear: 0% 13% 13% 26% 36% 50%