

**Challenges in hydrogen and CCS toward achievement  
of the 7th Strategic Energy Plan  
—Policy issues for hydrogen and CCS and the long-term perspective  
required—**

**<Report Summary>**

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Recent trends in hydrogen

1. Recent years have seen a string of suspensions and cancellations of hydrogen-related projects around the world (including hydrogen-based fuels such as ammonia, e-methane, and e-fuels). The key reasons have been the difficulty of cost-cutting, procuring finance, and securing off-takers.
2. Underlying this is the growing realization that using renewables, battery storage, and CCS are likely to be more realistic and rational options than hydrogen. Another factor is that the only means of international long-haul seaborne transport of hydrogen is ammonia, which is limited in its applications.
3. However, decarbonization will require a supply of hydrogen for hard-to-abate applications. It is likely that projects to enable commercial viability and secure off-takers with subsidies will survive.

Looming challenges for hydrogen policy

4. In Japan, Long-Term Decarbonization Power Source Auctions, a contract-for-difference subsidy scheme (to subsidize the price gap between low-carbon hydrogen and fossil fuels), and a hub development subsidy scheme are the three pillars. Based on the results of bidding over the first two Long-Term Decarbonization Power Source Auctions, expanded support is expected to be sought for hydrogen and ammonia-fueled electricity generation from the third round onward. With regard to the contract-for-difference subsidy scheme and the hub development subsidy scheme (a FEED subsidy in FY2025), proposal selection is due to take place before the end of FY2025.
5. While financial support is needed for the adoption of hydrogen, the burden on

Japanese taxpayers needs to be considered. Therefore, efforts to cut costs through continuous technological development are essential. In addition to reducing the cost of hydrogen production, it is fundamentally a “hard-to-transport” energy, so reducing the cost of converting the hydrogen to hydrogen carriers is a major challenge. Any scheme design needs to promote cost reduction.

6. However, cost-cutting is uncertain. When it comes to the import supply chain in particular, raising the investment ratio of Japanese firms at each stage of the process—hydrogen production, shipping, and use—is an important point.
7. On the other hand, there is a need to scale up cost reductions. Concerning imported hydrogen, Japan needs to look at the possibility of joint procurement with other nations.

#### Discussion points on the future of hydrogen

8. Imported hydrogen is heavily affected by the strategy and institutions of the exporting nations. As such, it brings with it a variety of challenges, such as policy dialogue and diversity of suppliers. Regarding domestic hydrogen, challenges include the need to minimize the transport of hydrogen and to expand renewables. Therefore, we must have a debate based on potential foreseen risks and feasible possibilities.

#### CCS support scheme

9. In June 2025, to address a pipeline proposal, the “Working group on considering support frameworks for CCS projects” devised a proposal for a scheme to subsidize the price gap between CCS cost (strike price) and the carbon price (reference price). The CAPEX and OPEX of both the transportation and storage, and the capture of carbon, would be covered by the subsidy.
10. Under this support scheme, selection of proposals to receive the subsidy would take place with the timing of final investment decisions around 2026 in mind. It would aim for the launch of commercial production from FY2030 at the earliest.

#### Looming challenges for CCS policy

11. Firstly, an initial budget must be secured to establish this support scheme.
12. Other future challenges include creating a system that can make use of specialized knowledge (technology and finance) to implement this support scheme; responding to various technical and operational issues related to the use of ships for CCS projects and the development of the support scheme; investigating how CO<sub>2</sub> accounting rules will operate in conjunction with the greenhouse gas emissions accounting, reporting, and disclosure system (SHK system), and cooperating with local communities around

reservoirs.

13. Globally, CCS projects are advancing at a pace. Preparations are underway in Europe for the start of commercial operation of its new CCS project, while CCS tax incentives under the Inflation Reduction Act are being continued by the Trump administration. In Japan, thought is being given to both domestic and overseas storage. Therefore, the continuation of intergovernmental consultation and regulatory settings development for the realization of CCS across borders is vital.

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