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# **Japan Energy Newsletter**

**Japan Electric Power  
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## 1 Japan's Ministry of Economy, Trade and Industry Declares a Global Annual Clean Hydrogen Production Target of 90 Million Tons by 2030 in 20-country Agreement

Japan's Ministry of Economy, Trade and Industry (METI) and the New Energy and Industrial Technology Development Organization (NEDO) held the 5<sup>th</sup> Hydrogen Energy Ministerial Meeting on September 26, 2022. At the meeting, the State Minister of the Economy, Trade and Industry, Shinichi Nakatani, proposed a new global clean hydrogen production target of 90 million tons per year by 2030, utilizing low-carbon technology that reduces CO<sub>2</sub> emissions during production. Currently, the world produces 1 million tons of hydrogen annually. Many countries are currently facing an energy security crisis following Russia's invasion of Ukraine, with the possibility of natural gas supply disruptions. Moving forward, Japan will incorporate this hydrogen production goal into its work to accelerate the development of an international hydrogen supply chain.

Ministers from various countries, global experts, and leaders in decarbonization were invited to the meeting to discuss the realization of green transformation (GX), which links emissions reductions to economic growth and development. Attendees represented more than 20 countries and included ministers and government representatives from the United States, Germany, Australia, Poland, Indonesia, and Saudi Arabia, as well as senior officials from the International Energy Agency (IEA). The meeting was held as a part of Tokyo GX Week, which consisted of 10 meetings on a wide variety of CO<sub>2</sub> reduction technology topics, including the 4<sup>th</sup> International Conference on Carbon Recycling 2022 (September 26) and the 2<sup>nd</sup> International Conference on Fuel Ammonia (September 28).<sup>1</sup>

Japan's Hydrogen Energy Ministerial Meeting has been held annually since it was established in 2018. The meeting serves as a forum for promoting the use and application of hydrogen on a global scale and facilitating cooperation among countries. During the 2018 meeting, Japan released the Tokyo Statement, which detailed Japan's vision to promote the utilization of hydrogen with participating countries.<sup>2</sup> At the 2021 meeting, Executive Director of the IEA Fatih Birol's keynote speech described how many countries had formulated their own hydrogen strategies and provided incentives for private investment with the aim of reducing CO<sub>2</sub>. In addition, the IEA, in cooperation with relevant organizations, announced that it had created the Global Hydrogen Review 2021, a new annual publication, to provide policymakers with advice and the latest global trends.<sup>3</sup>

Currently, most hydrogen production uses fossil fuels, such as natural gas. However, it is feasible to reduce carbon emissions by splitting water into hydrogen using electricity generated by renewable energy or by capturing CO<sub>2</sub> from a natural gas-based hydrogen production process and storing it underground or reusing it. The Japanese government has been focusing on developing clean hydrogen as one of the energy resources that can replace fossil fuels and achieve carbon neutrality. An IEA report

<sup>1</sup> [https://www.nedo.go.jp/events/SE\\_100001\\_00015.html](https://www.nedo.go.jp/events/SE_100001_00015.html)

<sup>2</sup> [https://www.nedo.go.jp/events/report/ZZHY\\_00001.html](https://www.nedo.go.jp/events/report/ZZHY_00001.html)

<sup>3</sup> <https://www.meti.go.jp/press/2021/10/20211008004/20211008004.html>

estimated that global hydrogen demand reached 94 million tons in 2021, but the clean hydrogen production amount accounted for less than 1 million tons. METI emphasized that the cost of producing hydrogen using existing technologies that emit CO<sub>2</sub> is up to 12 times higher than the production cost of fossil fuels, such as coal and oil. Additionally, the production cost of clean hydrogen is much higher, which is one of the reasons why it has not been widely adopted. It is, therefore, crucial for METI to provide support to reduce the cost gap between hydrogen and fossil fuels production to expand hydrogen use and ensure Japan's energy security.

## 2 Japan's Government Set Up an Expert Panel on Developing a Fusion Energy Innovation Strategy by April 2023

On September 12, 2022, the Cabinet Office of Japan's Integrated Innovation Strategy Promotion Council (13<sup>th</sup> meeting) established a Fusion Energy Strategy Expert Panel. The news was announced by Sanae Takaichi, Minister of State for Special Missions on Economic Security and Science and Technology Policy.<sup>4</sup>

Minister Takaichi, who was appointed to the Cabinet on August 10, 2022, said that countries focused on nuclear energy are accelerating their efforts in fusion energy development. She warned that we are entering a global era of international competition rather than international cooperation. The UK announced its Fusion Strategy in October last year, the U.S. also released a 10-year national strategic plan for fusion energy in 2020, and China is reportedly planning to develop a nuclear-fusion reactor by 2030. Private investments in fusion energy have recently soared as well.<sup>5</sup> Japan will seek to accelerate the research and development (R&D) of nuclear fusion energy, improve its industrial competitiveness, and secure its technological superiority. Ms. Takaichi noted that Japan has high hopes for fusion energy as a clean energy source that contributes to energy self-sufficiency and energy security.

In a related international effort, Japan has been participating in ITER<sup>6</sup>, a global fusion energy R&D project involving 35 countries. The ITER project began working on fusion reactor core assembly in 2020, and it is scheduled to begin testing its first plasma in 2025 and achieve full fusion in 2035.

The Fusion Energy Strategy Expert Panel will hold meetings three to four times from September 2022 to the beginning of 2023. Based on the results of the meetings, the panel plans to compile a fusion innovation strategy by April 2023. The experts on the panel are from different backgrounds, ranging from fusion energy to product commercialization. They will explore various areas, including R&D, the realization of nuclear fusion energy, the development of the fusion energy market, and the promotion of private investments. The fusion innovation strategy will present Japan's commitment

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<sup>4</sup> [https://www.cao.go.jp/minister/2208\\_s\\_takaichi/kaiken/20220913kaiken.html](https://www.cao.go.jp/minister/2208_s_takaichi/kaiken/20220913kaiken.html)

<sup>5</sup> [https://www8.cao.go.jp/cstp/tougosenryaku/13kai/siryo2.pdf\\_p.2](https://www8.cao.go.jp/cstp/tougosenryaku/13kai/siryo2.pdf_p.2)

<sup>6</sup> ITER was launched in November 1985 at the Geneva Superpower Summit. Japan joined the project in 1986 with the aim of designing and developing a large international fusion facility.

to fusion development, its development strategies for advancing technology, a plan for implementing pilot projects, and ideas for fostering the fusion industry.

Prime Minister Fumio Kishida mentioned fusion energy in his policy speech on January 17, 2022, noting that he would set the policy direction for fusion energy, along with other fields, including power transmission and distribution infrastructure, storage batteries, renewable energy, hydrogen and ammonia fuels, and advanced nuclear reactor technologies.<sup>7</sup> In her announcement on fusion energy, Minister of State Takaichi recognized the importance of safely utilizing existing nuclear power plants. She stated that Japan will aim to explore the use of innovative nuclear technologies, such as small modular reactors (SMRs) and nuclear fusion energy.<sup>8</sup>

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<sup>7</sup> [https://www.kantei.go.jp/jp/101\\_kishida/statement/2022/0117shiseihoshin.html](https://www.kantei.go.jp/jp/101_kishida/statement/2022/0117shiseihoshin.html)

<sup>8</sup> <https://www.denkishimbun.com/archives/223821>

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