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Japan Energy Newsletter

Japan Electric Power Information Center, U.S.A.

1 Ministry of the Environment Announces the Results of COP28[1]

The Japanese government recently announced the results of the 28th Conference of the Parties to the United Nations Climate Change Conference (COP28), as well as other international climate-related sub-meetings, which was held in Dubai, United Arab Emirates, from November 30th to December 13th, 2023. Prime Minister Fumio Kishida participated in the World Climate Action Summit, a side event of COP28 that was held from December 1-2, 2023, where he gave a speech emphasizing the need to reduce global emissions by 2025 and achieve net zero emissions by 2050. In addition, several other high-ranking government officials joined the conference, including Shintaro Ito, Minister of the Environment of Japan; Masakazu Hamachi, Deputy Minister of Health, Labor and Welfare; and Nobuhiro Yoshida, Parliamentary Vice-Minister of Economy, Trade and Industry.

Counties participating in COP28 adopted new decisions regarding the Global Stocktake (GST), which evaluates the world's collective progress toward achieving the goals of the Paris Agreement. They created a general outline of a system to address loss and damage from climate change. The decision on loss and damage was followed by Japan's announcement that it would contribute $10 million to the initial costs of establishing a new Loss & Damage Fund. Furthermore, the Japanese government promised to participate in several new initiatives, including triple renewable energy capacity worldwide and double energy efficiency, triple nuclear power, and others. A Japan-led initiative called "Japan's Assistance Package to Promote Investments for Global Actions Toward the Achievement of the Paris Agreement Goals" was also announced.

The following is an overview of the main international initiatives that Japan supported and endorsed at COP28:

- **The Green Shipping Challenge**
  - Led by the United States and Norway, the Green Shipping Challenge was launched in November 2022 at COP27 in Egypt, where more than 40 countries, companies, port operators, etc. participated (Japan did not initially participate in the initiative).
  - More than 50 countries, companies, and port operators, including Japan, participated in COP28.
  - Japan has pledged to step up efforts to develop green transport corridors, including introducing zero-emission vessels and carbon-neutral port initiatives.[2][3]
- **Triple Renewable Energy Capacity Worldwide and Double Energy Efficiency by 2030 (Global Renewables and Energy Efficiency Pledge)**
  - By 2030, global renewable energy generation capacity triple to 11,000 GW, and the annual efficiency improvement rate will double to 4%.

[1] https://www.env.go.jp/content/000181151.pdf
[2] https://greenshippingchallenge.org/commitments/
[3] https://greenshippingchallenge.org/announcements/

  - Led by the UAE and EU, the declaration was signed by 123 countries, including Japan.[4]
- **Triple Nuclear Energy**
  - This declaration aims to triple the global nuclear power generation capacity by 2050 compared to 2020.
  - Let by the UAE and U.S., the declaration was signed by 25 countries, including Japan.
- **The Climate Club**
  - Germany is taking the lead in cooperating with participating countries by sharing assessments and best practices for decarbonization, centering on emissions-intensive industries.
  - 37 countries, including Japan, are participating.
- **Declaration of Intent on Mutual Recognition of Clean Hydrogen Certification Schemes**
  - Led by the UAE, this declaration involving 37 countries (including Japan) was launched at COP28 and promotes international trade in hydrogen.
  - This declaration was incorporated based on discussions during the G7 Climate, Energy and Environment Ministers' Meeting Communiqué on April 16, 2023, chaired by Japan. The initiative emphasizes the need to pursue mutual recognition based on a mechanism to demonstrate the carbon intensity of hydrogen to boost hydrogen trade worldwide.
- **The Carbon Management Challenge**
  - Led by the U.S., the Carbon Management Challenge was launched in April 2023. Nineteen countries (including Japan) and the European Commission participate.
  - It aims to accelerate the technological development and deployment of carbon dioxide capture, utilization, and storage (CCUS) and carbon dioxide removal (CDR).[5]
- **The Sapporo 5**
  - This was a declaration by five countries: Japan, the U.S., France, the U.K., and Canada.
  - The goal is to encourage public and private investments in enriched uranium production capacity that does not rely on Russian raw materials.
  - It aims to raise at least $4.2 billion in public and private investments over the next three years to build a resilient nuclear fuel supply chain.[6][7][8]

[4] https://www.cop28.com/en/global-renewables-and-energy-efficiency-pledge
[5] https://www.carbonmanagementchallenge.org/cmc/
[6] https://www.meti.go.jp/press/2023/12/20231208006/20231208006-f.pdf
[7] https://www.meti.go.jp/press/2023/12/20231208006/20231208006-e.pdf
[8] https://www.jaif.or.jp/journal/culture/cop28/20848.html

2 Ministry of Economy, Trade and Industry Resumes Discussions on the Development of Innovative Reactors[9]

On December 11, 2023, the Ministry of Economy, Trade and Industry (METI) held a meeting of the Innovative Reactor Working Group within the Nuclear Energy Subcommittee of the Advisory Committee for Natural Resources and Energy. This was the first meeting of the working group in about a year. At the meeting, participants discussed future issues to consider for developing and deploying next-generation innovative reactors, focusing on demonstrations of fast reactors and high-temperature gas reactors, supply chains, and human resources development.

The Basic Policy for the Realization of Green Transformation (GX Basic Policy), announced by the Japanese government in February 2023, states that Japan will work on the development and construction of next-generation innovative reactors that incorporate new safety mechanisms while ensuring that safety is the highest priority. Under the policy, over the next three years, 46 billion yen will be invested in the development of demonstration reactors for fast reactors and 43.1 billion yen will be invested in high-temperature gas reactors. These investments will be made as an investment promotion measure through GX Economic Transition Bonds.[10] As a result, Mitsubishi Heavy Industries was selected in July 2023 as the key company for R&D projects.

In December 2023, the Innovative Reactor Working Group held its 5th meeting to finalize a technology roadmap for the reactors. Previously, at the 4th Working Group meeting, held on July 29, 2022, a draft of the technology roadmap was crafted, including the introduction of innovative light water reactors, small light water reactors, fast reactors, high temperature gas reactors, and nuclear fusion reactors.

The following issues were discussed at the most recent working group meeting: (1) technical considerations for the development of demonstration-level fast reactors and high-temperature gas reactors, and (2) solving issues surrounding supply chains and human resources development. The main points for each issue include:

(1) Technical considerations for the development of demonstration-level fast reactors and high-temperature gas reactors

- Determining the specifications of the demonstration reactor at the design stage (power output, reactor core, etc.) – assessing items and methods for confirming the feasibility of equipment and systems (earthquake resistance, manufacturability, fuel concept, etc.).
- Developing the standards and specifications – identifying the standards and specifications that should be developed and assessing the items and methods for acquiring necessary data while taking into

9 https://www.meti.go.jp/shingikai/enecho/denryoku_gas/genshiryoku/kakushinro_wg/pdf/007_01_00.pdf

10 https://www.meti.go.jp/press/2022/02/20230210002/20230210002_1.pdf

consideration differences compared to light water reactors and compliance with regulations.
- What should the fuel manufacturing facilities look like? – examining and developing the fuel manufacturing technology, including MA (Minor Actinide)-containing fuel
- Other elemental technology developments related to each reactor type.

(2) Solving issues surrounding supply chains and human resources development

- After the Fukushima Daiichi nuclear power plant accident caused by the Great East Japan Earthquake in 2011, the Japanese government shut down all its nuclear power plants.[11] Most nuclear power plants remain offline. This highlighted many issues related to maintaining and strengthening domestic supply chains and human resources.
- Since nuclear power industrial infrastructure is essential for the development and construction of next-generation innovative reactors, it is necessary to maintain and strengthen human resources, technology, and supply chains for nuclear power.
- Since human resources and supply chains don't last forever, it is necessary to make it clear that their loss will cause serious problems and to establish a mechanism to maintain them appropriately.
- When it comes to securing human resources, to attract young workers, it is necessary to come up with effective ways to provide information, such as showing the attractiveness of the nuclear field and the future vision for the industry.

[11] https://www.enecho.meti.go.jp/about/special/johoteikyo/history6mirai.html

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