

April 2022

Japan Energy Newsletter

**Japan Electric Power
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1 The Organization for Cross-regional Coordination of Transmission Operators Released its Aggregation of Electricity Supply Plans for Fiscal Year 2022

On March 31, 2022, the Organization for Cross-regional Coordination of Transmission Operators (OCCTO) released its Aggregation of Electricity Supply Plans for Fiscal Year (FY) 2022 (referred to as 'the Plans'). The Plans contain the short-term and long-term outlooks for the electricity supply-demand balance, changes to the electricity mix, and development plans for power plants and transmission lines in Japan. Electric power companies are required by Article 29 of the Electricity Business Act to develop a comprehensive plan for their electricity supply and the development of generation and transmission facilities for a 10-year period.¹ The OCCTO uses these electricity supply plans to update the Plans annually.

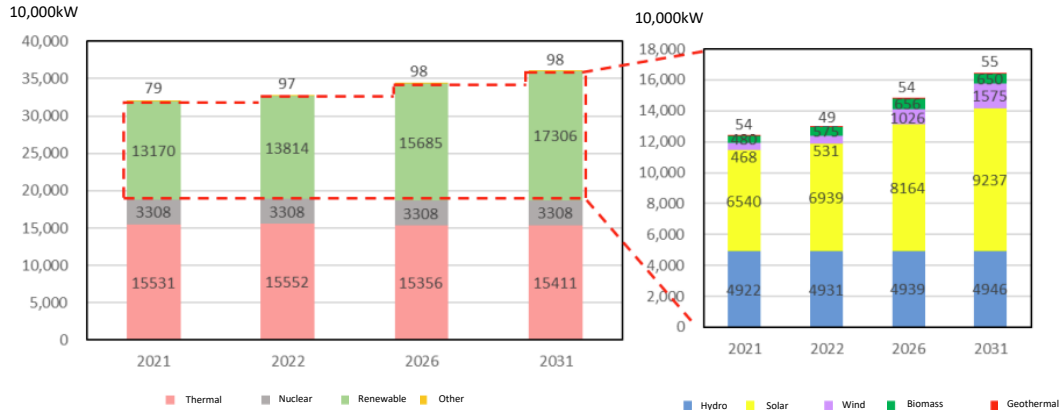
According to the Plans, the outlook for the annual electricity demand in FY2022 is 877.5 TWh, increasing by 0.9% from 869.3 TWh in FY2021. In the long term, electricity demand is expected to gradually fall as the population declines. The increase in energy saving measures is expected to outweigh the increase in electricity demand from economic growth and electrification. The OCCTO predicts that the electricity demand will be 870.7 TWh in FY 2026 and 863.4 TWh in FY2031, with an average annual growth rate of 0.1% from FY 2012 to FY 2031.

In the short term, the OCCTO predicts that there is a sufficient reserve margin to provide a stable electricity supply. In FY2022 and FY2023, the reserve margin is expected to be 8%. In the long term (FY2024 and beyond), some areas are expected to have supply shortages. The OCCTO aims to coordinate with electric power companies to develop mid-to long term plans to procure additional supply.

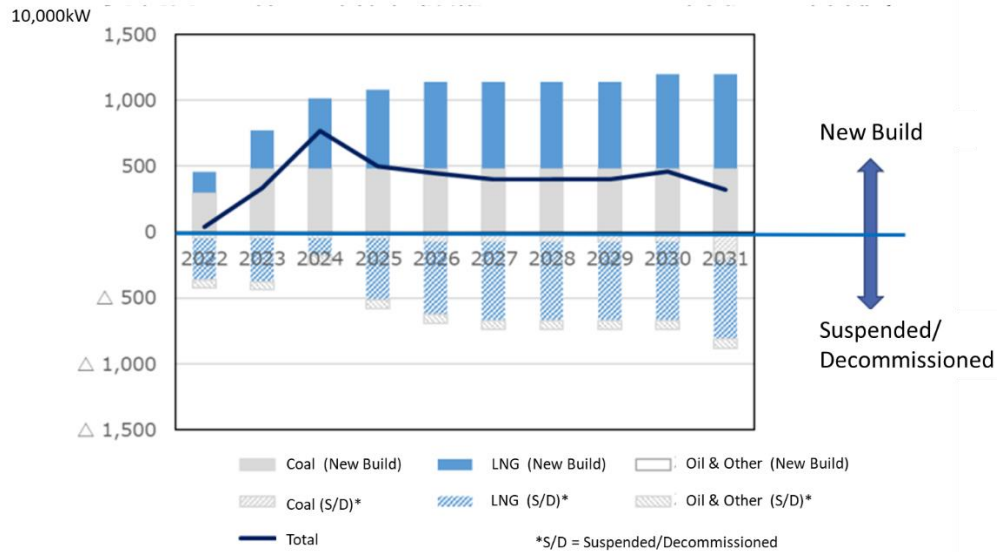
The share of renewable energy sources, such as solar and wind, is expected to increase by FY2031. The installed capacity of thermal power generation is predicted to increase until FY2024 due to the planned new installments and restarts of existing facilities; however, the share of thermal power generation is expected to decline from FY2024 to FY2026 due to the shutdowns and retirements of existing plants, and the share is expected to remain flat after that.

¹ https://www.occto.or.jp/kyoukei/torimatome/files/220331_kyokei_torimatome.pdf

Total Installed Capacity



Expected Changes in Installed Capacity for Thermal Power Plants (Base year FY2022)



Source: OCCTO²

The Plans highlighted the following challenges and measures for providing a stable electricity supply:^{3 4}

- 1) Addressing structural issues for the management of the power supply and demand - The Plans note that some challenges in providing a stable electricity supply might stem from structural issues, such as a declining supply capacity and increases in demand due to severe weather. The OCCTO is working with

² https://www.occto.or.jp/kyoukei/torimatome/files/220331_kyoukei_hyogiiinkai.pdf

³ https://www.occto.or.jp/kyoukei/torimatome/files/220331_kyokei_iken.pdf

⁴ https://www.occto.or.jp/kyoukei/torimatome/files/220331_kyokei_torimatome.pdf

other agencies to examine the mechanisms of power supply and demand and to implement the appropriate supply adjustments.

- 2) Addressing concerns about the recent supply capacity shortage: the government and electric power companies are collaborating to assess how the supply capacity was impacted by the recent earthquake that occurred off the coast of Fukushima Prefecture on March 16, 2022. In addition, they are developing capacity measures to balance supply and demand during the winter months.
- 3) Securing long-term energy sources: As increasing numbers of aging thermal power plants are expected to be suspended or decommissioned, the OCCTO is working with other government agencies to develop measures for a stable electricity supply, including the promotion of new construction and the careful replacement of existing energy sources to accelerate decarbonization efforts.
- 4) Enhancing medium- to long-term balancing capacity: Thermal power and pumped-storage hydropower provide a balancing capacity to ensure a stable electricity supply amid the increasing adoption of renewable energy. The OCCTO plans to consider new market mechanisms to secure the appropriate balancing capacity since the current public solicitation program for balancing capacity will end in FY2024.

2 Japan's Local Governments are Making Progress Towards Decarbonization through Public-Private Partnerships

The Japanese government recognizes the importance of local communities in achieving decarbonization by 2050, and in December 2020, it established the Council for National and Local Decarbonization. The council issued a Regional Decarbonization Roadmap in June 2021. One of the priorities identified in the roadmap was promoting the regional ecosystem and public-private partnerships as pathways toward achieving decarbonization. This initiative has facilitated collaborations among local governments, financial institutions, and companies to advance clean technology R&D and decarbonization projects.

Building a Regional Hydrogen Supply Network

Japan's local governments are working towards building a hydrogen supply chain through public-private partnerships. Fukuoka Prefecture launched the Fukuoka Hydrogen Energy Strategy Council in August 2004, ahead of other local governments, to promote public and private partnerships on hydrogen development. The Council has partnered with Kyushu University, a leading international center for hydrogen research, to support R&D on hydrogen technologies and provide matching services for companies and researchers to advance hydrogen R&D and deployments. As of April 1, 2022, 865 entities participated in the program, including local governments, researchers, and private companies. The program has led to 30 cases of product and technology development to date. For example, Tokyo Boeki Mechanics, an energy engineering company, has developed a carbon-free hydrogen production system in partnership with Kyushu University. The system produces hydrogen from concentrated methane recovered from biogas using a high performance CO₂ separation membrane.⁵

Similarly, on November 26, 2021, Yokohama City announced that it had signed a partnership agreement with ENEOS, a Japanese petroleum company, to develop hydrogen supply infrastructure, including hydrogen pipelines. The infrastructure will be in the coastal areas near Yokohama City, where many factories are located.⁶

In November 2021, Kawasaki City also announced an agreement with ENEOS to build a hydrogen supply chain. Both parties had previously worked on a joint study of a CO₂-free hydrogen supply model, with support from the New Energy and Industrial Technology Development Organization (NEDO).⁷ ENEOS has also worked on a demonstration study to extract hydrogen from organic hydride methylcyclohexane (MCH) at its' petroleum refinery site in the coastal area near Kawasaki.⁸

⁵ <http://www.f-suiso.jp/outline>
<http://www.f-suiso.jp/companies/>

⁶ <https://www.city.yokohama.lg.jp/city-info/koho-kocho/press/ondan/2021/20211126eneos.files/20211126eneos.pdf>

⁷ https://www.city.kawasaki.jp/590/cmsfiles/contents/0000135/135644/211117_Release.pdf

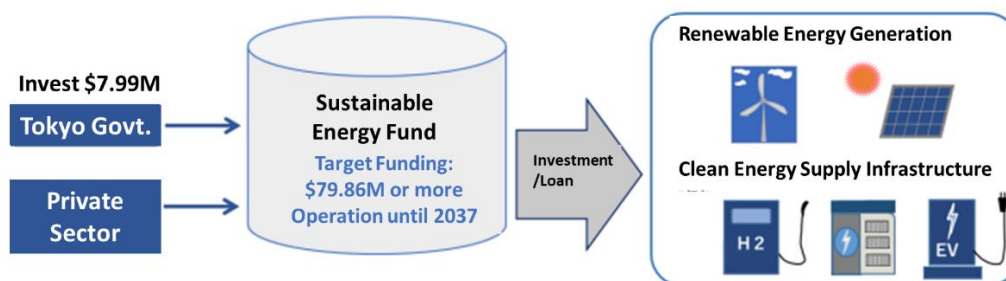
⁸ https://www.eneos.co.jp/newsrelease/20210810_01_01_1103035.pdf

Tokyo Government's Sustainable Energy Fund to Support Decarbonization Technological Innovation

On January 14, 2022, the Tokyo Metropolitan Government established a new Sustainable Energy Fund to facilitate investing in startups with clean energy infrastructure solutions. Tokyo will invest up to 10 billion yen (approximately \$7.99 million⁹) in the fund and solicit investment from the private sector to raise the total fund amount to 100 billion yen (\$79.86 million) or more.¹⁰

The specific investment areas include the following:¹¹

- Hydrogen stations and related businesses
- Electric charging facilities and related businesses
- Battery storage facilities and related businesses
- Energy efficiency systems, including upgrading existing systems, and energy management-related businesses



Source: Tokyo Metropolitan Government¹²

Tokyo plans to accelerate the implementation of clean energy solutions in Tokyo and other regional areas through this initiative.

⁹ 1 JPY = 0.008 USD

¹⁰ <https://www.seisakukikaku.metro.tokyo.lg.jp/pgs/2022/01/images/sustainablefundpress.pdf>

¹¹ <https://www.seisakukikaku.metro.tokyo.lg.jp/pgs/2021/10/images/bosyuuyoukou.pdf>

¹² <https://www.seisakukikaku.metro.tokyo.lg.jp/pgs/gfct/green-finance/sustainable-fund.html>