Power Sector Transition

Policy Overview

Strategic Energy Plan

The Strategic Energy Plan is formulated by the Ministry of Energy, Trade, and Industry (METI) with input from relevant ministries "at least once every three years" to set the path for energy policy in Japan. The latest 6th Strategic Energy Plan approved by the Cabinet in October 2021, details the 2030 target shares of electricity sources and the energy supply-demand overview to 2050.

The 7th Basic Energy Plan will be formulated in FY2024, and the next NDC will be decided based on this plan.
It is expected that this plan will be actively discussed at the Basic Policy Subcommittee of the Agency for Natural Resources and Energy and at related councils and study groups organized by the Ministry of Economy, Trade and Industry.

2030 Energy Mix Target

In 2030, the current Basic Energy Plan anticipates a reduction in energy consumption by 62 million kl through energy efficiency and population decline. Based on this, Japan's 2030 electricity mix is set to be comprised of: 41% fossil fuels (LNG 20%, Coal 19%, Oil 2%) and 36~38% Renewables (Solar 14~16%, wind 5%, geothermal 1%, hydro 11% and biomass 5%), nuclear 20~22%, and 1% hydrogen/ammonia power generation. Along with the target, the government emphasizes the importance of securing the 3E+S principles (Energy security, Environment, Economic Efficiency and Safety) in implementing energy policy. The Basic Energy Plan also promotes next generation, high-efficiency thermal power, while phasing down inefficient coal-fired power.

Towards 2050

Towards meeting the 2050 carbon neutrality goal, the government aims to maximize the introduction of renewable energy, including solar, wind, geothermal, biomass, as well as hydrogen. The government also considers nuclear a key source of baseload power for Japan. The discussion on restarting nuclear operation and development of Next Generation Nuclear Furnace has emerged at the GX Executive Council and the Basic Policy Meeting by METI. Regarding fossil fuels, while the government mentions the importance of decarbonization through CCUS technology and synthetic fuels, it also positions them as a major energy supply source, for example by promoting strategic surplus LNG. The government also plans to co-fire hydrogen and ammonia in thermal power generation to reduce greenhouse gas emissions during combustion (For more details, please refer to the "Clean Energy Strategy" page).

Coal Policy in Japan

Strategic Energy Plan states that an "appropriate thermal portfolio" of LNG, coal and oil power will be maintained towards 2030, while lowering the ratio of thermal power in the energy mix "as much as possible" while ensuring the "stability" of power supply. The Plan pursues the "fadeout of inefficient thermal" power while seeking to promote next generation/high efficiency thermal power. Moreover, the discussion around the development of ammonia co-firing with coal has been progressing (see section 'Clean Energy Strategy' for more details). The government also promotes technological development of high efficiency coal-fired power generation technologies, such as Integrated Coal Gasification Combined Cycle (IGCC), and Integrated Gasification Fuel Cell (IGFC).

At COP28 in December 2023, Prime Minister Kishida stated, "We will terminate the construction of new domestic coal-fired power plants without emission reduction measures," but did not mention the phase-out of coal-fired power generation without emission reduction measures.

At the G7 Climate, Energy, and Environment Ministerial Meeting held in Turin, Italy, in April 2024, the communique limited its mention on phase out as "phasing out existing coal-fired power plants that have not taken emission reduction measures".

Basic Hydrogen Strategy

The Japanese government announced a new Basic Hydrogen Strategy in June 2023. This is a revised version of the world's first national strategy related to hydrogen, which was released in 2017. In addition to the overall policy for Japan's hydrogen policy, the Basic Strategy includes a new "Hydrogen Industry Strategy" to strengthen the industrial competitiveness of hydrogen and a "Hydrogen Safety Strategy" for mitigating risk. The former aims to create a world where Japan's core hydrogen technologies (fuel cells, water electrolysis, power generation, transportation, and materials of the part, etc.) are utilized in all hydrogen businesses, taking advantage of its technological strengths. In the latter, environmental improvements such as rationalization and optimization of safety regulations will be implemented to realize a safe and secure hydrogen society. The strategy also covers hydrogen compounds such as ammonia, synthetic methane (e-methane), and synthetic fuels (e-fuel). The strategy also states that "carbon intensity targets for hydrogen and ammonia need to be set in order to steadily promote carbon neutrality. The importance of this target was recognized in the Ministerial Statement at the G7 Sapporo Ministerial Conference on Climate, Energy, and Environment and at the Hiroshima Summit, and now the government intends to set a low-

carbon target that is consistent with international standards and promote the introduction of hydrogen that meets this target.

Basic Policy for the realization of GX

The Interim Clean Energy Strategy, released in May 2022, organized supply-side energy strategies and demand-side energy transition strategies. The energy strategy includes ammonia co-firing, a topic that has emerged since the October 2021 release of the Long-Term Strategy as a growth strategy based on the Paris Agreement. The strategy aims to co-fire 20% of ammonia with coal by around 2030. Ammonia, whose molecular formula is NH3, does not emit CO2 when burned. The GX Economic Transition Bonds, for which the first bidding was held in February 2024, did not include fuel ammonia projects. The IPCC does not mention ammonia co-firing. The government considers "thermal" power generation as a base load power source necessary to stabilize electricity supply from renewable energy sources and is encouraging its decarbonization. The government aims to reduce greenhouse gas emissions in coal "thermal" power generation by increasing ammonia co-firing rates. The Interim Arrangement of the Clean Energy Strategy did not include any mention of decarbonization of the ammonia production process.
Based on the above interim arrangement of the strategy, the "The first GX Executive Committee" chaired by Prime Minister Kishida was convened in July 2022.

Based on discussions at the "GX Executive Committee" and at the councils of various ministries and agencies, as well as public comments, the "Basic Policy toward the Realization of GX" was approved by the Cabinet in February 2023.

In order to realize stable energy supply and economic growth at the same time, in the electric power sector, decarbonization efforts toward GX will be promoted, including a shift to decarbonized power sources such as renewable energy and nuclear power that contribute to energy self-sufficiency.
In the hydrogen and ammonia policy, a price differential support system focusing on the price differential with existing fuels will be introduced to build production and supply networks, and a comprehensive institutional design will be implemented, including the aforementioned basic hydrogen strategy.
In addition, based on the importance of energy security, a mechanism will be established to strategically secure surplus LNG while maintaining interests in Sakhalin 1 and 2, etc. In addition, with an eye on energy security in Asia as a whole, it is also indicated that upstream development investments, etc. will be made in cooperation with Asian countries.

For more details, please refer to the "GX Basic Policy and Roadmap" page.

Date of Last Update: August 13th, 2024

Evidence Profile

Key

OPPOSING NOT SUPPORTING MIXED/UNCLEAR
SUPPORTING STRONGLY SUPPORTING