

## Natural Resources &amp; Energy Newsletter



## Recent Regulatory Developments for Utilization of Hydrogen Energy in Japan

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### 1. Recent Developments of Hydrogen Energy in Japan

In his 26 October 2020 policy speech, Prime Minister Yoshihide Suga announced that Japanese society would have to aim for “carbon neutrality” and “substantially zero CO2 emissions” by 2050, and thereafter domestic discussions regarding promoting the use of hydrogen energy gained intensity.

For example, in the “Green Growth Strategy Aiming for Carbon Neutral by 2050” as formulated by the Ministry of Economy, Trade and Industry (“METI”) on 25 December 2020, it is noted that “Hydrogen is a key carbon neutral technology expected to be utilized in a wide range of fields such as power generation, transportation and industry.” In addition to the targets of “aiming for a maximum of 3 million tons of hydrogen to be introduced by 2030” and “aiming for a supply of 20 million tons by 2050,” the plan also proposes the use of hydrogen and ammonia to cover about 10% of the power supply by 2050.

The “Interim Report on Future Hydrogen Policy Issues and Directions for Responses (draft),” which was prepared by METI for the discussion in Hydrogen and Fuel Cell Strategy Council held on 22 March 2021, also shows the overall direction of Japan’s hydrogen strategy to achieve carbon neutral by 2050 and the hydrogen industry’s growth strategy “Process Chart”.

In addition, NEDO (New Energy and Industrial Technology Development Organization), which is a Japanese governmental research institute, announced on 18 May 2021, that it would provide financial support of up to JPY 300 billion for projects to establish large scale hydrogen supply chains (mainly hydrogen transportation technologies and hydrogen power generation technologies), and up to JPY 70 billion for projects to produce hydrogen by water electrolysis; in both instances, the projects will be selected through bid processes.

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In discussions regarding the coming 6th Basic Energy Plan, which is currently under consideration by the government, the promotion of hydrogen utilization as well as the expansion of renewable energy utilization are regarded as important issues.

The full-fledged utilization of hydrogen requires the development of various infrastructures, such as terminals to receive, store and re-gasify imported hydrogen; hydrogen production plants; and facilities to transport hydrogen in liquid, gas or organic hydride forms. Accordingly, greater participation and investment by private companies are expected. On the other hand, the current legal system does not contemplate the use of hydrogen, and as such, it is necessary to clarify the applicable laws and regulations surrounding the streamlined use of hydrogen envisioned in the various policies noted above. The following is an outline of trends related to the revision of such legal framework.

## **2. Discussion on Regulatory Reform to Promote Hydrogen Utilization**

### **(1) Primary applicable laws on hydrogen infrastructures and businesses**

Under the current legal system in Japan, the Gas Business Act and the High Pressure Gas Safety Law must be considered as the primary laws applicable to hydrogen infrastructures and businesses.

The Gas Business Act applies when hydrogen is supplied through pipelines. This is illustrated by the fact that METI has assessed the safety of the hydrogen pipelines in the Tokyo Metropolitan Athlete Village for the Tokyo 2020 Olympic and Paralympic Games on the basis of application of the Gas Business Act thereto.

Under the Gas Business Act, the business of supplying hydrogen to consumers through pipelines will require registration with METI as a “Gas Retail Business Operator”. In addition, regulations to protect consumers (such as the obligation to explain the key terms and conditions in writing before entering into the supply agreement, the obligation to properly respond to claims from consumers, and the obligation to provide consumers with safety information) will be imposed on hydrogen retail suppliers as well.

According to a literal interpretation of the Gas Business Act, businesses operating a hydrogen terminal (which receives, stores and re-gasifies imported hydrogen) will require filing with METI as a “Gas Manufacturing Business”, given that LNG terminals are necessary the same filing with METI. That being said, it is not clear whether hydrogen terminals should be subject to the same regulations as LNG terminals, such as the third-party access regime (under which operators of terminals are required to provide services based on the use of terminals to a third party on fair conditions as long as there is surplus capacity). Such regulatory matters should be discussed taking into consideration the differences between LNG business and hydrogen business, and the necessity to facilitate new developments in, and construction of, hydrogen terminals.

Operators of pipelines used solely for hydrogen supply will not be required to be licensed as a General Gas Pipeline Service Business Operator or a Specified Gas Pipeline Service Business Operator under the Gas Business Act. This is because such business licenses are required only when the pipelines are used to supply gas mainly composed of methane. Regardless of whether a license under the Gas Business Act is required, the safety requirements under the Act, such as conformity of the gas facility with the relevant technical standards, appointment of a chief gas engineer, prudent performance of duties, and a requirement to notify METI of construction plans, will apply to the facilities for hydrogen supply through pipelines.

The High Pressure Gas Safety Act will be the primary regulatory regime applicable to supply of hydrogen not using pipelines (instead using tank lorries, for example). In this case, the operator must comply with the safety requirements under the High Pressure Gas Safety Act and is also required to obtain a manufacturing license from, or to submit a ‘sales business’ notification to, the prefectural governor, depending on the type of the business it will pursue.

Currently, METI, through its working group and council, is discussing the integration and harmonization of laws and regulations applicable to the hydrogen business in conjunction with the review of the overall industrial safety regulations. We should pay attention to such discussion by METI.

## **(2) Movements toward use of hydrogen in power generation and the electricity sector**

Utilization of hydrogen is also expected in the power generation and electricity sector. According to the “Green Growth Strategy” presented in December 2020, METI has also provided a numerical proposal outlining coverage of about 10% of the power supply from hydrogen and ammonia in the year of 2050. In order to promote this plan, it is necessary to introduce a mechanism that properly evaluates the value of non-fossil fuels for electricity generated from hydrogen-based power generation.

In this regard, the Law on the Advancement of Energy Supply Structures (hereinafter referred to as the “**Supply Advancement Act**”) requires electricity retailers with annual electricity sales of 500 million kWh or more to increase the non-fossil power source ratio of their electricity supply to 44% or more by fiscal year 2030. However, the treatment of hydrogen (whether it is considered as a non-fossil energy source thereunder) is not necessarily clear under the current Supply Advancement Act. Therefore, it would be necessary to clarify the inclusion of hydrogen in the non-fossil energy sources under the Supply Advancement Act, as well as the similar treatment of non-fossil value certificates, in order to encourage retailers to procure hydrogen-based electricity.

From the perspective of promoting the production of hydrogen using renewable energy, such as solar and wind power (i.e., “Power to Gas”), it is considered effective to provide a means to earn income in addition to that produced from hydrogen. Specifically, in designing a balancing market (delta kW market), it is important to create a mechanism to evaluate hydrogen production using surplus electricity as an “upward demand response”, and allowing additional income to be earned through such market.

In addition, in relation to the Law on Rational Use of Energy, which regulates the generation efficiency of certain thermal power plants, hydrogen and ammonia will be excluded from the fuels used in calculation of generation efficiency (which basically is determined by the ratio of power output per volume of fuels used for generation), after which amendment, the use of hydrogen and ammonia in thermal power plants will lead an increase in generation efficiency under the Law.

Safety regulation of the use of hydrogen in power generation business will be examined in respect of the issue whether the regulations based on the current Electricity Business Act are sufficient and appropriate.

## **(3) Trends in deregulation of hydrogen stations**

The following sets forth some of the regulatory changes related to the development of hydrogen stations (to supply hydrogen to cars):

### **a. Review of regulations on safety supervisors at hydrogen stations**

At hydrogen stations, a person with a supervisor’s license for high pressure gas production and with a certain level of experience must be appointed responsible for supervising the safe production of high pressure hydrogen as per METI’s internal regulations. In November 2020, these internal regulations of METI were revised to deregulate the requirements for the appointment of such safety supervisor. After the revision, one specific supervisor can supervise the safety of multiple hydrogen stations at the same time, if certain conditions are met.

b. Allowing operation of hydrogen stations by remote monitoring

Considering the overseas situation that the operation of hydrogen stations for self-filling by drivers is already centrally monitored by remote monitoring systems, in August 2020, the relevant regulations were revised to enable operation of hydrogen stations by remote monitoring.

#### (4) Other deregulations

With regard to fuel cell vehicles (FCVs), METI, through the working group and council thereunder, is discussing measures to reduce the burden associated with the dual application of the Road Transportation Vehicles Act and the High Pressure Gas Safety Act. Extension of the period for high-pressure hydrogen container filling to be used in FCVs will also be discussed. In addition, the upper limit of normal pressure (currently 82MPa) is being reviewed for potential increase of the accumulator pressure that may be used at hydrogen stations.

In addition, in discussions concerning the Law on Rational Use of Energy, it is being considered whether to exclude hydrogen and ammonia from the calculation of fuels to be described in the periodic reports by energy users of a certain scale, in order to properly evaluate the use of non-fossil energy, such as hydrogen and ammonia, in terms of energy conservation.

### 3. Conclusion

Promotion of the utilization of hydrogen is expected to become an important part of realizing a carbon neutrality society. In order to promote the development of various infrastructures necessary as preconditions for such change, clarification and rationalization of relevant laws and regulations will be important, in addition to technology innovation. As legal practitioners, we would like to continue to follow these developments.



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