

Client Alert

Energy

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For more information,
contact:

Mark Davies
+81 3 4510 5604
mdavies@kslaw.com

Daisuke Shimodaira
+81 3 4510 5623
dshimodaira@kslaw.com

Michael Meade
+81 3 4510 5624
mmeade@kslaw.com

King & Spalding

Tokyo
Shin Marunouchi Building
12th Floor
5-1, Marunouchi 1-chome
Chiyoda-ku
Tokyo 100-6512
Japan
Tel. +81 3 4510 5600

Japan Proposes New Hydrogen Price-Gap Subsidy

On 6 December 2023, the Ministry of Economy, Trade and Industry of Japan issued a report setting out several measures under which the Japanese government intends to expand the use of low-carbon hydrogen and its derivative products in Japan (“**Interim Report**”), including a subsidy scheme. The Interim Report expands on the principals set out in Japan’s Basic Hydrogen Strategy which was originally published in 2017 and revised on 6 June 2023. The Basic Hydrogen Strategy contemplates the widespread use of low-carbon hydrogen in the power, industrial, civil and transportation sectors in Japan as a means to help achieve Japan’s goal of carbon neutrality by 2050. To help stimulate the widespread use of low-carbon hydrogen as contemplated in the Basic Hydrogen Strategy, the Interim Report introduces as its centerpiece a subsidy scheme covering the cost gap between low-carbon hydrogen (including its derivative products) and fossil fuels to be implemented as early as next year. This client alert discusses the key elements of the subsidy program envisioned in the Interim Report.

PURPOSE OF SUBSIDY

Until institutional measures can be implemented which bring the price of low-carbon hydrogen to a level that makes economic sense, it will be difficult to create large-scale, comprehensive supply and demand for hydrogen. In Japan, the price of hydrogen is currently higher than that of fossil fuels, making hydrogen a difficult energy source for the user side to choose; while at the same time, the supply side is hesitant to make large-scale investments in hydrogen supply projects as it is unsure whether users will commit to purchase large volumes of hydrogen. Consequently, it has been difficult for large-scale low-carbon hydrogen supply chain projects to form. To overcome this situation, the Interim Report sets out a subsidy scheme focusing on price differences between existing fuels and low-carbon hydrogen, with the aim of helping such projects achieve economies of scale and hence encouraging the wider utilization of low-carbon hydrogen in Japan. Under the subsidy, the government will



compensate businesses for the price difference between fossil fuel alternatives and low-carbon hydrogen. This allows suppliers to sell low-carbon hydrogen at the same price as fossil fuel alternatives, thereby increasing the likelihood that offtakers will commit to buying low-carbon hydrogen volumes and hence providing financial certainty for supply-chain investors.

SCOPE OF SUBSIDY

According to the Interim Report, the Japanese government defines low-carbon hydrogen as having a carbon intensity of 3.4kg of CO₂ per kilo of H₂ or lower, and only hydrogen meeting this standard may be subject to the subsidy scheme. The Interim Report contemplates that the subsidy scheme will also be available in respect of derivative products of low-carbon hydrogen, such as ammonia, synthetic methane, and synthetic fuel. However, the standards to be applied to such derivative projects for purposes of eligibility for the subsidy scheme remain to be defined by the government.

The subsidy scheme contemplates an arrangement of risk sharing between the government and the relevant company, which is to be clarified individually per project in a subsidy contract. The subsidy contract for each project will set out the standard price and the reference price to be used to cover the cost gap between low-carbon hydrogen (including its derivative products) and fossil fuels. The subsidies would cover the cost gap of a project for 15 years, although the projects are also required to be capable of running for another ten years once these subsidies cease.

ELIGIBILITY FOR SUBSIDY

The government intends to offer the subsidy to supply companies (businesses that manufacture or import and supply low-carbon hydrogen or its derivatives) that are launching pilot projects for low-carbon hydrogen. On the offtake side, the government will give preference to (i) industries that can contribute to the formation of a commercial low-carbon hydrogen supply chain, such as electric power generation, and (ii) industries where there are few alternative technologies and conversion to low-carbon fuels or raw materials is difficult, such as iron and chemicals.

According to the Interim Report, a project must meet the following core conditions to be eligible for the subsidy support:

- the project must utilize decarbonized resources;
- the project must be based on safety as a major premise;
- the project must contribute to domestic emissions reductions and carbon intensity must be below a certain value;
- the project must be expected to start supply by FY2030; and
- the project must be expected to be self-sustaining for a period of 10 years, after the 15-year support period ends;

The government will also evaluate the eligibility of a project based on its compatibility with Japan's "GX policy" and "S+3E" energy policy. "GX policy" places importance on a project's ability to contribute to decarbonization, strengthening industrial competitiveness, and economic growth. The "S+3E" policy places importance on safety, energy security, environment and economic efficiency. In particular, a project supplying more than 1,000 tons (hydrogen equivalent) of low-carbon hydrogen or its derivative will be considered to meet the S+3E energy security objective.

BUSINESS PLAN REQUIREMENTS

Because the subsidy scheme focuses on building a pilot supply chain in a situation where technology and business are highly uncertain, it is important that the initial business plan appropriately covers the risks which may arise from the project and how such risks will be addressed. From this perspective, the following items in a business plan will be evaluated:



- certainty of securing an off-taker;
- certainty and validity of design, construction, operation plan and financial plan of the project; and
- the risk sharing arrangement between the government and the business in relation to financing, supply start and geopolitical risks.

Furthermore, because the subsidy scheme is also intended to lead the off-taker side to switch to low-carbon hydrogen and its derivatives for raw materials and fuels, the business plan for the proposed project must be created jointly by both the candidate supplier and the relevant off-taker of hydrogen or its derivative products.

PRICE GAP MECHANISM

Rather than offering a fixed payment or tax credit to companies, recipients of the subsidy will receive a top-up payment to the extent a set “standard price” exceeds a floating “reference price”, which will be set individual for each project.

The fixed “standard price” will be the price at which the project can recover (i) the costs required to produce and supply low-carbon hydrogen or its derivatives to Japan and (ii) a profit. The standard price may include a contingency amount equal to 10% of construction costs for unexpected cost increases; however, if such cost increases do not materialize, the unused contingency amount will be deducted from the standard price calculation. Fluctuations in foreign exchange rates and raw material costs will be allowed to be reflected (automatically adjusted) in the standard price; however, an upper limit will be set for such price adjustments. In addition, the government may request a reduction to the standard price if a reduction in market prices occurs due to certain reasons such as the introduction of innovative technology.

The “reference price” will be based on the price of substituted raw materials and fuels (e.g., LNG) arriving in Japan as published in a recognized pricing index, and the reference price will be set at the higher of (i) the price of substituted existing raw materials and fuels (plus a measure of “environmental value”), (ii) actual sales price of hydrogen or its derivative product, or (iii) sales price of hydrogen or its derivatives received on past transactions in existing markets.

If the reference price exceeds the standard price and the project will earn an excess profit, the difference in price must be returned to the government. Further, it is expected that reference prices will rise in the future due to the introduction of carbon pricing and other regulatory measures, such that the amount of the subsidy paid out would slowly decrease.

GOING FORWARD

The Interim Report indicates that the government aims to start soliciting applications from companies for the subsidy program around the summer of 2024 and to start selecting projects within 2024, depending on the progress of development of the subsidy program. We will continue to monitor the development of the subsidy program and can provide further details and updates regarding the program upon request.



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