

## European Solar Energy Storage

# Japan s hydrogen storage capacity is not large





Does Japan have a hydrogen supply problem?

With key partners still developing their hydrogen export capacity, the risk of supply delays or price shocks remains real. While Japan has committed to procuring 12 million tons of hydrogen annually by 2040, the government has yet to specify how this hydrogen will be allocated across key sectors.

Does Japan have a fixation on hydrogen?

Japan's fixation on hydrogen needs to be contextualized within the backdrop of the island nation's industry influences, and their bet that many coal and gas power plants will persist and bring promise for hydrogen use.

How much hydrogen will Japan use in 2040?

Currently, however, Japan has the objective of using up to 3 million tons/year by 2030 and approximately 20 million tons/year by 2050 in order to accelerate the transition toward a hydrogen/ammonia-based society. We will set an additional objective of using 12 million tons of hydrogen (including ammonia) per year for 2040.

How will Japan use hydrogen to decarbonize the world?

This vision also includes developing infrastructure for large-scale storage, transportation, and distribution of hydrogen across industries. Japan aims to use hydrogen to decarbonize key sectors like transportation, heavy industry, and power generation.

Does Japan have a Hydrogen strategy?

It was the first nation to publish a national hydrogen strategy, positioning hydrogen as a cornerstone for industrial competitiveness and energy security. Nearly a decade later, Japan's ambitious endeavour offers inspiration and caution.

Is Japan a 'hydrogen society'?

Since 2017, Japan has envisioned a 'hydrogen society,' integrating hydrogen across various sectors from transportation and steel production to gas and electricity. It was the first nation to publish a national hydrogen strategy, positioning hydrogen as a cornerstone for industrial competitiveness and energy security.

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### Basic Hydrogen Strategy

The National Hydrogen Strategy (June 2020)<sup>19</sup> includes the objectives of achieving 5 GW of hydrogen production capacity by 2030 and an additional 5 GW of hydrogen production capacity by 2035, if possible, or at the latest by 2040.

## JAPAN'S HYDROGEN AND AMMONIA POLICIES

Low-carbon hydrogen and ammonia are viewed as key elements for Japan's energy security and decarbonisation efforts, and an important sector for Japan's economic growth and industrial policy, but key challenges remain for their large-scale deployment.



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## Japan, Green Hydrogen Organisation

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## Hydrogen and Japan's Energy Transition: A Blueprint for Carbon ...

3 ???· Japan aims to achieve carbon neutrality by 2050, with intermediate targets including 3 million tons of hydrogen use by 2030 and 20 million tons by 2050. Unlike countries with abundant domestic renewables, Japan's approach emphasizes hydrogen imports and advanced storage technologies, driven by limited local renewable capacity.



## Hydrogen and Fuel Cells perspective in Japan

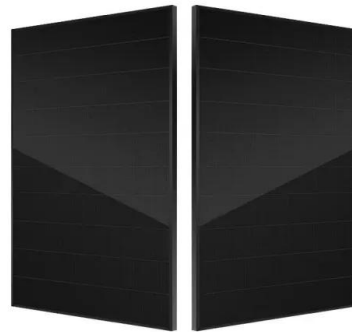
Hydrogen is key technology for carbon neutral Japan has been strongly promoting hydrogen Just started market penetration need to enhance

application, improve technology Our goal:  
 Developing low-carbon energy system scaling-up  
 / integration with other energy system



## Dies ist der Titel

However, Japan's capacity for domestic hydrogen production, especially for green hydrogen, is strongly limited due to scarcity of suitable land. As some countries within the EU, Japan is thus expected to become a large importer of hydrogen.



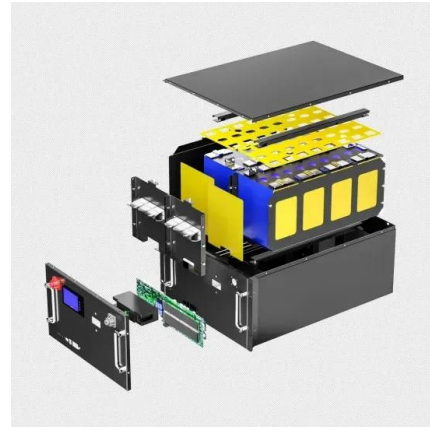
## Screening and ranking Japanese gas fields for underground H2 storage

In contrast, depleted gas reservoirs are viable due to their large storage capacity and confidence in reservoir behavior throughout years of production. Also, there is sufficient information regarding the caprock location and structural seal.

## Japan's hydrogen gamble: Learning from Japan's energy bet

Japan's hydrogen strategy reflects challenges faced by many industrialized, resource-scarce countries. While cost is undeniably a major barrier to hydrogen adoption, there are

fundamental questions that must be addressed.



### [Japan , Green Hydrogen Organisation](#)

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### **Green vows, gas realities: Japan's clean energy dilemma**

Analysts highlight that Japan's fundamentals, high energy prices, dense urban markets and strong manufacturing capacity make it well-positioned to lead in next-generation battery systems and grid-scale hydrogen storage, though deployment remains slow due to regulatory and cost barriers.



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