



## INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

### IPHE Country Update November 2022: Japan

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<b>Covered Period</b>	June to November 2022

#### 1. New Initiatives, Programs, and Policies on Hydrogen and Fuel Cells

##### ✧ **Launched “Study Group on the Formulation of a Hydrogen Safety Strategy”**

With growing needs of hydrogen, we established the new “Study group on the formulation of a Hydrogen Safety Strategy” in August 2022.

The objective is to improve the overall strategy for hydrogen safety issues from the following perspectives;

- The regulation to acquire the necessary permission to a seamless utilization of the hydrogen supply
- Determining the classification in respond to the physical characteristics of hydrogen, technological progress, and risks.
- Guarantee safety to ensure the safety of consumers and local residents

The document of the Study Group is available via following website:

[https://www.meti.go.jp/shingikai/safety\\_security/suiso\\_hoan/index.html](https://www.meti.go.jp/shingikai/safety_security/suiso_hoan/index.html)

\*Unfortunately, in Japanese version only.

##### ✧ **Launched “Mobility Hydrogen Public-Private Conference”**

We established the Mobility Hydrogen Public-Private Conference for the public and private sectors (and the suppliers and demanders) in September 2022.

The objective is having the Cross-industry discussion toward expanding the use of hydrogen in mobility to develop a shared future vision and discuss together what policies will be necessary.

(Issues to be discussed)

- Identifying priority categories (e.g. buses and small and large trucks) in the mobility sector
- Scale to introduce the vehicles and infrastructure on by 2030, and road maps for doing so
- Optimal distribution of hydrogen stations based on uses (last mile, trunk lines, etc.)
- Cost targets for the vehicles, hydrogen stations (introduction and operation), and the hydrogen itself
- Various measures in light of the above (budget, systems, etc.)

The document of the conference is available via following website:

[https://www.meti.go.jp/english/press/2022/0906\\_003.html](https://www.meti.go.jp/english/press/2022/0906_003.html)

#### 2. Hydrogen and Fuel Cell R&D Update

Nothing new to report in this period.



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### 3. Demonstration, Deployments, and Workforce Developments Update

✧ **Suntory and Yamanashi Prefecture to produce green hydrogen by installing Japan's largest 16MW Power-to-Gas System at Suntory's Hakushu facilities by 2025"**

Suntory Holdings and Yamanashi Prefecture has signed a basic agreement to collaborate on decarbonizing Suntory Hakushu Distillery and Suntory Minami Alps Hakushu Water Plant located in Yamanashi Prefecture. Install the country's largest 16MW "Yamanashi Model Power-to-Gas (P2G) System", which is supported by Japanese government's a Green Innovation Fund program under the at the company's Hakushu facilities by 2025.

The document of the conference is available via following website:

<https://www.suntory.com/news/article/14225E.html>

✧ **5th Hydrogen Energy Ministerial Meeting**

Japan launched the Hydrogen Ministerial Meeting (HEM) in 2018. HEM is the most ideal meeting for hydrogen-related ministers and top executives to express and discuss directions to build hydrogen society and future initiatives.

At the HEM 2022 on 26th September 2022, the Chair added the additional goals on the amount of renewable and low-carbon hydrogen to be produced by 2030 of at least 90Mt H<sub>2</sub>, with stress the investment needed to achieve this.

The document of the conference is available via following website:

[https://www.meti.go.jp/english/press/2022/1007\\_001.html](https://www.meti.go.jp/english/press/2022/1007_001.html)

### 5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding

Nothing new to report in this period.

### 6. Regulations, Codes & Standards, and Safety Update

Nothing new to report in this period.



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### Summary Country Update November 2022: Japan

Transportation	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
Fuel Cell Vehicles <sup>1</sup>	40,000 by 2020 200,000 by 2025 800,000 by 2030	7,457 As of Sep. 2022	<ul style="list-style-type: none"> <li>e.g., Vehicle roll-out for first 5 years to focus on 2 transport corridors: Le Pas to Churchill; and, Calvinia to Exelsior</li> </ul>	<ul style="list-style-type: none"> <li>Subsidy for purchase (national and local government initiative)</li> </ul>
FC Bus	100 by 2020 1,200 by 2030	120 As of Oct.2022		<ul style="list-style-type: none"> <li>Subsidy for purchase (national and local government initiative)</li> </ul>
Fuel Cell Trucks <sup>2</sup>	No target	-		<ul style="list-style-type: none"> <li>Subsidy for R&amp;D, demonstration (national government initiative)</li> </ul>
Forklifts	500 by 2020 10,000 by 2030	397 As of Oct. 2022		<ul style="list-style-type: none"> <li>Subsidy for R&amp;D, demonstration (national government initiative)</li> <li>Subsidy for purchase (national government initiative)</li> </ul>
H <sub>2</sub> Refueling Stations	Target Number	Current Status	Partnerships, Strategic Approach	Support Mechanism
70 MPa On-Site Production	160 by 2020 320 by 2025 1000 by 2030 (including delivered)	26 operational As of Mar. 2022 (1 in progress)	<ul style="list-style-type: none"> <li>Initially focusing on four major metropolitan areas</li> <li>Establishing Japan H2 mobility LLC, (JHyM) for development of a hydrogen station network</li> <li>Regulatory reform of HRS</li> </ul>	<ul style="list-style-type: none"> <li>Subsidy for CAPEX/OPEX (national government and partially local government initiative)</li> </ul>

<sup>1</sup> Includes Fuel Cell Electric Vehicles with Range Extenders

<sup>2</sup> As above



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70 MPa Delivered	160 by 2020 320 by 2025 1000 by 2030 (including on-site production)	131 operational As of Mar. 2022 (8 in progress)	<ul style="list-style-type: none"> <li>Initially focusing on four major metropolitan areas</li> <li>Establishing Japan H2 mobility LLC, (JHyM) for development of a hydrogen station network</li> <li>Regulatory reform of HRS</li> </ul>	<ul style="list-style-type: none"> <li>Subsidy for CAPEX/OPEX (national government and partially local government initiative)</li> </ul>
35 MPa On-Site Production	-	26 operational As of Oct. 2020	<ul style="list-style-type: none"> <li>Municipality lead instruction as official vehicles</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
35 MPa Delivered	e.g., No target	As of [date] SS		
Stationary	Target Number <sup>3</sup>	Current Status	Partnerships, Strategic Approach	Support Mechanism
Small <sup>4</sup>	3.0 M by 2030	About 420,000 units As of Dec. 2021	<ul style="list-style-type: none"> <li>Establishing ENE-FARM Partners (manufacturers, gas companies and constructors)</li> <li>Commercializing fuel cells(PEFC) for application by 2019</li> <li>Commercializing fuel cells(SOFC) for application by 2021</li> </ul>	<ul style="list-style-type: none"> <li>Subsidy for purchase (national and local government initiative)</li> </ul>
Medium <sup>5</sup>	No target	SOFC:10 As of August 2021		

<sup>3</sup> Targets can be units installed and/or total installed capacity in the size range indicated

<sup>4</sup> <5 kW (e.g., Residential Use)

<sup>5</sup> 5kW – 400 kW (e.g., Distributed Residential Use)



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Large <sup>6</sup>	No target			
District Grid <sup>7</sup>	No target			
Regional Grid <sup>8</sup>	No target			
Telecom backup	No target			
H <sub>2</sub> Production	Target <sup>9</sup>	Current Status	Partnerships, Strategic Approach	Support Mechanism
Fossil Fuels <sup>10</sup>	Procure 300,000 ton of Hydrogen annually by 2030 Reduce the cost of hydrogen to JPY30/Nm <sup>3</sup>	During the demonstration project	<ul style="list-style-type: none"> <li>• Japan-Australia Hydrogen Supply Chain pilot project</li> <li>• Green Innovation Fund</li> </ul>	<ul style="list-style-type: none"> <li>• Subsidy for R&amp;D, demonstration (national government initiative)</li> </ul>
Water Electrolysis <sup>11</sup> (PEM, Alkaline, SOEC)	Energy consumption (kWh/Nm <sup>3</sup> ): (Alkaline) 4.3 by 2030 (PEM) 4.5 by 2030	(Alkaline) 4.3 - 5.0 As of Mar. 2020 (PEM) 4.6 – 4.8As of Mar. 2020 (Demonstrated spec)	<ul style="list-style-type: none"> <li>• 10MW Alkaline water electrolyser project in Fukushima.</li> <li>• 2.3MW PEM water electrolyser project in Yamanashi.</li> </ul> Green Innovation Fund	<ul style="list-style-type: none"> <li>• Subsidy for R&amp;D, demonstration (national government initiative)</li> </ul>

<sup>6</sup> 0.3MW – 10 MW (e.g., Industrial Use)

<sup>7</sup> 1MW – 30 MW (e.g., Grid Stability, Ancillary Services)

<sup>8</sup> 30MW plus (e.g., Grid Storage and Systems Management)

<sup>9</sup> Target can be by quantity (Nm<sup>3</sup>, kg, t) and by percentage of total production; also, reference to efficiency capabilities can be a target

<sup>10</sup> Hydrogen produced by reforming processes

<sup>11</sup> Please indicate if targets relate to a specific technology (PEM, Alkaline, SOEC)



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By-product H <sub>2</sub>	No target			
<b>Energy Storage from Renewables</b>	<b>Target<sup>12</sup></b>	<b>Current Status</b>	<b>Partnership, Strategic Approach</b>	<b>Support Mechanism</b>
Installed Electrolyser Capacity	No target			<ul style="list-style-type: none"> <li>• Subsidy for R&amp;D, demonstration (national government initiative)</li> </ul>
Power to Power <sup>13</sup> Capacity	No target			
Power to Gas <sup>14</sup> Capacity	No target			<ul style="list-style-type: none"> <li>• Subsidy for R&amp;D, demonstration (national government initiative)</li> </ul>

<sup>12</sup> Can be expressed in MW of Installed Capacity to use the electricity from renewable energy generation, and Annual MWh of stored energy capacity

<sup>13</sup> Operator has an obligation to return the electricity stored through the use of hydrogen back to electricity

<sup>14</sup> Operator has the opportunity to provide the stored energy in the form of hydrogen back to the energy system through multiple channels (e.g., merchant product, enriched natural gas, synthetic methane for transportation, heating, electricity)