



## **IPHE Country Update April 2022: Japan**

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<b>Covered Period</b>	July 2021 – April 2022

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

Japan launched "Hydrogen Policy Committee" as one of METI's formal councils, at the end of March 2022. The committee mainly focuses on infrastructure development and addressing cost differences between hydrogen and current energy (e.g., fossil fuel).

Discussions are based on the Japanese situation and circumstances, and looking at developments in the hydrogen market framework, such as H2Global. Initial Committee documents are available via following website:

<https://www.meti.go.jp/shingikai/enecho/shoene/shinene/suiso/seisaku/001.html>

\*Unfortunately, in Japanese version only.

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

Nothing new to report in this period.

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

A ceremony to mark the completion of the world's first maritime transport of liquefied hydrogen, including its loading and unloading has been held in Kobe, Japan.

The demonstration voyage by the world's first liquefied hydrogen carrying vessel, Suiso Frontier, proved that an international liquefied hydrogen supply chain is possible, marking a significant step towards the utilization of hydrogen as a new energy source.

### **4. Events and Solicitations**

Nothing new to report in this period.

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

Nothing new to report in this period.

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

A Cabinet decision has been made on the Bill for the Act of Partial Revision of the Act on the Rationalization etc. of Energy Use and Other Acts in Order to Establish Stable Energy Supply and Demand Structure. The bill will be submitted to the ongoing 208th ordinary session of the Diet.

The hydrogen-related bill *Act on the Promotion of Use of Non-fossil Energy Sources and Effective Use of Fossil Energy Materials by Energy Suppliers*

- Promotes the use of decarbonized fuels by including hydrogen and ammonia as non-fossil energy sources, and
- Promotes the use of thermal power with CCS.



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

### Summary Country Update April 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	7,106 As of Feb. 2022		<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 Feb. 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 Mar. 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>e.g., Subsidy for installation through a tax measure of an annual 50% capital expenditure write-off</li> </ul>
35 MPa Delivered	-	-		
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>	

<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)



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Medium <sup>5</sup>	No target	SOFC:10 As of August 2021		
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)	(Alkaline) 4.3 - 5.0 As of Mar. 2020 (PEM)	<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>	<ul style="list-style-type: none"> <li>• Subsidy for R&amp;D, demonstration (national government initiative)</li> </ul>

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

<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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	4.3 by 2030 (PEM) 4.5 by 2030	4.6 – 4.8As of Mar. 2020 (Demonstrated spec)	Green Innovation Fund	
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			• Subsidy for R&D, demonstration (national government initiative)
Power to Power <sup>13</sup> Capacity	No target			
Power to Gas <sup>14</sup> Capacity	No target			• Subsidy for R&D, demonstration (national government initiative)

<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)