



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

### IPHE Country Update June 2020: Japan

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<b>Covered Period</b>	October 2019 – June 2020

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

Nothing new to report in this period.

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

Research and Development project for FC has begun in NEDO. The public offering closed March 2020, and the result will be presented in the end of July.

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

The world's first international hydrogen supply chain project, with the [LH2 carrier ship launched in December 2019](#).

Opening Ceremony of [Fukushima Hydrogen Energy Research Field](#) (FH2R) were held on March 7.

#### 4. Events and Solicitations

The Third Hydrogen Energy Ministerial Meeting will be held in this autumn (TBC).

#### 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 March 2020: 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	3,757 As of March 2020	-	• Subsidy for purchase (national and local government initiative)
FC Bus	100 by 2020 1,200 by 2030	57 As of March 2020	-	• Subsidy for purchase (national and local government initiative)
Fuel Cell Trucks <sup>2</sup>	No target	-	-	• Subsidy for R&D, demonstration (national government initiative)
Forklifts	500 by 2020 10,000 by 2030	250 As of March 2020	-	• Subsidy for R&D, demonstration (national government initiative) • Subsidy for purchase (national government initiative)
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	19 operational As of May 2020 (7 in progress)	• Initially focusing on four major metropolitan areas	• Subsidy for CAPEX/OPEX (national government and partially local government initiative)
70 MPa Delivered		111 operational As of May 2020 (20 in progress)	• Establishing Japan H2 mobility LLC, (JHyM) for development of a hydrogen station network Regulatory reform of HRC	

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

<sup>2</sup> As above



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35 MPa On-Site Production	-	26 operational As of May 2020	<ul style="list-style-type: none"> <li>• Municipality lead instruction as official vehicles</li> </ul>	
35 MPa Delivered		-		
Stationary	Target Number <sup>3</sup>	Current Status	Partnerships, Strategic Approach	Support Mechanism
Small <sup>4</sup>	5.3 M by 2030	313,255 As of March 2020	<ul style="list-style-type: none"> <li>• Establishing ENE-FARM Partners (manufactures, 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 government initiative)</li> </ul>
Medium <sup>5</sup>	No target	SOFC:7 as of March 2020		<ul style="list-style-type: none"> <li>• Subsidy for purchase of (national government initiative)</li> </ul>
Large <sup>6</sup>	No target			
District Grid <sup>7</sup>	No target			<ul style="list-style-type: none"> <li>•</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)

<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)



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Regional Grid <sup>8</sup>	No target			
Telecom backup	e.g., 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>		<ul style="list-style-type: none"> <li>• Japan-Australia Hydrogen Supply Chain pilot project</li> <li>• Japan-Brunei Hydrogen Supply Chain pilot project</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) 4.5 by 2020 4.3 by 2030 (PEM) 4.9 by 2020 4.5 by 2030	(Alkaline) 4.3 - 5.0 As of March 2020 (PEM) 5.0(catalog spec), 4.6 – 4.8(demonstrated spec) As of March 2020	<ul style="list-style-type: none"> <li>• 10MW Alkaline water electrolyser project in Fukushima.</li> <li>• 1.5MW 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>
By-product H <sub>2</sub>	No target			

<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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Energy Storage from Renewables	Target <sup>12</sup>	Current Status	Partnership, Strategic Approach	Support Mechanism
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)