Hydrogen Infrastructure
Related issue in Japan

New Energy and Industrial Technology Development organization (NEDO)

2014 hydrogen Workshop
June 27, 2014
Hotel Mt.FUJI 、Japan
1. ENE-FARM: R&D Program - subsidy

- Subsidy to be finished in FY 2015.
- Government targets 5.3 million units in accumulating total until 2030.
- Needs cost reduction to less than 1 million yen for further widespread commercialization as well as durability improvements.
2. FCV and HRS Deployment
~ Commercialization Scenario by FCCJ*~

* Fuel Cell Commercialization Conference of Japan

**Commercialization Scenario for FCVs and H₂ Stations**

<table>
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<th>Phase 1</th>
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- **2010-2011**: Solving technical issues and promotion of review regulations (Verifying & reviewing development progress as needed)
- **2014-2015**: Verifying utility of FCVs and H₂ stations from socio-economic viewpoint
- **2016**: Expanding production and sales of FCVs while maintaining convenience of FCV users
- **2017-2025**: Reducing costs for H₂ stations and hydrogen fuel
- **2026**: Continuously conducting technology development and review of regulations

**Key Dates**

- **Year 2015**: Target commercialization start of FCV to general public
- **Year 2025**: Increase numbers of FCV and H₂ stations based on profitable business

**Notes**

- **Precondition**: Benefit for FCV users (price/convenience etc.) are secured, and FCVs are widely and smoothly deployed

**Additional Notes**

- **2025**: Contribute to diversity of energy sources and reduction of CO₂ emissions
- **2026**: Costs for H₂ station construction and hydrogen reach targets, making the station business viable.
- **2027**: FCV 2,000 units/station
- **2030**: Period in which preceded H₂ station building is necessary

**Stations and Vehicle Numbers**

- **Approx. 1,000 H₂ stations**
- **Approx. 2 million FCVs**
- **Note**: Vertical axis indicates the relative scale between vehicle number & station number.

3. R&D National Program
~To solve issues for Hydrogen Infrastructure~

Item 1: Streamlining Regulations

“Regulation Reform Plan” (Cabinet approved in June 2013)
- 24 items were identified as priority
  (e.g. location, distance, materials, etc.)

Item 2: R&D on low cost equipment for HRS

  e.g. Compressor, Pre-cooler, Reformer, etc.

Item 3: Code and Standard

  e.g. quality, metering, filling, inspection, etc.
## 3. FCV/Hydrogen Infrastructure Projects in Japan

<table>
<thead>
<tr>
<th>Year</th>
<th>Project Description</th>
<th>Responsible Organization</th>
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<tbody>
<tr>
<td>1993</td>
<td>WE-NET: International Clean Energy Network using Hydrogen Convention (World Energy-NETwork)</td>
<td>METI</td>
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<tr>
<td>1993~</td>
<td>Fundamental development project of hydrogen society building</td>
<td>NEDO</td>
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<tr>
<td>2001~2010</td>
<td>Establishement of HySUT project</td>
<td>METI</td>
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<td>2009</td>
<td>Hydrogen highway project by METI</td>
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<tr>
<td>2009</td>
<td>JHFC3 by NEDO (1) Technical &amp; Social Demonstration</td>
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<tr>
<td>2010</td>
<td>JHFC3 by NEDO (2) Regional Demonstration</td>
<td></td>
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<tr>
<td>2011</td>
<td>Development of technologies for hydrogen production, delivery and storage systems</td>
<td>NEDO</td>
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<tr>
<td>2013</td>
<td>Research and development of technologies for hydrogen utilization</td>
<td>NEDO</td>
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<tr>
<td>2014</td>
<td>Research on hydrogen storage material</td>
<td>NEDO</td>
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</tbody>
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**Notes:**
- METI: Ministry of Economy, Trade and Industry
- NEDO: New Energy and Industrial Technology Development Organization
- WE-NET: International Clean Energy Network using Hydrogen Convention (World Energy-NETwork)
- JHFC: Japan Hydrogen & Fuel Cell Demonstration Project

**Abbreviations:**
- **HySUT**: Hydrogen Highway System Utilization Test
5. Promotion of HRS Installation: Current Status

- Prior to market introduction of FCVs (2015), 100 HRSs will be installed in 4-major-populated-areas (Tokyo, Aichi, Osaka, Fukuoka)
- METI subsidizes about 50% of HRS installation cost (2014FY 7.2 billion JPY)

Status of HRSs (as of June 19th)
- Budget secured: 31 stations
- 1 Large H2 Production Facility
Thank you for your attention!