International Activity
Auto Industry Public Statements

2010-2015

• Japan: 200 vehicles by 2012 (Honda)
  100+ vehicles by 2012 (Toyota)
• Korea: 500 - 1000 vehicles by 2012
  2,000 2012 – 2014 (Hyundai-Kia)
• China: 200 vehicles in 2010
• Europe: Daimler “Commercialization” in 2014,
  300+ 2010-2011, 1,000 by 2012 or 2013
Auto Industry Public Statements

Post-2015

• Japan: 2 million FCEVs by 2025 (Honda, Toyota, GM, Daimler)

• Korea: 10,000 FCEVs in 2015
  100,000 units in 2020 (Hyundai-Kia)

• Europe: 10,000 FCEVs a year by 2015
  100,000 a year by 2020 (Daimler)
  600,000 total by 2020
German and JapaneseCoalitions

- About 11 stations now, another 20 announced; 500-1000 by 2017
- Public-private coalition NOW
- 17 private companies: H₂Mobility
  Developing business case
  Government support sought

- About 13 stations now
- Private sector coalition of 13
- 50-100 stations by 2015, 2000 by 2025
- Major urban areas to be linked by connection stations on highways
  Government support anticipated but not specified
FCEV Commercialization Targets in Japan

Commercialization Scenario for FCVs and H₂ Stations

- **Phase 1 (Solving technical issues and promotion of review regulations)**
  - 2010: Technology Demonstration [JHFC-2]
- **Phase 2 (Technology & Market Demonstration)**
  - 2011: Post JHFC
- **Phase 3 (Early Commercialization)**
  - 2016: Starting Period
  - 2025: Expansion Period
- **Phase 4 (Full Commercialization)**
  - 2026: Profitable business Period

- **Year 2015**
  - Target commercialization start of FCV to general public

- **Year 2025**
  - Increase numbers of FCV and H₂ stations based on profitable business
  - Cost for H₂ station construction and hydrogen reach targets, making the station business viable. (FCV 2,000 units/station)

- **Year 2026**
  - Period in which preceded H₂ station building is necessary
  - Increase of FCV numbers through introduction of more vehicle models

**Notes:**

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

**Key Points:**

- **2010:** Approx. 1,000 H₂ stations
- **2011:** Approx. 2 million FCVs
- **2015:** Begin building commercial type H₂ stations
- **2025:** Determine specifications of commercial type H₂ stations
Korea

- ~10 stations, +3 in 2011
- Nanjido: landfill-to-hydrogen
- Strong government commitment: Korea wants to supply 20% of world’s fuel cells
China

• Fuel cell EVs part of new 5-year plan
• Stations in Beijing, Anting
• 3-4 stations in Shanghai for 2010 Expo (coke oven gas)
• Chongming green community project
Other Efforts: Light Duty and Bus

- Canadian Hydrogen Highway (BC)
- Scandinavian Hydrogen Highway (Norway, Sweden, Denmark, Holland): Hyundai committed
- Iceland
- United Kingdom
- German “laboratory” projected to expand to rest of Europe
US: about 50 hydrogen fueling stations are operating
State-Level Programs

Hawaii: \( \text{H}_2\text{waii} \)

- DOE, DOD, NREL, State, the Gas Company (TGC), U of Hawaii, GM, Fuel Cell Energy, etc.
- 20-25 \( \text{H}_2 \) fueling stations
- 5,000 – 25,000 cars
State-Level Programs

New York: NYH₂

100 station plan
- 70 City Stations
- 30 Highway Stations
- 7 Stations today (down from 10!)

✓ NY state is 54,000 sq miles of land
✓ Germany & Japan are approx 3X larger
✓ California is 163,000 sq miles
✓ NY should be easier to implement