2015 Annual Report Discussion

DOE HTAC Meeting

October 2015

2014 Annual Report

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- Structure (8 total pages):
  - Summary
  - HTAC Activities
  - Commerc. Initiatives
  - Policy, Regs, and C&S
  - Financial Climate
  - Research and Development
  - Reports
  - Conclusions
- Well done Bob!

2014 ANNUAL REPORT of
The Hydrogen and Fuel Cell Technical Advisory Committee

Hydrogen and Fuel Cell
Technical Development and Commercialization Activity

This Annual Report of the Hydrogen and Fuel Cell Technical Advisory Committee (HTAC) highlights worldwide advances and challenges with regard to hydrogen and fuel cell commercialization, policy, regulations, standardization, financial climate, and research and development (R&D) during 2014.

Overall, the industry appears to be making headway. Even though it faces entrenched incumbents in power generation, combined heat and power, and forklift markets, the fuel cell industry has found competitive niches, albeit in most cases supported by incentives such as tax credits, renewable energy generation credits, direct payments, or concessionary regulations. The emergence of commercially available fuel cell electric vehicles (FCEVs) has captured the attention of governments and the general public, which bodes well for continued commercial expansion in 2015.

Summary

- A commercial fuel cell and hydrogen energy industry is emerging. Worldwide revenues may reach $2 billion[1] in 2015, dominated by the sale of large power systems. Markets are opening in Africa, South Asia, and South America.
- FCEVs are being sold and leased in Asia, Europe, and the United States (Fig. 1). California dedicated funds to an incentive program worth $5,000 per vehicle; Japan's federal government and the city of Tokyo announced a combined $27,000 per vehicle incentive.
- The number of residential fuel cell systems installed in homes in Japan exceeded 100,000 in 2014, aided by price reductions, continued government support, and consumer concern over energy reliability; new markets are opening in apartment buildings, where fuel cells are offered by builders as an appliance option.
- Total fuel cell power generation capacity in the United States was near 200 megawatts (MWs) by the end of 2014.
- After a difficult 2013, the market for fuel cell forklifts began to recover, led by an order of 1,783 units from Walmart.
- Several U.S. fuel cell companies improved their financial position, in some cases dramatically, through stock sales or private investment.
- Two well-established corporations—Doosan of South Korea and Hyster-Yale—entered the business; General Electric announced a commercialization initiative.

Governments, private companies, and investors made substantial commitments in 2014.

- Japan's new national energy policy gives hydrogen "the central role" in a new distributed energy system and sets ambitious targets for FCEVs and residential fuel cell sales. Japan's budget totals about $500 million for R&D, vehicle infrastructure, and deployment. Japan also set aside $350 million to showcase hydrogen and fuel cells at the 2020 Olympics.

Figure 1. On June 10, 2014, Hyundai leased the world's first mass-produced fuel cell vehicle in Huntington Beach, CA. *Image courtesy of Hyundai Motor America, Inc.*

- In Europe, the European Commission formalized a seven-year commitment for fuel cell and hydrogen research, development, and demonstration (RD&D) and increased its financial commitment to more than $800 million. Industry-led H2Mobility established a new corporation to build stations and sell hydrogen throughout Europe, with a budget of about $445 million, most of it from private funds.
- California, in 2013, pledged up to $20 million annually to finance 100 hydrogen stations; in 2014, Toyota and Honda supported the effort financially with a combined $22 million. Toyota and Air Liquide announced plans for 12 stations in New England.

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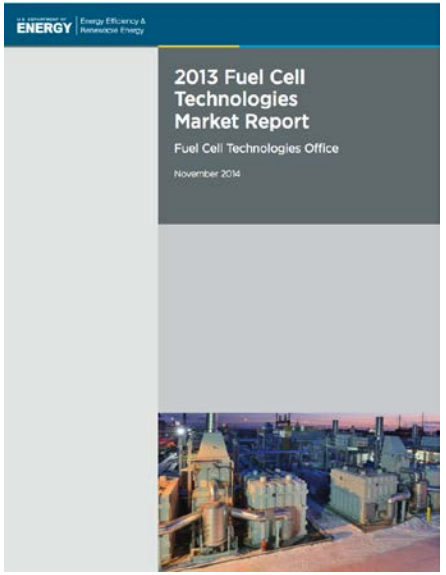
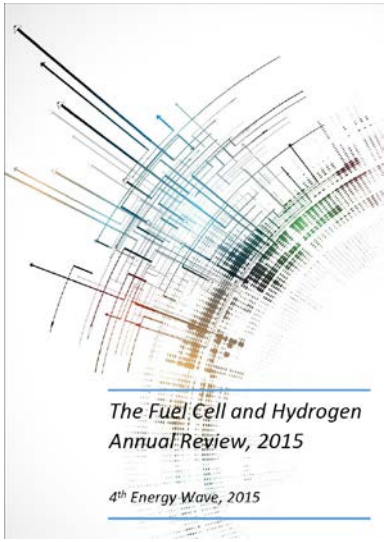
Key Questions for 2015

- What is our target audience?
- Are we reaching this audience today?
- Can we reach this audience more effectively?
- Are there other valuable things we should be doing?
- 2014 report published in May/June, earlier than the previous year
- How can we continue to make the report effort better?

Resources

- DOE Market Review
- E4 Tech
- 4th Energy Wave
- Industry announcements
- Others?





Status and Timeline

- “Key development” activities for 2015 are being collected and compiled
- HTAC members will be solicited in November for their input on key items to include
- Those willing to take larger input/editing roles are welcome!
- Draft initial report target: December 15, 2015
- Draft full report target: February 1, 2016