Highlights of the 2011 FCHEA Annual Conference

Washington, D.C

February 15-18, 2011

The FCHEA conference was a success, with over 800 attendees. Despite the black cloud generated by Sec Chu the previous week with his announcement that the DOE hydrogen and FC budget would be cut by 41% in his FY2012 request, the enthusiasm and commercial success stories and particularly the plans to charge ahead with FCEV deployments in other nations (Germany, Japan, South Korea, and Denmark, other Scandinavia among others) lifted our spirits and encouraged many participants to conclude that hydrogen and fuel cells will dominate our energy future, even if the US falls far behind due to failing Presidential leadership.

Highlights included:

The conference started with four encouraging addresses:

1. **Ruth Cox**, the Executive Director of the new Fuel Cells and Hydrogen Energy Association (FCEA) demonstrated that the merger of the National Hydrogen Association and the US Fuel Cell Council is alive and well. She wryly noted that the Obama Administration has constructed arbitrary walls around various energy programs, picking winners and lowers, such as walling off hydrogen and fuel cells from BEVs and PHEVs which continue to receive substantial government subsidies. She admonished: "Mr. President, tear down those walls!"
2. **Charlie Freese**, head of GM's FCEV program followed with a reassuring talk that demonstrated that General Motors is still actively engaged in the FCEV arena, despite efforts by the Obama Administration to denigrate hydrogen and fuel cell electric vehicles. (We had feared that when the Administration took over control of GM, they might try, directly or indirectly to kill the GM FCEV program.) Charlie's address made it clear that the GM FCEV program is also alive and thriving. He described their exciting new program to introduce a fleet of the Chevy Equinox FCEVs in Hawaii, using hydrogen that is currently contained in a synthetic natural gas pipeline that runs through Honolulu on Oahu. This pipeline owned by The Gas Company on Oahu, already contains 12% or so of hydrogen, and they plan to increase the hydrogen content up to 20%. This hydrogen will then be extracted from the pipeline at local fueling stations to supply hydrogen to FCEVs.
3. **Jeremy Rifkin**, a visionary thinker[1], the founder and president of The Foundation on Economic Trends in Bethesda, Maryland, described his five-pillar approach to form a sustainable global energy future that includes hydrogen storage as a key element. He began by noting that while others debate whether we have reached "peak oil," in fact the world reached "peak oil per capita" in 1979, according to BP. Oil production has increased since 1979, but population has

[1] Jeremy Rifkin is also the author of "When there is no more oil: ***The Hydrogen Economy***; the creation of the worldwide energy web and the redistribution of power on Earth- the next Great Economic Revolution." Jeremy P. Putnam, New York, N.Y. 2002. And more than 14 other books.

grown faster. Mr. RIfkin postulated that the real "tipping point" in the economic collapse of 2008 occurred in July when oil peaked at $147/bbl. The collapse occurred 60 days later. He warns that we are following a treacherous path, since our civilization as we know it depends critically on petroleum, including most food production. He warned that we could lose 22% to 70% of all life on Earth due to climate change unless we act now.

Mr. Rifkin's solution: The plan that he calls the "Third Industrial Revolution" that has five pillars:

1. 20% renewables by 2020
2. Central renewable production is necessary, but not sufficient; we need Micro-power Distributed generation (such as on 191 billion buildings in the EU)
3. Hydrogen storage so that hydrogen becomes the energy vector for vehicles and stationary power generation
4. Communications- the internet to manage millions to billions of micro generators across each country, shipping energy from those with excess to those in need.
5. Transportation: FCEVs, not BEVs. Electrolyzers to produce hydrogen in many distributed buildings. Parked FCEVs become the stationary power generators for homes, since an 80-kW fuel cell on a FCEV is far more power than is needed for at most 5 kW of peak power even for a large US home.

Mr. Rifkin has been an advisor to many heads of state in Europe. According to his web page, Mr. Rifkin is the principle architect of the European Union's Third Industrial Revolution long-term economic sustainability plan to address the triple challenge of the global economic crisis, energy security, and climate change. **The Third Industrial Revolution was formally endorsed by the European Parliament in 2007 and is now being implemented by various agencies within the European Commission as well as in the 27 member-states**.

4. **John Hofmeister**, previously the President of the Shell Oil Company, and now the founder and CEO of Citizens for Affordable Energy, gave an impassioned and very accurate picture of what is wrong with US energy policy: Too much political partisanship, A time horizon limited to 2- or 4-year election cycles, when energy policy must extend over several decades, and there are 13 Executive offices involved with energy issues, and 26 Committees on the Hill. He said that we are headed for an "energy abyss." His solution: establish an independent regulatory body – a Federal Energy Board --to administer long-term energy policy, modeled after the independent Federal Reserve Board. The members of this independent regulatory Federal Energy Board would be appointed by the President with the consent of the Senate. [Presumably they would be chosen based on their expertise and direct experience in various energy fields (and/or willingness to dialogue with experts in the energy fields) and not their Nobel prizes in unrelated fields!]

   Other Noteworthy events:

1. Hyundai-Kia Motors unveiled their third generation SUV FCEV, the Tucson-ix, joining the usual FCEV standbys at recent shows: the GM Equinox SUV FCEV, the Toyota FCHV-adv. SUV FCEV, and the sleek Honda Clarity passenger car FCEV. These four FCEVs, along with the Daimler F-Cell FCEVs are clearly ready for prime-time.
2. The trade show featured many commercial applications of fuel cells that make sense today without government support, including FC material handling equipment (MHE), stand-by and back-up power, portable power applications and distributed generation stationary power including Combined heat and power (CHP) and particularly combined hydrogen, heat and power (CHHP).