

MINUTES OF THE JANUARY 2007 TELECONFERENCE OF THE NATIONAL HYDROGEN AND FUEL CELLS CODES & STANDARDS COORDINATING COMMITTEE

Russell Hewett, National Renewable Energy Laboratory

MEETING DATE: January 3, 2007

1.0 MEETING PARTICIPANTS

The listing of teleconference meeting is provided in [Attachment A](#).

2.0 REVIEW OF USFCC ANTITRUST GUIDELINES

USFCC members were asked by Robert Wichert to be mindful of the anti-trust guidelines, which can be found on the USFCC members website, as well as attached to the minutes of past meetings.

[Antitrust Guidelines](#) (27Kb PDF)

3.0 REVIEW OF/CORRECTIONS TO DRAFT MINUTES FROM DECEMBER 2006 TELECONFERENCE MEETING

Prior to the meeting, Kelvin Hecht and Patrick Serfass submitted to Russ Hewett corrections to the Draft Minutes of December's meeting. No additional corrections were offered in January's meeting. Russ will prepare Corrected Minutes and submit them to NHA for posting on the *NHA Hydrogen and Fuel Cell Safety* website.

4.0 OPPORTUNITY FOR DOE/HQ REPRESENTATIVE TO PROVIDE LATEST INFORMATION ON WHAT'S GOING ON AT DOE

With Pat Davis (Subprogram Manager, Hydrogen Safety and Codes & Standards Subprogram) being unavailable to participate in the meeting because of other commitments, Antonio Ruiz reported on DOE/HQ and Subprogram activities.

As has been mentioned in the past several meetings, the Hydrogen, Fuel Cell and Infrastructure Technologies Program (as are other DOE programs) is operating under a Congressional Continuing Resolution. The current one ends on February 15th.

Antonio said that work-in-progress can go forward. However, no "sweeping changes" can be made until the Subprogram has a Congressionally-approved budget. With the new Congress having been seated, there are expectations that they will pass a year-long Continuing Resolution, but without earmarks.

5.0 REGULATORY LOGIC: STATUS REPORT

(Firm selected by DOE Golden Field Office to perform much of the codes and standards

subcontract administration that, in the past, had been performed by NREL)

The DOE/Golden Field Office has awarded a multiyear contract with Regulatory Logic LLC (RegLogic) to conduct the subcontracting with the CDOs, SDOs and other organizations that had previously been performed by NREL. Gary Nakarado is the Principal and Managing Director of RegLogic.

Carolyn Elam (DOE Golden Field Office) reported that operating under Continuing Resolutions is not expected to have an impact on the opportunity to go forward with implementing the planned subcontracts with CDOs and SDOs to support their codes and standards development activities.

Gary Nakarado is actively working on getting the first new contracts in place with the CDOs and SDOs – the first one with consultant Kelvin Hecht who operates and maintains the *Hydrogen and Fuel Cells Codes and Standards Matrix and Database* and its website. This contract is expected to be the model for implementing future ones.

Gary emphasized the new features in the award of contracts by Regulatory Logic, compared to the awards by NREL:

1. Award of multi-year contracts with the CDOs, SDOs and other organizations. However, funding for each such contract will be determined annually, based on Subprogram priorities and needs
2. Taking special care with respect to award of contracts to match the period of performance and what can be reasonably spent during that time
3. Setting up an electronic payment system for paying invoices

In implementing new contracts, the strategy is focusing on CDOs and SDOs whose subcontracts with NREL ended the soonest.

Regulatory Logic's contracting is limited to the types of codes and standards efforts that NREL had been conducting in the past. R&D-related contracting that NREL has been conducting in the past will still be conducted by NREL.

6.0 BRIEFING BY NATIONAL ASSOCIATION OF STATE FIRE MARSHALS (NASFM)/HYDROGEN EXECUTIVE LEADERSHIP PANEL (HELP) ON HYDROGEN-RELATED ACTIVITIES

During December's teleconference meeting, it was mentioned that NASFM/HELP might be in the process of developing (or planning to develop) their own hydrogen safety code.

At that meeting, Paul Buehler reported that there is no intention on the part of NASFM to develop a competing "ANSI approved" hydrogen safety code. However, Paul reported that NASFM was preparing to write hydrogen-related *Guidelines* for fire fighters and first responders – to help them in recognizing hazards with respect to hydrogen systems. In particular, NASFM is planning to develop *Guidelines* for motor vehicles and for stationary applications.

The *Guidelines* will be developed by NASFM Hydrogen Executive Leadership Panel (HELP)

Committee, following an ANSI-like open process.

Russ Hewett asked if it would make sense to invite the appropriate NASFM or HELP representative(s) to an upcoming meeting of the Coordinating Committee - to familiarize Committee members with NASFM activities and explore possibilities for collaboration. Tony Androsky agreed to work with Russ to make this happen.

With Tony's help, two members of NASFM were contacted and participated in January's meeting to give a briefing on NASFM activities:

1. Elizabeth Tucker (Director, Safe Energy and Transportation Programs)
2. Peter Sparber (NASFM Government Relations):

Mr. Sparber and Ms Tucker first took the time to brief the Coordinating Committee on NASFM.

NASFM is comprised of the most senior fire officials in the United States. State Fire Marshals' responsibilities vary from state to state, but Marshals tend to be responsible for fire safety code adoption and enforcement, fire and arson investigation, fire incident data reporting and analysis, public education and advising Governors and State Legislatures on fire protection. Some State Fire Marshals are responsible for fire fighter training, hazardous materials incident responses, wildland fires and the regulation of natural gas and other pipelines. Most of its members are appointed by governors or other high-ranking state officials. NASFM's mission is: (i) protecting human life, property and the environment from fire; and (ii) improving the efficiency and effectiveness of State Fire Marshals' operations.

HELP is a joint initiative of NASFM, DOT/RITA and the International Consortium for Fire Safety, Health and the Environment (ICFSHE). HELP's mission is to bring together emergency responders, government regulators, scientists, consumers and experts from the automotive and energy industries to facilitate a safe and orderly transition to hydrogen and other alternative fuel sources.

HELP began its "birth process" in August 2004 when the US DOT Research and Special Programs Administration (RSPA – the predecessor of RITA) sought guidance from the NASFM on how to involve emergency responders in the transition from fossil to hydrogen-fuelled autos and other applications. It was officially established in March 2005. Detailed information about HELP can be found at the following website: www.nasfmhydrogen.com

After giving a history of the evolution of HELP, Mr. Sparber described HELP's projects. For the past three years, HELP, with DOT/RITA funding support, has been developing a strategic plan that calls for addressing the following:

1. Alternative Energy and Emergency Responder Safety
 - o Consensus emergency response and rescue training strategies and materials.
 - o Identification and assessment of new and different auto safety risks posed by alternative energy technologies.

- Consensus recommendations to minimize flame spread, smoke and toxic gases that impede safe and efficient rescues and other suppression activity in mass transit fires.
 - Safe and cost-effective adaptation of alternative energy technologies for emergency vehicles.
2. Collecting Improved Safety Data
 - Collection of better data to track what has been happening with respect to vehicle fires: due to crashes and other causes
 3. Permitting of the Infrastructure for Alternative Fuel Safety
 - Adoption of Model National Code language for use by code officials in the permitting of hydrogen infrastructure (focusing on ICC and NFPA codes and standards)
 - Adoption of "placeholder" standards to provide guidance to state and local code officials while the Model National Codes are being amended
 - Coordination of standards development efforts with other SDOs
 4. Community Acceptance
 - Developing consensus best practices related to the selection, planning and operation of alternative energy technology demonstration projects
 - Developing "*Hydrogen 101*" courses for state and local code enforcement officials
 - Conducting HELP outreach to other organizations involved in the transition from fossil fuels to alternative energy technologies.

HELP strategic plan (1,176Kb PDF)

Starting in 2008, HELP plans to begin implementation of the projects in the *strategic plan*. This is to be achieved with funding from DOT and cost-sharing by its partners.

In early 2006, HELP applied for and received accreditation from ANSI. As an ANSI accredited standard developing organization, HELP plans to serve an important public interest function in devising standards to help facilitate the construction and maintenance of the infrastructure required for a safe and orderly transition to hydrogen and other alternative fuel sources. Rather than develop its own standards documents, HELP plans to develop proposed safety requirements for incorporation into ICC, NFPA and other codes and standards. For example, they developed three proposals for the ICC *International Fire Code* as part of the ICC 2006/2007 code development cycle.

HELP recognizes that hydrogen (and other alternative energy) technology is evolving so quickly that efforts need to be devoted to developing “creative solutions” for helping permitting officials deal with safety-related issues that are not addressed in current codes and standards. For HELP and NASFM, “creative solutions” would be stop-gap safety requirements that have been formulated (because no specific requirement exists) by referencing existing requirements by

“equivalencing”. HELP proposes to perform such code interpretations for code officials – the *interpretations to be developed by other code officials* (formulation of these interpretations would not be via the ANSI process). When the CDOs and SDOs establish requirements in their documents for the gaps, they would supersede the stop-gaps and interpretations.

7.0 REPORT ON HYDROGEN INDUSTRY PANEL ON CODES (HIPOC) ACTIVITIES

Patrick Serfass reported on HIPOC activities.

The major focus of HIPOC -- currently -- continues to be on the ICC 2006/2007 Code Development Cycle. At the initial Code Development Hearings held September 20 – 30 in Lake Buena Vista, FL, 15 hydrogen-related code changes had been proposed for three ICC International Codes. Of those, the respective code development committees recommended seven for approval and eight for disapproval. The final votes will be at the Final Action Hearings.

Of the ones that were disapproved, HIPOC is focusing mainly on two for the International Fire Code – to have them re-considered for approval at the Final Action Hearings to be conducted in Rochester, NY during the period May 22 – 25, 2007:

1. F155-06/07 (Indoor fast-fill dispensing)
2. F156-06/07 (Electrostatic discharge for fueling pads)

HIPOC will have an open-to-the-public teleconference meeting on January 4th that will focus on formulating the strategy for having the two proposed re-considered for approval at the Final Action Hearings.

For the record, ICC has published the document Report of Public Hearings that articulates the official reasons for approval and disapproval of all proposals. The Report can be found at the following website: <http://www.iccsafe.org/cs/codes/2006-07cycle/ROH>

In parallel, HIPOC is continuing to address code change proposals to:

1. NFPA 52 (Vehicular Fuel Systems Code); and
2. NFPA 55 (Standard for the Storage, Use and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks). This includes formulating its own proposals, as well as reviewing those having been formulated by others.

As was mentioned in December’s meeting, the schedules for the revision cycles for NFPA 52 and NFPA 55 have been changed. The closing date for submitting proposals for both is now May 26, 2007 (rather than November 22, 2006).

HIPOC is continuing to ask Coordinating Committee members and other stakeholders wishing to

submit NFPA 52 and 55 code change proposals, to submit them to Carl Rivkin. HIPOC is interested in receiving either or both of two types of code change proposals:

- Proposals for HIPOC to take up and go forward with
- Proposals to be submitted by others for HIPOC to review and support

Instructions on how to submit a code proposal and other important information can be found at: www.HydrogenAndFuelCellSafety.info.

Key dates, with respect to the ICC and NFPA codes and standards development processes, can be found at the following web site: <http://www.hydrogenandfuelcellsafety.info/hipoc/keyDates.asp>

Again, note that the activities of the HIPOC are not intended to substitute for the procedures of either NFPA or ICC. Rather, the HIPOC is a group of industry experts with experience in getting consensus code modifications into the model codes. One key goal is harmonizing the hydrogen-related safety requirements in ICC and NFPA documents.

8.0 REPORT ON NFPA ACTIVITIES (HYDROGEN TECHNOLOGY TECHNICAL COMMITTEE TO DEVELOP NFPA 2)

Carl Rivkin re-iterated the report that he gave in December's meeting regarding the successful kick-off of development of the new NFPA document NFPA 2 Hydrogen Technology Code. This occurred with the first meeting of the Hydrogen Technology Technical Committee held on November 2-3 in Golden, CO -- hosted by NREL, and held in a DOE/Golden conference room.

Creating NFPA 2 involves:

1. identifying and extracting existing hydrogen-related requirements in current NFPA documents and organizing them in the new document;
2. correlating and harmonizing the extracted requirements;
3. identifying gaps; and
4. addressing the gaps.

The first meeting resulted in:

1. Developing the scope for NFPA 2
2. Developing an outline articulating how the document should be organized and what it should cover

3. Organizing the members of the technical committee into task groups -- each to work on a section of the document

Carl completed the first rough draft of NFPA 2 by extracting the hydrogen requirements from various NFPA documents and organizing them in accordance with the outline developed for the new code. The rough draft has been disseminated to the task groups for their use.

Carl also pointed out that critical efforts will include identifying gaps in the requirements and working with the technical committees (i.e., for the documents from which requirements were extracted) to address the gaps.

The next in-person meeting has tentatively been scheduled for April 17 – 19, 2007 at NextEnergy in Detroit.

The goal is completing the first edition of NFPA 2 by October 2010.

9.0 REPORT ON IEC/TC105 ACTIVITIES, DOCUMENTS IN THE “COMMENTS” STAGE AND THE HYDROGEN AND FUEL CELLS C&S MATRIX AND DATABASE

[Kelvin Hecht reported on IEC/TC105 activities](#) (67Kb PDF)

Kelvin mentioned that, during the next several months, the US TAG will need to receive comments on several documents in the “comments” stage.

In addition, the scope of IEC/TC105 is being changed to explicitly include micro fuel cells. Currently, the scope for TC105 reads:

To prepare international standards regarding fuel cell (FC) technologies for all FC applications such as stationary FC power plants, FC for transportation such as FC propulsion systems and auxiliary power units and portable FC power generation systems.

Micro fuel cells are not in the scope, explicitly. However, TC105 has three working groups addressing micro fuel cells: WG8, WG9 and WG10.

Consequently, efforts are in progress to change the scope statement so that it explicitly includes micro fuel cells.

10.0 REPORT ON ISO/TC197 ACTIVITIES AND DOCUMENTS IN THE “COMMENTS” STAGE

[Debbie Angerman reported on the key current ISO TC/197 activities in December](#) (68Kb PDF)

Of special significance, while **ISO/DTS 14687-2 Hydrogen fuel – Product specification – Part 2: Proton exchange membrane (PEM) fuel cell applications for road vehicles** was out for vote and the voting completed, at the time of January’s meeting the results had not been announced.

Several days after January's meeting, Debbie received the following message from the ISO/TC 197 Secretariat regarding the results of the voting and sent an Email message to the TAG:

We are pleased to inform you that ISO/DTS 14687-2 has been approved. We would like to congratulate ISO/TC 197 WG 12 for this achievement. Appropriate steps will be taken with the ISO Central Secretariat for its publication.

Also, Debbie reported that WG9 and WG10 would be having meetings in Tokyo in February.

WG9 will be working on **ISO/CD 16110-2 Hydrogen generators using fuel processing technologies: Part 2: Performance.**

WG10 will be working on **ISO/TS 16111 Transportable gas storage devices – Hydrogen absorbed in reversible metal hydride.**

11.0 OPPORTUNITY FOR CDOS AND SDOS TO REPORT ON THEIR ACTIVITIES

UL: Laurie Florence reported on the status of UL 2265 (Fuel Cell Power Units and Fuel Storage Containers for Portable Devices). UL is developing a new draft of the document that addresses Direct Methanol Fuel Cell technology only. Other technologies will be addressed when there are better experience bases for them.

There were no other reports.

12.0 REPORT ON UPCOMING WORKSHOP: WORKSHOP ON FACILITATING PERMITTING OF HYDROGEN FUELING STATIONS

Jim Ohi and Russ Hewett reported on the DOE/NREL workshop *Workshop Facilitating Permitting of Hydrogen Fueling Stations* that will take place on February 1st in Sacramento, CA and hosted by the California Air Resources Board (CARB).

The objectives of the workshop are to have local/state code officials who have been involved in the actual permitting of HFS projects, HFS project developers, and other stakeholders (including the DOE Hydrogen Codes & Standards tech Team) come together and:

1. Share their experiences with respect to the permitting of projects
2. Discuss lessons learned
3. Explore critical issues associated with permitting HFS projects
4. Identify what is needed to facilitate the efficient, timely permitting of projects (e.g., additional codes & standards, tools, methodologies, etc.?)

5. Solicit input and recommendations from project developers, permitting officials and other stakeholders for a *DOE initiative* to facilitate permitting (again, for project developers and local/state permitting officials).

[Draft agenda](#) (105Kb PDF)

Since the workshop will focus only on the permitting of HFSs, it will be limited to 30 – 40 invited participants.

The Coordinating Committee will be briefed on the Workshop at its February or March meeting.

13.0 OPEN DISCUSSION

Possibilities for Next In-Person Meeting of the Coordinating Committee

Each year, the Committee seeks to have at least two In-Person meetings – ideally, in conjunction with events that members are already likely to be at anyways. Currently, the thinking is to convene it in conjunction with the NHA 2007 Annual Hydrogen Conference scheduled for March 18 – 22, 2007 in San Antonio, TX. **NHA has reserved time and facilities for having the meeting on Monday, March 19th.** The decision regarding holding the meeting at that time will be finalized at February’s teleconference meeting.

Other Coordinating Committee Issues

The Coordinating Committee strives to work to insure that it is meeting the needs and concerns of its members. The strategy for doing so involves:

- Conducting periodic “self assessments”
- Giving member organizations the opportunity to inform the membership of updates of their codes & standards priorities and articulate them to DOE and NREL
- Determining whether or not to change the scope of its activities

Russ Hewett proposed these as issues to be addressed in upcoming meetings.

Updating the Membership Rolls of the Committee

Russ Hewett mentioned that the Committee would go through the process of updating its rolls for 2007. This would be done by disseminating a message to all persons on the current rolls asking each to respond back either of two ways:

1. I plan to continue being a member of the Committee
2. I wish to be removed from the Committee's membership

If Russ does not receive a response by the cutoff date, he will assume that such persons do not wish to continue being a member and he will update the membership roster accordingly.

Currently, there are 63 names on the membership roster. Average participation in the monthly teleconference meetings is 25 - 30 members.

Starting in February, Russ will begin using the updated roster.

16.0 NEXT TELECONFERENCE MEETING

The February meeting is scheduled to be a teleconference meeting as follows:

- **DATE:** February 7 (First Wednesday)
- **TIME:** 3:00 – 4:30 pm EST
2:00 – 3:30 pm CST
1:00 – 2:30 pm MST
Noon – 1:30 pm PST
- **CALL-IN NUMBER:** (641) 793-7000
- Pass Code: 824011#

The agenda will be disseminated with the Final Announcement.

If there are items you would like to have on the agenda, please contact any one of the following:

- Karen Hall
- Sondra Ullman
- Robert Wichert
- Jim Ohi
- Russ Hewett

ATTACHMENT A: PARTICIPANTS IN THE JANUARY 2007 TELECONFERENCE MEETING OF THE NATIONAL HYDROGEN AND FUEL CELLS CODES & STANDARDS COORDINATING COMMITTEE

NAME	ORGANIZATION	PRESENT AT MEETING (Yes/No)
Adam Gromis	California Fuel Cell Partnership	Yes
Andrei Tchouvelev	A. V. Tchouvelev & Associates, Inc.	
Anna Stukas	Angstrom Power	

Antonio Ruiz	USDOE/Hydrogen, Fuel Cell and Infrastructure Technologies Program	Yes
Bill Chernicoff	USDOT/Research and Innovative Technologies Administration(RITA)/Washington	Yes
Bill Collins	UTC Fuel Cells	Yes
Bill Hoagland	Hoagland and Associates	
Bob Mauro	Consultant to NREL	
Brad Smith	Shell Hydrogen	
Brian Walsh	US Fuel Cell Council	
Bruce Kinzey	Pacific Northwest Laboratory	
Carl Rivkin	National Fire Protection Association (NFPA)	Yes
Carolyn Elam	DOE Golden Field Office	Yes
Cathy Gregoire-Padro	Los Alamos National Laboratory (LANL)	
Christina Zhang-Tillman	California Fuel Cell Partnership	
Christopher Moen	Sandia National Laboratories/Livermore	Yes
Dan Casey	ChevronTexaco	
Darren Meyers	International Code Council (ICC)	Yes
Debbie Angerman	Compressed Gas Association (CGA)	Yes
Doug Horne	Clean Vehicle Education Foundation	
Elizabeth Turnbull	SENTECH	
Gary Howard	A. V. Tchouvelev & Associates, Inc.	Yes
Gary Nakarada	Regulatory Logic	
Gerry Myers	SPRINT	
Greg	Shell Oil Products	

Milewski		
Hank Seiff	Clean Vehicle Education Foundation	Yes
Jeff Grant	Ballard Generation Systems	
Jesse Schneider	DaimlerChrysler	
Jim McGetrick	BP	Yes
John Koehr	American Society of Mechanical Engineers (ASME)	Yes
John Mough	California Division of Measurement Standards	Prior Commitment
Juana Williams	NIST	Yes
Julie Cairns	CSA America	Yes
Karen Hall	National Hydrogen Association (NHA)	Yes
Kelvin Hecht	ANSI, IEC and Consultant to NREL	Yes
Ken Krastins	Plug Power	Yes
Larry Johnson	SPRINT	
Larry Moulthrop	Proton Energy Systems	Yes
Laurie Florence	Underwriter Laboratories	Yes
Lesley Crowell	California Air Resources Board	
Mark Richards	Versa Power Systems	Yes
Michael Steele	General Motors Advanced Technology Vehicles	Yes
Nha Nguyen	NHTSA/Office of International Policy and Harmonization	
Nick Burkhead	Shell Hydrogen	Yes
Patrick Serfass	National Hydrogen Association (NHA)	Yes
Pat Davis	USDOE/Hydrogen, Fuel Cell and Infrastructure Technologies Program	Prior Commitment
Paul Buehler	Plug Power, Inc.	Yes

Prentiss Searles	American Petroleum Institute (API)	Yes
Robert Wichert	US Fuel Cell Council (USFCC)	Yes
Rhoads Stephenson	Motor Vehicle Fire Research Institute	Yes
Roger Smith	Compressed Gas Association (CGA)	
Samuel Lam	British Columbia Ministry of Transportation	
Sam Sprik	National Renewable Energy Laboratory (NREL)	Yes
Sheral Arbuckle	Ford Motor Company	Yes
Sondra Ullman	Plug Power	Yes
Spencer Grieco	CSA America	
Steve Turner	C&S Consultant	
Terry Conrad	Concurrent Technologies Corp.	
Thad Adams	Savannah River National Laboratory	
Tom Joseph	Air Products and Chemicals	
Tony Androsky	US Fuel Cell Council (USFCC)	Yes
Jim Ohi	National Renewable Energy Laboratory (NREL)	Yes
Russ Hewett	National Renewable Energy Laboratory	Yes

GUEST PARTICIPANTS

1. Ben Deal (California Air Resources Board): Subbing for Lesley Crowell
2. Elizabeth Tucker (National Association of State Fire Marshals)
3. Peter Sparber (National Association of State Fire Marshals)