



ISO/TC 197
Hydrogen technologies

Email of secretary: jim.ferrero@bnq.gc.ca
Secretariat: SCC (Canada)

Interview with ISO TC 197 Chair April 2015

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Interview with ISO/TC 197 Chairman

By Karen Hall, FCHEA



This article is the first of what we hope to be a regular feature – an interview with the Chairman of ISO/TC 197, Dr. Andrei Tchoulev.

The next article in this series will focus more on the technical work of ISO/TC 197. The purpose of this article is to get to know the Chairman and his goals for the International Technical Committee (TC) on Hydrogen Technologies, as well to better understand the challenges faced by the TC in developing standards which ensure safe use of hydrogen technologies, a measure of performance of hydrogen energy systems, and flexibility to allow for innovation in this rapidly-developing arena.

Dr. Tchoulev took over the role of Chairman of ISO/TC 197 in September 2012. Dr. Tchoulev is a member of the Executive Committee of the IEA Hydrogen Implementing Agreement. He has been actively involved in Tasks 19 and 31 Hydrogen Safety where he led subtasks on Risk Management (2004-2009) and Early Markets: Risk Characterization and Hazard Analysis (2010-2012).

Dr. Tchoulev also leads international hydrogen safety community serving as president of the International Association for Hydrogen Safety (HySafe), an international non-profit organization (with its headquarters in Brussels, Belgium) that includes more than 30 world-leading institutions from industry and academia from Europe, North America and Asia.

Dr. Tchoulev also serves as the president of Hydrogen Safety Division of the International Association for Hydrogen Energy (IAHE) and is an ex-officio member of IAHE Board of Directors.

ISO/TC 197 develops International Standardization in the field of systems and devices for the production, storage, transport, measurement and use of hydrogen. The last Plenary meeting of ISO/TC 197 took place on December 4-5, 2014 in Fukuoka, Japan. The next Plenary is being planned for December 3-4, 2015 in Torrance California, USA.

When Dr. Tchoulev took on the role of Chairman for ISO/TC 197, he initially focused on two key items: to improve collaboration, team work and technical expertise in TC 197; and to improve the technical quality of the committee's products.

With strong support from the participants of ISO/TC 197, the committee now utilizes a structure that supports these key areas. Collaboration, team work, evidence-based requirements and best practices all drive the growing program of work. Increased internal and external collaboration is a natural result of the principles of openness and transparency emphasized by the Chairman.

The management team of TC 197 set up a Technical Advisory Board (TAB) made up of recognized experts in four key subject areas, from different regions, to act as Technical Program Directors (TPDs) for the following subject areas:

- Hydrogen Production, Storage and Handling – Hervé Barthélémy, PhD (also has regional responsibilities for Europe)

- Built Environment and Safety – Jay Keller, PhD (also has regional responsibilities for the Americas)
- Stationary and Fuel Cell Applications – Kazuo Koseki, MSc (also has regional responsibilities for Asia)
- Hydrogen Components and Vehicular Applications – Craig Webster, P.Eng.

The TAB acts as an advisory body to the TC and the TPDs help to coordinate the liaisons and the TC work that is being carried out in their field of expertise.

In addition, in July 2014, TC 197 Dr. Mao from China was named Vice-Chair of TC 197 and a member of TAB, representing developing countries as part of a twinning arrangement between the Standards Council of Canada (SCC) and Standards Administration on China (SAC). The goal of the twinning arrangement is to promote the use of TC 197 standards in developing countries, facilitate their participation in working groups and to assure that the TC 197 Business Plan addresses their needs.

The TC is now focused on development of new documents for hydrogen fueling stations and the systems and components necessary for refueling; as well as revisions of published standards where manufacturing innovations, field experience, and research data is now available to improve documents deemed important by the hydrogen energy industry.

When asked what activities he believes will become important for the near future of hydrogen technologies, Dr. Tchouvelev noted that the recent resurgence of natural gas as the bridging technology to hydrogen energy is a positive development. Future work may require International Technical Committees to work together on International Standards for systems which take natural gas in and produce hydrogen, as well as systems which utilize other fuels alongside hydrogen, as might be the case in the refueling stations of the future.

“The remarkable possibilities of hydrogen as both an energy carrier and energy storage mechanism intrigue me, stated Dr. Tchouvelev. “The concept is to couple sustainable power production (such as nuclear and renewable energy sources) and water electrolysis to generate hydrogen during off-peak hours, when electricity demand is low. The system would then have the flexibility to use this hydrogen for variety of applications within the power-to-hydrogen concept for which business cases exist. Broad examples may include all types of hydrogen fuel cell vehicles, conventional industries like oil refineries, addition to natural gas pipelines and the use of HCNG blends, combined heat and power generation (CHP) or pure electricity generation during peak hours via stationary fuel cells when electricity cost is highest. This last model, otherwise known as peak shaving, avoids the need for load following by power plants (particularly nuclear) and helps replace hydrocarbons (oil and gas) in peak electricity production”.

Summing up, hydrogen presents very interesting and unique possibilities for storing renewable energy that could later be distributed or/and used on-site as the need arises. Hydrogen presents an unparalleled combination of energy storage and energy carrier opportunities.

Dr. Tchouvelev is currently leading an activity to update the ISO/TC 197 Business Plan to capture the current activities as well as the market potential and future aspirations of the TC. Future articles in this series will focus more on the business plan and the technical work of TC 197.