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Hydrogen technologies

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Background: This is the fifth in an ongoing series of interviews with the Chair of ISO/TC 197 conducted by Karen (Hall) Quackenbush. This article deals with the harmonization of standards for hydrogen technologies.

The other interviews can be found in documents N 740, N 741, N 755, and N 766.

All of the articles were published in the Hydrogen and Fuel Cell Safety Report that is published by the Fuel Cell and Hydrogen Energy Association.

Committee URL: <http://isotc.iso.org/livelink/livelink/open/tc197>

General Considerations on Harmonization

By Karen Quackenbush, FCHEA

In this fifth installment of FCHEA's "Interview with the ISO/TC 197 Chairman" series of articles, Dr. Andrei V. Tchouvelev describes how he sees international standards, national standards, and national codes or regulations working together.

Based on feedback from the deployment of recent hydrogen fueling stations, some permitting officials have indicated that they understand the need for approvals in lieu of listings for the early stages of deployment, but that ultimately many components and systems will need to be listed for permitting approval. Therefore, confidence in standards that can be used for certification purposes is necessary, along with a business case which supports having these products listed in time for wide-scale infrastructure deployment.

Therefore this article will focus on component standards as these can readily be sold worldwide. As ISO/TC 197 is developing International Standards for key components and systems for use in gaseous hydrogen fueling stations, the subject may be timely to help stakeholders better understand how these developing International Standards may be implemented on a national or regional basis.

Dr. Tchouvelev noted that "International (ISO and IEC) component standards are being developed to eliminate global barriers to trade, so that a hydrogen component (such as a hose or breakaway device) or an assembly (such as electrolyser or reformer or dispenser) can meet the same design and testing criteria and thus can be sold across the globe without any such additional requirements. It is important to note here that installation requirements of those components or assemblies (such as, for example, separation distances) can differ from jurisdiction to jurisdiction, but the design and testing requirements for the components themselves should not."

Installation requirements are typically addressed in the building and fire codes or regulations of jurisdictions within countries. I asked Dr. Tchouvelev how these installation requirements should address the myriad standards where there may be one or more national standard on a subject as well as an International Standard. "Since ISO and IEC standards are developed by the broadest spectrum of international stakeholders", Dr. Tchouvelev explained, "they, in effect, become "super" standards and thus should replace or supersede any existing analogous national component standards."

He went on to describe the normal mechanisms by which this may be achieved:

"National component standards, including those that served as seed documents for the development of international standards, must be prepared to harmonize their design and testing requirements with the international standards. Essentially, national standards should become harmonized adopted international standards, where the only deviations

are references to specific relevant national standards and regulations and climatic conditions, where justified”, Dr. Tchouvelev clarified.

“National legislation and installation codes can then reference international standards or their national harmonized adoptions as the preferred listing or certification components standards”, Dr. Tchouvelev noted. “Once appropriate component and system standards are explicitly referenced, national installation codes can remove any design and testing requirements related to components and assemblies, and focus solely on their installation requirements.”