National Fire Protection Association

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To: SOS_RFI@nist.gov

Subject: Standardization Feedback for Sub-Committee on Standards

The National Fire Protection Association is pleased to provide our response to the Request for Information regarding "Effectiveness of Federal Agency Participation in Standardization in Select Technology Sectors for National Science and Technology Council's Sub-Committee on Standardization" posted by NIST in the Federal Register dated December 8, 2010 and extension of comment period dated January 21, 2011.

We would be pleased to answer any questions you may have and provide any further information you may require regarding our submittal. If you have any questions or require additional information concerning this matter, please do not hesitate to contact me at (202)898-0222 or by e-mail at gcade@nfpa.org.

Sincerely,

Gregory Cade

Division Director, Government Affairs

Attachment

NFPA Response to Request for Information Regarding

Federal Agencies' Participation in Standards Activities and Programs

Introduction

In response to the Request for Information published in the December 8, 2010 *Federal Register* by the Department of Commerce /NIST (Docket No. 0909100442-0563-02) call for comments on the effectiveness of Federal agencies' participation in the development and implementation of standards and conformity assessment activities and programs, the National Fire Protection Association (NFPA) is pleased to provide the comments herein. NFPA is a not-for-profit, ANSI accredited standards developer which produces nearly 300 standards that address safety and health in the built environment including protection for responders to emergencies in the built environment. NFPA does not conduct conformity assessments, though it does produce some test standards and product standards. Federal agencies have requested that NFPA create standards and Federal employees participate in the NFPA standards development process.

NFPA does not produce standards that are directly associated with the 5 technologies listed in the Federal Register notice (Smart Grid, Health Information Technology, Cyber Security, Emergency Communications Interoperability, and Radioactivity Detectors and Radiation Monitors), but it does produce standards that interface with these technologies. Standards are an essential component in the deployment of technologies. They help ensure that the technology performs as intended, is safe to use, and will not harm workers, the general public, or the environment. Though the NIST focus of this inquiry is new technologies, the state-of-the-art is constantly changing for existing technologies that also rely on standards for their continued proper deployment. For this reason standards are regularly revised to accommodate changes in technology, new user needs, new applications, and lessons learned from testing, and real world experience. Sometimes standards changes are imposed by economic or regulatory forces such as using less costly or improved materials, or outright bans on the use of certain materials.

The need for standards in various technology areas is determined, not by the standards developing organizations themselves, but by the user community, the manufacturers, and the regulatory authorities who are concerned with the timely and safe deployment of new products, systems and methods. Without an identified need in a product or application area, standards would generally not be written. In some instances, even technologies that show promise but have not become commercially viable have identified a need to be included in a standard so that, if and when they were deployed, they would by recognized and accepted by the user community.

An example can be found in the NFPA 70®, *National Electrical Code®* (NEC®) which contains provisions for the Smart House concept which requires electrical circuits that are not energized until an appliance is plugged into a receptacle and also provides for the capability to monitor the

appliance's performance and condition. Smart House provisions were put in the NEC in the 1980's, but the Smart House concept never moved beyond the demonstration phase.

The U.S. standard system is a hidden safety sentinel in daily life in this country. Product, system and method standards provide a safety net in our daily lives both in the workplace and at home. Nearly seamlessly, it continually improves the quality of and safety of our lives.

An example is the evolution of electrical receptacles in the home. From two-wire receptacles circuits the NEC moved to grounded receptacles on three wire circuits. Then, in the 1980s ground fault circuit interrupters (GFCIs) were introduced to protect people from electric shock in wet and damp locations. Just a few years ago arc fault circuit interrupters (AFCIs) were introduced to protect against overheating at intermittent electrical connections which can lead to fires. In the 2008 edition tamper-resistant receptacles were introduced to help protect against the inadvertent insertion of conductive materials into receptacles by children and others. The Consumer Product Safety Commission staff and their accident statistics have played a key role in improving electrical safety requirements in NFPA standards. It is not all new technology, but it is incremental technology and application changes in the technology that, through standards and the continual revision of standards, have achieved a continual improvement in the safety of systems all around us.

New Technology Areas

Deployment of new technologies, and federal programs to deploy those technologies, rely on research and development in both the public and private sector. That deployment often includes the development of appropriate standards for products, systems, and methods for the technology to support systems design, application, and maintenance using the technology. Some of the technologies that the federal government has recently shown interest in deploying at an accelerated pace includes: smart grid, healthy information technology, cyber security, emergency communication interoperability, and radiation detectors and monitors. In recent years the Federal government has also shown interest in biofuels, electric vehicles, hydrogen economy, and protective clothing and equipment for first responders to chemical, biological, radiation, and nuclear (CNBRN) incidents.

In the case of smart grid, biofuels, and electric vehicles it is important that existing NFPA standards that interface with those technologies be compatible with the new technology systems and equipment - even if NFPA is not responsible for the new technology standard. NFPA standards should not be an impediment to the use new technologies. The key NFPA standard that addresses electrical installations and interfaces with electrical utility equipment and appliances is NFPA 70®, *National Electrical Code®*. It has had provisions for electric vehicle (EV) charging since 1996. Currently there are two NEC task groups looking at: compatibility of the NEC with new EV charging requirements and schema, and interfacing with electrical utilities employing Smart Grid technology.

The key NFPA standard that addresses liquid fuel storage and dispensing is NFPA 30, *Flammable and Combustible Liquids Code*. This document was reviewed regarding compatibility with biofuels storage, handling and dispensing several years ago. Problems were identified with equipment required to be tested and listed for dispensing biofuels in high concentration blends. The appropriate product and test standards are the responsibility of other organizations and they were revised accordingly with NFPA's assistance. NFPA technical committees regularly review the compatibility of NFPA standards with new or changing technology requirements to ensure that they continue to be compatible. The committees add or change appropriate standards' provisions as needed. This entails NFPA Technical Committees working with organizations and people who are experts in the new technology areas. This process is on-going throughout the NFPA standards development system because technology is continually changing and evolving with new methods, materials and regulations.

The National Fire Protection Association has been directly involved in writing standards in the technology areas of hydrogen economy, and for protective clothing and equipment for emergency responders to CBRN incidents. In these technology areas Federal agencies and their staffs have been invaluable in the creation of product, system, and method standards for the safe deployment of these technologies. In the case of the new standard, NFPA 2, *Hydrogen Technologies Code*, the support and active participation by the staff of multiple Department of Energy laboratories and NIST has helped pull together information in several existing NFPA standards and incorporate Federal research information addressing the safe use of hydrogen for both stationary and mobile applications. The compilation of this material and reorganizing it into a code format provided a one-document source of information for designers, users, maintainers, and inspectors of hydrogen fuel systems at stationary sources and also in mobile applications such as vehicles. This new standard will be published in the first quarter of 2011.

Another example of the importance of federal participation in the NFPA standards development system is NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*. The standard provides design information, performance requirements, and testing and certification requirements for CBRN protective garments for civilian first responders to WMD events. Information from the chemical, biological and radiation testing programs for fabrics and garments carried out in Department of Defense laboratories, and the expertise of those DOD experts, along with the expertise of the National Institute for Occupational Safety and Health (NIOSH) staff, particularly regarding respiratory equipment, enabled the NFPA committee to incorporate appropriate performance requirements, test protocols, and testing apparatus requirements in the standard for this very critical emergency responder personal protective equipment.

Federally Identified Need for Standards

On several occasions over the years the Federal government has requested that NFPA write new standards to protect the safety and health of workers or the general public as a result of concerns from accidents or the deployment of new technologies. Examples include NFPA 301,

Standard on Safety to Life from Fire on Merchant Vessels, a project initiated by NFPA for the U.S. Coast Guard; NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems* initiated by concerns of the fire protection community and the Environmental Protection Agency as the U.S. and the world moved to ban the use of chlorofluorocarbons; NFPA 804, 805 and 806 standards on fire protection of light water and advanced light water nuclear reactor power plants initiated by the Nuclear Regulatory Commission; and a long history of revisions to NFPA 70E *Standard on Electrical Safety in the Workplace* initiated by requests from OSHA and revised and expanded in scope to address field experience and technology changes.

ANSI and the U.S. Standards System

The ANSI accredited standards development criteria utilized by NFPA and many other U.S.-based standards developing organizations are well suited to dealing with new technologies and changes in the state-of-the-art in existing technologies. The individual experts and organizations represented around the table of NFPA committees that write its standards are classified by the interest category they represent: manufacturers, installer/maintainers, enforcers, research and testing laboratories, labor, consumers, insurance, special experts, and users. These people bring to the table their technical knowledge and their interest in having appropriate standards developed and maintained to address the technologies in which they have an interest. NFPA rules prevent any of these interest categories from effectively dominating the process. No more than one-third of the committee members may come from any one of the 9 interest categories, and no changes in standards may go forward in the NFPA process without a two-thirds consensus of the committee. Public input in the form of public proposals and comments are sought and there are multiple levels of participation in the process before a new or revised standard is approved. The NFPA system also includes an appeals process overseen by the Standards Council - a committee of volunteers who oversee the administration of the NFPA standards system, act as an appellate body, and adjudicate disputes.

Intellectual Property and Proprietary Material

Regarding intellectual property rights of others, NFPA does not refer to proprietary products or methods in its standards, nor does it use trade names in its standards. Freely available and licensable technologies are included in standards. NFPA standards are not intended to restrict methods or means to meet standards requirements – performance equivalency is a guiding principle.

Like many standards developers, NFPA's own intellectual property, represented by the body of standards work that NFPA produces and publishes in various forms, is key to continuing its mission. The unique standards development system in the U.S has taken on the burden and the cost of writing standards for the nation and maintaining them current with the state-of-the-art. This is the heart of what NFPA provides to both the public and private sectors as part of it s mission. The formation and maintenance of a body of experts who work through an ANSI accredited process to produce national consensus standards is an expensive undertaking. Many

of the NFPA standards are adopted and utilized in regulations by Federal, state and municipal authorities. Recognizing that ready access to the technical information is important to the public and others. NFPA provides free electronic access for anyone to read all of its standards.

As a not-for-profit, an important part of NFPA's mission is to provide technical safety standards. It also provides free public education safety materials and is a strong advocate for public safety as part of its mission. The business model for NFPA is largely dependent on the sale of about 5% of its standards titles to carry out its work; the other 95% of its standards titles cost far more to develop and maintain than the revenue generated by their sales. Together, the complete anthology of just fewer than 300 standards represents the Association's standards' mission.

The unique public-private standardization partnership within the U.S. is recognized in Section 12(d) of P.L. 104-113, the National Technology Transfer and Advancement Act of 1995, and by OMB Circular A-119. As the latter expressly acknowledges, that partnership is best preserved and sustained by affording continued respect and protection of the intellectual property of copyrighted codes and standards developed by standards developers for government and others use.

Summary

The technical research carried out by NIST and the other national laboratories, in an impartial setting, is very beneficial to the standards development community. Often questions arise about technologies that require research and investigation on a scale, or with an investment, that the private sector is not willing to shoulder or cannot do in a reasonable amount of time. The U.S. national laboratory network plays an important role by providing unbiased information about technologies that can be used to establish safety requirements through standards development. This research and the expertise of the national laboratory staffs and experts from other government agencies are key to the continual improvement of the system of safety standards and regulations that we enjoy in the U.S. – a system of partnership between government and private sector standards developers.

NFPA would be pleased to provide any further information or materials to assist NIST in their assessment of Federal participation in the development and implementation of standards.

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