Underwriters Laboratories (UL) Response

National Institute of Standards and Technology: Docket No. 0909100442-0563-02
Effectiveness of Federal Agency Participation in Standardization in Select Technology Sectors for National Science and Technology Council's Sub-Committee on Standardization

March 7, 2011

Underwriters Laboratories Inc. (UL) respectfully submits these comments in response to the recent Request for Information by the National Institute of Standards and Technology (NIST) on behalf of the National Science and Technology Council (NSTC) Subcommittee on Standards.

The NSTC Subcommittee is uniquely positioned to elevate the attention to standards and conformity assessment in federal policy matters and to advocate on behalf of the role these play in facilitating innovation and global commerce. We applaud this initiative being led by NIST to solicit information from the business and standards communities. UL welcomes the opportunity to collaborate with the NSTC as the Subcommittee works to carry out its mandate. As an independent, 501(c)(3) we share with your Subcommittee a commitment to advancing the implementation of standards and conformity assessment programs that support technological innovation and advance safety science.

UL is an internationally recognized product safety testing and certification organization. Founded in 1894, UL has earned a reputation as a leader in product safety standards development, testing and certification. UL evaluates thousands of products, components, materials and systems for compliance to specific requirements. UL's time-tested system supports governmental product safety regulations, and complements federal, state and local product safety initiatives.

PROCESS OVERVIEW: UL STANDARDS FOR SAFETY
Through more than a century of involvement in the standards and conformity assessment community, UL is recognized for its unrivaled technical expertise in the areas in which it develops standards. UL's Standards for Safety are used to evaluate and certify products and systems. These standards are used by regulatory authorities that review the standard requirements to determine what products and systems are to be used in their jurisdictions, by code development organizations that adopt and reference UL Standards for Safety in their codes, and by certification organizations that apply UL requirements for product evaluations. Manufactures also design products and systems to meet the requirements for certification to UL Standards.

UL published its first standard, addressing the safety of *Tin Clad Fire Doors*, in 1903. Since that time, UL has published more than 1300 Standards for Safety addressing a wide range of products types and addressing numerous product attributes, including safety and performance. This extensive history makes UL one of the leading standards development organizations in the US.

UL maintains an open process for standards development that includes structuring our processes to engage broad stakeholder interests to promote standards that meet the varying needs of the marketplace - whether consumers, retailers, manufacturers, or regulators. UL defines its standards panels as Standards Technical Panels (STPs). These STPs include nine interest categories: producers, supply chain, commercial/industrial user, general interest, authorities having jurisdiction, government, testing and standards organization, consumers, and international delegates. Each of these categories brings unique perspectives to the use and needs of particular

products. Further, the standards process at UL is structured to ensure that no single stakeholder group holds an unfair advantage in the voting process. No single interest category can maintain more than 33 percent of the voting positions on any STP. It is the STPs that develop and maintain UL Standards for Safety and vote on the UL standards documents when published or revised.

Additionally, regardless of one's voting membership status on an STP, any public review participant can review and comment on any draft documents related to publishing standards and can also put forward draft amendments for any standards.

There are no membership dues associated with STPs, and anyone interested in membership is encouraged to complete an STP application. As mentioned, UL's goal is that an interest category should not exceed 33.3% of the overall voting membership; therefore, balance issues play a role in determining acceptance to the STP. To promote a balance of input to its standards development process, UL has intensive recruitment and outreach programs to encourage a broad diversity of membership on UL's STPs. UL also makes funding support available for consumer interests and regulating bodies to attend STP meetings in addition to offering process training for new STP members.

UL develops and maintains standards that may be pursued as American National Standards. When it is determined that a UL standard is a candidate for American National Standards Institute (ANSI) designation, UL employs its STP process for consensus standards development, which has been approved ANSI. The STP process is based on the essential elements of ANSI's standards development criteria and UL's ANSI accredited procedures entitled *Approved Regulations Governing Standards Technical Panels.*

UL standards are typically identified as Standards for Safety and cover reasonably foreseeable risks associated with a product. UL Standards for Safety address not only consumer safety – addressing potential risks including fire, shock, and other hazards, – but also new published standards address the next generation of safety concerns, environmental safety. These newer sustainability standards, some published and many in the drafting phase, contribute to the conservation of resources and improvements to human health associated with environmental factors. The attributes which are covered by individual Standards are delineated in the Scope section of the Standard. UL Standards are intended to:

- Identify requirements for evaluation of products and provide consistency in the application of these requirements.
- Inform manufacturers of applicable requirements their products must test to for certification

NSTC RECOMMENDATIONS

Recognizing the important attention the NSTC has already brought to the role of standards and conformity assessment in technology innovation and employment, UL respectfully proposes the following priorities for attention.

National Technology Transfer and Advancement Act (NTTAA)
UL believes the NSTC should focus its priorities on encouraging government agencies to uphold the principles of the National Technology Transfer and Advancement Act (NTTAA), signed into

law in 1996. The NTTAA states that federal agencies should use technical standards adopted by voluntary consensus standards bodies in its regulatory activities, and consult with voluntary, private sector, consensus standards bodies, including participating in their standards development work. Further, the NSTC should serve in the role of educator for US government agency and Congressional officials, promoting the value of consensus-based standards and how they serve as efficient, expedited solutions to meet government needs and objectives. This also applies to conformity assessment services. The existing independent certification model can be leveraged to meet the needs of numerous industry and government objectives.

Some agencies, like the Occupational Safety and Health Administration (OSHA), rely almost exclusively on voluntary consensus standards and consider them "appropriate" for electrical and other products under its jurisdiction. Other agencies, like the Food and Drug Administration (FDA), are increasingly canvassing the private sector for information on private sector standards for medical devices and other products under its jurisdiction to utilize in its guidance documents for industry. The NSTC could consider tapping agencies like OSHA and FDA for information on the ways that voluntary consensus standards help facilitate their work as regulators and share that information with other agencies as they consider engaging private sector.

As the NIST Smart Grid example illustrates, when the government identifies an initiative deemed to be of critical interest to the nation, the standards and conformity assessment communities stand ready to help and, in many cases, already have standards or practices that can meet identified government objectives. For Smart Grid, numerous standards already existed to meet the interoperability, communication and security needs of the nascent Smart Grid – it was just a matter of identifying those touch points and coming to consensus as an industry as to which would be adopted. This is also true for conformity assessment models. For Smart Grid, where performance of the complete system is reliant on the performance of each of its parts, conformity assessment was identified as a critical element. For both standards and conformity assessment, identifying the standards and certification parameters at the beginning of the process helps manufacturers understand the program requirements early on, enabling them to more rapidly develop new and improved technologies and position them for adoption in the morphing electricity space. At the same time, it helps to identify potential gaps that may need to be addressed and to provide guidance for the Federal government on how best to support the private sector in bridging those gaps.

Government Participation in Consensus Standard Processes

Recognizing the important role standards play, which the NSTC aims to support, a priority initiative should be to advocate for increased government participation in the consensus-based standards process through: 1) dedicated budget allocation for government employees' participation in standards committees, and 2) recognition of the time commitment of these participating employees and executive support for standards writing activities. Government regulators bring a unique perspective to standards writing activities and it is important that such perspectives be represented on a consistent basis in standards committees, with appropriate copyright protections. These copyright interests will be outlined in more detail later in these comments (page 13).

Public-Private Partnerships

Standards aim to reflect the interest of diverse stakeholder interests and serve as tools for those seeking compliance mechanisms. To encourage standards development that reflects the interests of both the public and private sectors, focus should be placed on encouraging public-private

partnerships. The NSTC can serve as a forum to discuss and share best practices for mechanisms for fostering dialogue with industry to identify emerging issues where standards may be needed and to discern those areas where research may be necessary to support those standards writing activities. Standards and conformity assessment programs form the basic "infrastructure" for many products and systems. With new and emerging issues, this sometimes means that the basic safety, environmental, or performance research regarding a technology's "effect" on consumers or systems is needed. Adequate attention to such research and implication gaps as part of policy mandates are critical to ensuring that ultimate policies and frameworks do not result in downstream unintended consequences and can minimize costly mid-course corrections.

An example of where such dialogue would have been useful was in alternative fuels, principally ethanol. As the US became interested in utilizing an increased percentage of renewable, domestically produced fuel, there was a market push for mass deployment of E85, a fuel blend of 85 percent ethanol and 15 percent gasoline. What became quickly apparent was that no standards existed to support the mass deployment of these fuels and limited research existed to help support the drafting of such standards from a technical, material compatibility standpoint. This lack of information forced delays as industry and government scurried to collaborate to conduct the necessary research and to then funnel that information into standards writing activities for transportation and dispensing equipment standards.

UL reached out to the Department of Energy (DOE) and the Environmental Protection Agency (EPA) to develop technical research to support infrastructure standards to facilitate technology deployment. This sort of partnership serves as a model, and an example, of how early communication between the government and private sector can help identify technology needs and standards gaps to encourage innovation.

Agency Coordination

Coordination across government agencies is also important and the NSTC is in a position to facilitate dialogue across these groups as well. Recognizing the participation the NSTC has already secured across government agencies, UL believes it would be helpful for the NSTC to review the current structure of government offices charged with standards and conformance work to make sure it is as efficient and streamlined as possible. Where there are different offices working on distinct portfolios and tasks, the multiple office approach may make sense; however, where objectives are overlapping or unclear, the government may be providing redundant support or even competing with each other for work in different portfolios. The NSTC can help foster dialogue to determine the appropriate organization and/or "best practices" for coordinating standards and conformity assessment activities.

Advocate on Behalf of US System in International Forums

Given that UL's testing and analytical services are tied so closely with manufacturers' ability to access foreign markets, the NSTC should elevate US attention to US standards development bodies and conformity assessment bodies to advocate on their behalf during the negotiation of free trade agreements. UL believes the NSTC could play an important role in encouraging federal agencies, many engaged in trade matters, to continue to promote the US standards development process and conformity assessment structures as best practices and tools for trade facilitation.

DETALED RFI RESPONSES

Standards-Setting Processes, Reason for Government Participation and the Benefits of Standardization

Value of Government Participation in Product Safety Standards
Participation in standards writing activities gives a voice to all interest categories and gives a platform to provide input during the standards making process. For the United States government, this can allow for concerns or perspectives to be addressed in the draft process, before a consensus standard is published. The research and scientific data available to the US government is particularly helpful in raising issues or perspectives in the standards writing or revision process. Whether developed through the national laboratories or based on incident data the government is monitoring, the consensus-based standards process is open and a readily available forum in which such data can be translated into practical product requirements. For example, incident data obtained by the Consumer Product Safety Commission (CPSC) often is integrated into product safety standards in order to meet market safety needs and address recognized risks.

By developing documents through this standards process, in concert with manufacturers and consumer interests, this allows an expedited means for the development standards that the government can rely on to meet their needs, as opposed having to create a separate standard that creates duplications and inconsistencies in product requirements for the marketplace. In the case of CPSC, participation in "…safety standards activities…" is explicitly stated in their mission statement as one-way CPSC protects the public through active engagement in these processes, recognizing its value.

Product Safety and the Smart Grid
Much attention is currently focused on the envisioned Smart Grid with dedicated interests including governments, manufacturers and consumers working hard to create and implement a new system that meets energy conservation goals. This serves as a critical example of how the current standards infrastructure and process evolves to meet the needs of emerging technologies. Many product categories for which UL maintains safety standards – numerous home appliances, battery storage, alternative energy technologies, and electric vehicle charging infrastructure – all are critical pieces of an optimized Smart Grid system. But with the new attributes for these products that are being introduced as part of the Smart Grid - wireless technologies, new communication controls, data security threats – new risks are introduced that must be addressed in the standard to ensure safe operation in the new system.

Undertaking its own research and review, UL has been actively investigating what these new attributes might be and how they might affect the individual performance of products in the new system. UL has recently released documents outlining possible risks with these new Smart Grid attributes and requirements that can be adopted to mitigate these harms. UL has released an outline of investigation (OOI), titled OOI-2744, *Safety of Products in Smart Environments*, and also published OOI-2735, *Electric Utility Meters (for use in Smart Environment)*. OOI-2744 will now serve to develop specific amendments to be introduced to the various impacted product standards UL maintains to address these Smart Grid uses.

The existing standards system in place for product safety standards in the US was positioned and responsive in evolving to meet the needs of emerging technologies. Stakeholder engagement is

underway and updated standards will be in place to expeditiously and effectively incorporate new Smart-enabled technologies in the US infrastructure.

What are the benefits of developing standards for this sector? (Product Safety)
UL safety standards contribute to increased public safety and property protection. UL Environment sustainability standards contribute to the conservation of resources and improvements to human health. These standards can be used to set performance attributes that products must achieve, promoting the distribution of safer products in the marketplace.

How do the standards impact organizations and their competitiveness? (Product Safety)
Standards establish baseline requirements for the industry and a level playing field. This is particularly important as global manufactures compete, in part, on cost. The safety of products should never be sacrificed for price and by establishing and utilizing safety standards for use by the global manufacturing community, products can be measured to meet critical safety attributes and can then compete on other attributes – performance and innovation.

How has standardization spurred innovation in the technology sector(s) that is the subject of your comment? (Product Safety)
The reverse is typically the case as evolving and developing standards are the result of needing to keep up with innovative technology. This is why performance-based safety standards have become the optimal format for requirements so that products can continue to innovate to create new solutions to mitigate risks and meet new safety challenges. However, there are examples of standardization spurring technology innovation, such as a requirement that a garage door shall reverse direction upon encountering an obstacle, which resulted in evolving versions of the sensing/control software that reverses the direction of the door. Taking that a step further, newer technologies (i.e. wireless) are being developed to accomplish the communication between the sensing device (electronic eye) and the door operator, to facilitate compliance with the same basic requirement. UL 325, addressing the safety of *Door, Drapery, Gate, Louver, and Window Operators and* Systems, was drafted as a performance-based standard and left room for new technologies to be developed to meet critical safety attributes, but incorporate new technology to innovate safety technologies and remain cost competitive. UL 325 and included entrapment protections are currently identified in the Consumer Product Safety Act as a mandatory requirement – an example of where a standard facilitates innovation, while addressing safety and meeting the needs of government regulators.

What is the current phase of the standards development process for this technology? (Product Safety)
The majority of UL standards are American National Standards and are covered under continuous maintenance per the American National Standards Institute (ANSI) rules. Due to this, once a standard is published, standards revisions can occur at any time. In the case of the product safety standards and incorporation of requirements to address the adoption Smart Grid interfaces, the drafts are in development and in process for introduction to the UL STPs.

How has the process worked so far? (Product Safety)
The overall ANSI-accredited STP process is highly successful as a consensus standards-setting process and has performed as planned. For specific emerging technologies, like Smart Grid, we

continue to find the process effective. All stakeholders are interested and engaged and supportive of working toward adoption of requirements to mitigate risks and meet market demands.

When developing standards, how are the standards-setting processes managed and coordinated?
All Standards activities are carried out in accordance with our ANSI approved Standards Technical Panel Process.

Is there a strategic plan that identifies the standards needs and defines the standards development life cycle? (Product Safety)
In some cases, yes, but not all. Safety standards are intended to be fluid and continuously evolve to meet market needs and recognized risks. While some of this can be outlined in advance, some needs to happen as a real-time response. In general, anyone who identifies a need is able to submit a proposal to address the need with a strong technical basis at any time.

Are there barriers to developing high level strategies for standard-setting activities?
Barriers are not typically encountered in standard-setting activities, however potential barriers include uncertainty with respect to changing technologies, availability of resources, and funding. The specific needs of stakeholders, such as manufacturers of products under the scope of the standard, and certifiers may also result in obstacles for standards development.

Perspectives on Government's Approach to Standards Activities

What methods of engagement are used by Federal agencies to participate in private sector-led standards development?
Federal agencies participate in all levels of the standards development process including attendance at STP Meetings, participation on task groups assigned by the STP Chair, and contributing in commenting and balloting of UL standards proposals through UL's Collaborative Standards Development System (CSDS) online system.

The structure of the standards process allows for all participants or interests, including the US government, to introduce standards amendments, topics for additional review by subcommittees, or other issues at any time. In some cases the government participant is able to introduce a proposed amendment to a standard, or in other cases they have research data available to them that may spark the introduction of a standard revision by another party. Additionally, the standards process often utilizes subcommittees to review a topic/issue and consider introduction of a standard revision. This format allows active discussion on scientifically-relevant data and facilitates the introduction of proposed revisions to meet the identified needs. All of these activities are open at any time as the Continuous Maintenance process.

Due to UL's work with a focus on product safety standards, we work regularly with the CPSC on standards activities. CPSC technical staff participate in a number of STPs for consumer product standards, including appliances, tools, and garage door operators. In addition, but to a much lesser extent, the National Renewable Energy Laboratory (NREL) also participates on several fuel cell & hydrogen generation related STPs. EPA is on the air cleaner STP, and FDA is on the microwave cooking STP. Lastly, the Center for Health Promotion and Preventative Medicine is on the commercial food preparing machines STP.

Examples of Government agencies participating in standards development include:

- UL has had excellent participation by the Environmental Protection Agency in the initial UL Environment standards for sustainability. An EPA representative has participated on every panel formed thus far, and EPA has submitted numerous substantive comments in support of improving the text in the draft ULE standards. UL has an indication of continued commitment from the EPA for ULE's sustainability standards development initiative.

- NIST has been working on research regarding the feasibility of providing first responders with incident data while they are still in transit to an alarm. In a recent presentation at a NEMA signaling meeting, a NIST representative provided an example where a fire department responding to a sprinkler-water-flow alarm at a shopping mall would receive data regarding specifically which sprinkler heads had activated, their location within the mall, the nearest entrance and fire department connections, locations of any nearby hazardous materials, etc. This would allow the fire department to plan their deployment and attack prior to arrival at the site. It is possible that UL will eventually be addressing proposals for establishing communication protocol requirements for fire alarm system control panels (UL 864, Standard for Control Units and Accessories for Fire Alarm Systems).

- UL is also developing a standard for mass notification systems (think of in-building, distributed recipient [e.g., Virginia Tech], and wide area [e.g., tornado sirens, big-voice in a state park, etc.]). During a recent STP meeting, UL had participation from representatives of DHS, (US Navy, Marine Corp). The STP discussed the need for standard communication protocols between different system components. While the panel determined that such protocols should not be the purview of the STP, we expect that new protocols will likely be proposed for UL 2572, Outline for Control and Communication Units for Mass Notification Systems.

- UL leads a number of security focused STPs that have developed task groups to work on updating the standards to keep up with the new technologies and the new techniques developed to penetrate these security technologies. Government participants have participated in these task groups and have providing valuable input. One example that is currently in the works is the development of UL 2058, Outline For High-Security Electronic Locks into a Standard. As the scope covers high-security electronic locks, the input from NFESC influences the direction of the task group. This same representative also was actively involved in the task group working on the proposal to add Lock Bumping Test to UL 437, Standard for Key Locks.

- NIST is a government representative on the UL 8750 STP for *Light Emitting Diode (LED) Equipment for Use in Lighting Products* and has participated and shown interest in the development of UL 8750 due to the new technology.

- CPSC is a non-voting member on the STP for UL 2201, the Standard for Portable Engine-Generator Assemblies. CPSC regularly attends the STP meetings and has participated heavily in the development of the safety requirements, especially with respect to carbon monoxide poisoning. UL and CPCS worked together on developing

markings for generators to warn users about carbon monoxide and continue to work with other industry leaders to impact the safety requirements for generators.

- UL staff participates on the NIST Smart Grid Interoperability Panel and participates in the cybersecurity and testing and certification subcommittees.

In the past UL has also received valuable input from government representatives on the following STPs:

- STP 1642 Lithium Batteries (Rep from NASA),
- STP 1449 Surge Protection Devices (Rep from FAA)
- STP 60950 Information Technology Equipment (Rep from CPSC)

How transparent is each method?
Each method is completely transparent as required by our ANSI approved procedures. All votes, comments, and responses are posted on UL's online CSDS system. The ability to vote on an STP is at the discretion of each agency, but where public comment or a vote is made, this information is made available.

What other methods should the Federal agencies explore?
The above methods, including open introduction of standards revisions and the use of topic subcommittees, have proven effective.

What impact have Federal agencies had on standards activities?
The presence of government representatives at the STP table has a positive impact on stakeholder dialogue. It is important to have the widest variety of opinions presented during standards discussions and Federal agencies bring a perspective that is not presented by other interests, and often have resources and data not readily available to others.

For the most part, government representatives on UL's STPs are voting members, however CPSC staff have requested to be non-voting members on UL's STPs. UL would prefer to see all government officials to be voting members in order to convey the seriousness of purpose reflected in their positions and to ensure UL Standards continue to meet the needs of the government users.

As such, Federal Agency participation is extremely valuable. There are varying levels of participation from government representatives on the STPs and UL's experience is that the amount of participation is correlated to the level of priority of the subject in question for that government agency. A process to help stabilize or mitigate ebbs and flows in such participation levels would be most constructive.

When government agencies take an active role, the representatives frequently come to the table with expertise regarding field experience and/or expertise regarding government-conducted research that other members lack. When a government representative identifies a specific position and/or issue to be focused on, UL has found the representatives to be vocal, well prepared (with data, incidents, reports, presentations, etc.) and diligent in seeing the process through to completion.

How well do Federal agencies coordinate their roles in standards activities in the sector of interest?
UL is not aware of the process that Federal agencies use to coordinate their roles in standards activities. Patterns have shown that some agencies are more active than others and trends show more involvement and participation in standards activities for industries that appear to be of high priority to the government.

When Federal agencies have been involved in standards setting efforts in a technology sector, how has the progress of standards setting efforts in this technology sector changed after Federal agencies became involved?
Federal agency participants bring a unique perspective to the standards making process and are often valuable contributors. In one example – the safety of portable generators - there has been a lot of activity with CSPC with regard to carbon monoxide poisoning which has affected the marking requirements in the UL generator standard. CPSC will sometimes provide lengthy research reports during the standards process, which need to be reviewed/discussed. Although it is a benefit to include as much information as possible in the discussion, it can result in the progress of the process being slowed.

Are Federal agencies generally receptive to input from other participants in standards-setting activities?
From UL's experience, representatives from Federal agencies have always been receptive to input from others.

Does receptiveness tend to depend on whether the Federal agency is a regulator or a customer?
In UL's experience working with federal participants on standards activities, there is no evidence to suggest that receptiveness depends on the role of the Federal agency.

In those sectors where Federal agencies plays a significant role in standards activities, how valuable and timely is the work product associated with this effort?
UL finds government participation extremely valuable and supports the continued participation by participants in the process.

Issues Considered During the Standards Setting Process

Issue: Foreign Regulations and Standards Activities

UL believes that the NSTC and the US government should elevate US attention to US standards development bodies and conformity assessment bodies to advocate on their behalf in international forums.

International trade is dramatically simplified when regulators have common requirements for products across their respective markets. There are some acceptable technical reasons for applying unique requirements to products in certain situations, such as climactic concerns,

varying electrical and other infrastructure needs, and observed cultural behaviors with respect to products. However, some regulators apply unique requirements in order to create barriers to foreign commerce and to protect their domestic industries.

UL believes that regulators and standards developers should consult with foreign counterparts and work within international organizations such as the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) in order to harmonize product requirements to the extent possible. Regulators and standards developers should only deviate from international norms where there are verifiable technical reasons for doing so. Conformity assessment for products globally is greatly simplified and streamlined where product requirements are harmonized across multiple markets.

US government officials should abide by the principles of the National Technology Transfer and Advancement Act (NTTAA), which compel them to first look to the US private sector before drafting potentially unique government standards for products under their jurisdiction. The US government should also support technology-neutral approaches to product standardization, and should encourage trading partners to refrain from using their standards policies to support the market competitiveness of indigenous technologies.

Increasing Participation in Foreign Standards Development Activities
Most countries in the world today have infrastructures in place to develop product standards at the national level. Some standards development activities are open to participation from a wide variety of stakeholders, both domestic and international. Unfortunately, many remain closed to foreign participation.

UL believes that countries should open their standards development activities to all interested parties, including foreign interests. It is reasonable to limit participation based on desires to maintain balance among different stakeholders; however, standards development processes should not discriminate against all foreign participation. The input of interested foreign experts can be invaluable to ensure that standards development work is not duplicated across multiple markets, and also that it is harmonized to the extent possible.

US government officials should encourage foreign national standards bodies to allow US participation in their standards development activities.

Encouraging Broad Use of Standards as Tools
The World Trade Organization's Technical Barriers to Trade (TBT) Chapter encourages countries to make use of international standards. However, there is little agreement among countries regarding what constitutes an "international" standard. Several countries have adopted the view that only standards developed by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) can be considered "international" in scope. The World Trade Organization defines principles of what constitutes an international standard in Annex IV of the TBT. Under such framework, standards created under an ANSI accredited process like UL Standards, would meet the criteria to be international standards.

UL believes that international standards can be any standards that have international applications considered useful and valuable to the stakeholders of different countries, as well as embody the principles of the WTO's TBT committee decision referenced in Annex IV. ISO and IEC are important international standards development forums; however, progress in these forums can

often be slow and there is a limit on the amount of product standards they can address in the course of a year. Therefore, countries should feel free to use and adopt standards that have been developed by other entities if it is found that such standards would meet their regulatory needs. Standards should be viewed as tools for regulators to use in meeting their safety and confidence needs; they should not be used as barriers to foreign competition, nor should they limit the options regulators have available to them in order to meet their goals and safeguard their people.

US government officials should continue to advocate for an approach to "international standards" that is broad enough to include nationally developed standards with international applications. Government officials should look for opportunities to feature US private sector expertise in standards development in international fora and encourage foreign counterparts to foster their own private sector standards sectors and make use of standards that meet their needs as regulators, rather than restricting themselves to standards developed by the IEC and ISO.

Issue: Standards & Intellectual Property

How does the need for access to intellectual property rights by Federal agencies factor in the use or development of standards?
Much of the discussion around the interplay between standards and intellectual property rights focuses on patents (e.g., when must a patent holder who participates in the standards-development process disclose its patents that will be infringed by use of the standard, must such a patent holder grant licenses to third parties under those patent rights and under what terms, etc.). As a result, copyrights are often overlooked as an important intellectual property right relating to standards.

Many government-related agencies have adopted or referenced UL Standards materials (i.e. Department of Defense). To date, the adoption or use of a UL standard by Federal agencies in this technology sector hasn't impacted UL as the copyright holder of intellectual property. Although there is pending litigation in allowing public access to Standards referenced or adopted by government authorities, UL does not anticipate a change in the current law.

To what extent, if any, has the development, adoption or use of a standard, by Federal agencies in this technology sector been affected by holders of intellectual property?
Like other original works of authorship (see 17 U.S.C. Sec. 101), standards are protected by copyright. Non-government standards-development organizations (SDOs) such as UL invest significant amounts of time and resources into developing, maintaining and distributing standards. Indeed, one reason the Government has encouraged the use of non-government standards is to eliminate the cost to the Government of creating its own standards (see OMB Circular No. A-119 Revised). Many SDOs sell or license their standards to the public in exchange for fees in order to recoup some of their investments and continue developing and distributing new standards, and the exclusive rights conferred under the US Copyright Act (in particular the exclusive rights to reproduce and prepare derivative works of a copyrighted work, and to distribute copies) are critical to an SDO's ability to do this. For example, without these exclusive rights, any third party could copy and distribute an SDO's standards free of charge and it would be difficult for an SDO to find customers willing to pay for the exact same product. Consequently, SDOs would not recoup their investments and would be discouraged from engaging in future standards-development activities. To take advantage of these exclusive rights, an SDO generally must own the copyrights in its standards (see Copyright Act, Sec. 106).

Copyright ownership initially resides with the author or authors of the work (see Copyright Act, Sec. 201(a)). While determining authorship can be simple for many works (e.g., a book, poem or song), this can be complicated for consensus-based standards which are created by a group of different people. It is possible that some standards could be therefore considered "joint works" which Sec. 101 of the Copyright Act defines as "a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole." Because the authors of a joint work are considered co-owners of the copyright, many SDOs try to establish ownership of the entire copyright in a standard by seeking from each contributor an assignment of rights, an acknowledgment that the contributions and standard constitute "works for hire" with copyright owned by the SDO, and/or an acknowledgment that the SDO owns all rights in the standard.

Copyright ownership in standards can be further complicated by the Government's participation in standards development. Under Sections 101 and 105 of the Copyright Act, any work "prepared by an officer or employee of the United States Government as part of that person's official duties" are not subject to copyright. Thus, if a Government employee participates in standards development as part of his or her official duties and that employee's contributions rise to the level of co-authorship of the standard itself, then there is a potential argument that the standard itself is not subject to copyright because it is a joint work of the United States Government. And if the standard is not protected by the exclusive rights of the Copyright Act noted above, any third party could freely copy, distribute and modify the standard and the SDO may not be able to recoup its significant investment in developing the standard, thereby discouraging future standards development by the SDO and thwarting the Government's stated goal of relying on private standards development.

Accordingly, while the Government's participation in standards development activities may be valuable, SDOs may wish to limit the Government's role in standards development to minimize the risk that the Government could be considered a co-author of a standard unless there are changes to the Copyright Act that would allow standards co-authored by the Government to retain copyright protection.

How have such circumstances been addressed?
UL's Legal team is following current litigation and case studies with regard to intellectual property adopted or used by government agencies.

Are there particular obstacles that either prevent intellectual property owners from obtaining reasonable returns or cause intellectual property owners to make IP available on terms resulting in unreasonable returns when their IP is included in the standard?
As discussed in OMB Circular No. A-119 Revised, the Government encourages the adoption of or incorporation by reference of private consensus standards into laws and/or regulations in order to take advantage of the efficiencies of private standards development. Another important copyright issue is whether this impacts the SDO's exclusive rights in the standard.

While most courts that have considered the issue have found that standards incorporated by reference into law do not lose copyright protection, at least one court has suggested otherwise. See Veeck v. Southern Building Code Congress International, Inc., 293 F. 3d 791 (5th Cir. 2002) (finding no copyright protection for a model code adopted into law where the code was written for that purpose and promoted for use as legislation).

While the public should have reasonable access to private standards adopted or incorporated by reference into law or regulation, this does not require loss of copyright protection. The copyright in the standard and the SDO's ability to exercise its exclusive rights under the Copyright Act should remain intact in order to encourage future standards-development activities, as discussed above.

Government should make clear to public that such private standards are protected by copyright and discourage infringement, while at the same time providing for reasonable public access. Some options for reasonable public access include:

- Read-only access at Government libraries and other facilities
- Appropriate compensation provided to the SDO where exclusive copyright rights in a standard are practiced

UL has not experienced or encountered obstacles that either prevent UL intellectual property returns or cause UL intellectual property to be available on terms resulting in unreasonable returns when their IP is included in other documents.

What strategies have been effective in mitigating risks, if any, associated with hold-up or buyers' cartels?
UL attempts to educate stakeholders on UL's patent policy and intellectual property rights. All UL certification customers who access UL Standards materials are offered on-line education relative to intellectual property training at no cost.

Adequacy of Resources

What resources are needed to successfully complete the efforts?
Periodic online participation is required of Federal participants to read and comment on standards proposals. Travel to STP Meetings is not required as attendance at STP Meeting is optional. Additionally, employee time is required to stay actively engaged in standards activities, including issue reviews, dialogue, and other standards activities.

Taking into account budget constraints and competing initiatives, have Federal agencies committed adequate resources?
Although some Federal agencies have committed adequate resources, sufficient levels have not been sustained across all agencies. A review of current structure and resources allocation practices could lead to sustaining consistent and necessary government participation.

What resource constraints impact the successful completion of the standards efforts?
As standards continuously are evolving, allocation of staff time over a long period is critical to being an active participant in the standards process and should be prioritized by agencies. Therefore, it is important for the government participants to stay engaged in the process and allocate time accordingly.

Process Review and Improvement Metrics

What lessons about standards development in complex technologies have been learned so far?
For new and complex technologies, it is critical to have as much input as possible from all of the interest categories so that different perspectives can be reviewed and considered in the development of standards. This process promotes open and candid discussions, which result in consensus requirements. Participation by the federal government in contributing ideas and research data and supporting the public-private partnership for standards development, can serve as an ideal way to ensure standards incorporate the most current science and all interests.

Have there been any impediments to implementing these lessons?
Although attendance at STP meetings is not required, there tends to be fewer participants from non-producers due to budgetary and workload constraints. Facilitating continuous participation by all stakeholder interests will foster stronger standards, reflecting the broadest input from interest categories, as well as the feedback and perspectives of subject matter experts.

CONCLUSION

In conclusion, UL applauds NIST and the NSTC's commitment to evaluating the Federal agencies' participation in the development and implementation of standards and conformity assessment activities and programs. UL encourages the NSTC to consider the value and success of the US standards system and continue to advocate on its behalf. Focus on success stories where consensus standards and conformity assessment systems have been used to advance government interests will further recognition that these systems should not be viewed as impediments, but rather as facilitators for technology deployment and innovation. UL welcomes continued dialogue with the NSTC and NIST on these important matters. Through continued partnerships between the private sector and government, the US standard and conformity assessment systems can continue to serve US industry.

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