

## In This Issue

- Featured Article:  
The IEC to Set Global Standards for Smart Grid
- Latest from the IEC
- USNC News
- Conformity Assessment
- Save the Dates
- Items of General Interest

**T**he modernization and funding of the electrical infrastructure are currently at the forefront of high-level U.S. energy policy discussions. There is now an urgent need to demonstrate how all stakeholders in the electrical industry will be able to rely on the IEC as a “beacon” in the world of Smart Grid – a one-stop shop of standardization and technology development resources for the large number of Smart Grid projects being launched in the United States and all around the world.

## The IEC to Set Global Standards for Smart Grid

*by Richard Schomberg, SMB Smart Grid Strategic Group Convener; TC8 Chair; System Aspects for Energy Delivery; US DoE Gridwise Architecture Council Member; System Engineering Professor; EDF VP Research North America*

**T**he United States has faced a problem with the reliability of the electrical system since 2001 due to under-investment in infrastructure and growing demand. On top of that, environmental concerns make it increasingly difficult to build new generation units or new transmission lines even as the country attempts to integrate massive quantities of renewable energy to reduce dependence on foreign sources of energy. The need for a new breed of standards is born out of this transformation in the world of power provision.

### Intelligent assessment

Most countries are facing a fundamental shift in the way power is used as well as in the demands placed on networks whose designs may be antiquated. A Black & Veatch survey shows that 60 percent of U.S. grid infrastructure might be at end of life, and 25 percent is past design life. Brattle Group says that \$1.5 trillion would be required in the next decade to merely maintain today’s quality of service.

U.S. legislation is encouraging and funding investments intended to make the

grid intelligent and solve critical energy issues. The American Recovery and Reinvestment Act of 2009 has appropriated \$11 billion from which \$4.5 billion will fund up to 50 percent of new projects for “clean, efficient American energy”; \$100 million will fund cornerstone standards development.

While the effectuation of Smart Grid means different things to different people, the core concept is the same: to optimize the delivery of electricity. Across the U.S., many utilities have already or are in the process of implementing smart technologies into their transmission, distribution, and customer systems based on several factors such as implementing legislative and regulatory policy, realizing operational efficiencies, and creating strong customer value.

National Association of Regulatory Utility Commissioners president Frederick Butler said that while Smart Grid has great potential, it must be deployed carefully to gain the widespread acceptance that it needs.

“As a state regulator in New Jersey and co-chair of a national board analyzing Smart Grid issues, I am absolutely convinced of Smart Grid’s potential to revolutionize how energy is delivered and consumed,” said Mr. Butler. “I know Smart Grid can change how utilities oversee their networks and improve

reliability. I know that, in the end, consumers could have greater control over their usage and the potential to lower their bills. I also know that if we do not do this correctly, we can endanger our ability to come close to meeting any of those lofty aspirations.”

(continued)



LATEST FROM THE IEC

## Fuel Cell Workshop to Align Research and Standardization

IEC Technical Committee (TC) 105, *Fuel cell technologies*, will hold a workshop on fuel cell systems, from both a research and a standardization perspective, in collaboration with Seoul National University (SNU), Republic of Korea. The workshop, co-chaired by Seung Jin Song of SNU and Wolfgang Winkler, secretary of TC 105, will take place June 13 – 15, 2009, at SNU’s Advanced Automotive Research Centre.

TC 105 prepares International Standards for fuel cell technologies used in stationary, portable, and micro fuel cell power systems; propulsion transportation systems; and auxiliary power units. Its 15 participating member countries are Canada, China, Denmark, France, Germany, Israel, Italy, Japan, Republic of Korea, Netherlands, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Since fuel cell technologies are still in transition from research and development to a commercial stage, there are no standards that cover entire specific aspects of the technology (though existing standards do address certain aspects). To facilitate trade and harmonize approval procedures, it is important to produce International Standards at this early stage, while ensuring that further development of this relatively young technology is not hindered.

The workshop will contribute much in this direction with an agenda that includes: the current state of micro fuel cells; sustainability and safety; access to worldwide markets; fuel cell applications and advanced technology; and development of related IEC standards.

### Further information

To learn more about TC 105’s work on fuel cell technologies, visit the [IEC website](#). ■



FEATURED ARTICLE (continued)

## The IEC to Set Global Standards for Smart Grid

### New challenges in interoperability

Whereas the “old” market comprised vertically integrated monopoly providers, the “new,” re-regulated market is peppered with varied players with relationships of increasing complexity. Different stakeholders are responsible for different parts of the system, too, and may each make different choices about evolution and use.

Beyond that, system engineering related to Smart Grid reaches an unprecedented level of complexity. First, the electrical system is in continuous operation, evolving constantly while incorporating a huge legacy. Smart Grid implementation has begun and will continue as an evolution of successive projects over several decades.

Secondly, the technical challenge is much more than the simple addition of an Information Technology infrastructure on top of an electrotechnical one. In fact, each device connected to a Smart Grid is at the same time an electrotechnical device and an intelligent node. Today’s connectivity standard must address both aspects concurrently. Within the IEC, different Technical Committees (TCs) are already dealing separately with each approach.

But the major challenge is to procure a number of different interchangeable parts from a variety of providers worldwide and put them all together simply. This is where standards can make a major enabling difference and why there is so much effort in this direction today. There is a huge need for interoperability standards to assure that equipment purchased from any vendor will work the same way.

The U.S. utility industry and regulatory bodies have started collectively addressing interoperability standards issues through groups such as the U.S. Department of Energy

GridWise Architecture Council and Open Smart Grid (OpenSG) Subcommittee of the Utility Communications Architecture International Users Group (UCAIug) and through policy action such as the National Institute of Science and Technology’s (NIST) tasks under the 2007 Energy Independence and Security Act.

### A focused collaboration

There is a lot of confusion in the discussion of interoperability, as people are often talking about different goals; the ultimate

interoperability allowing a total plug-and-play “Meccano” is probably out of reasonable reach. Interoperability should be considered with a focus on prioritization and acceleration of the adoption of “inter-system” standards.

A realistic approach is to define boundaries

where major progress can bring quick benefits without jeopardizing future successive improvements. And then at each boundary, the “deepness” of interoperability should be defined: are we using the same language, addressing plug and play capability, total interchangeability, etc.?

Standards that provide building blocks on two different fronts are needed. In the initial phases, standards should address user requirements to allow utilities and distribution and transmission operators to document their needs. Later in a project, standards for technical design and specification will allow system architects and integrators to implement devices that speak the same language, behave synergistically, and even can be interchangeable.

Smart Grid is broad in its scope, so the potential standards landscape is also very large and complex. But there is a great opportunity today with utilities, vendors, and policy makers



## FEATURED ARTICLE (continued)

by Richard Schomberg

actively engaged. Technology is not a barrier; the fundamental issue is organization and prioritization to focus on those first aspects that provide the greatest customer benefit toward an interoperable and secure Smart Grid.

Mature standards and best practices are already available and can be readily used to facilitate Smart Grid deployment. The main problem with adoption seems to be a lack of awareness of the standards by those involved in designing Smart Grid systems at a high level and a lack of clear best practices and regulatory guidelines for applying them.

Ultimately, Smart Grid interoperability certification will have to be addressed as well. Guidelines should then be developed addressing mechanisms for interoperability enforcement and, where appropriate, leverage commercial certification activities.

**Goal: a standards framework**

A framework that can be used universally by the industry as a toolkit for Smart Grid projects is needed to avoid repeated efforts and costly mistakes. Vendors might limit their investments in developing innovative products if a global market doesn't clearly emerge. Such a framework should be issued progressively and include the following:

- Smart Grid project guidelines describing major steps that may seem to be common sense but are not always implemented (e.g., requirement, design, integration, testing, validating), and how to define boundaries and appropriate levels of interoperability.
- A suite of standards to be used at the user requirements level, eventually with generic-use cases. This is a newer area, so development of these standards can be directed more easily.
- A suite of standards to be used at the technical design and specification

level, covering electrotechnical and Information Technology aspects. This is an area where too many standards exist, so cross-cutting compatibility must be demonstrated in great detail. The goal here is to provide a catalog of compatible, guaranteed, short-listed standards (or parts of standards)

**The IEC's leadership role**

The IEC is the most trusted international electrical standards development organization, providing a large catalog of extremely well-focused standards in worldwide use. However, there is now an urgent need to successfully demonstrate how the electrical industry will be able to rely on the IEC as a "beacon" in terms of Smart Grid, and to provide a one-stop shop for the world's burgeoning Smart Grid projects.

**Let's pick up the fruits already lying on the ground before even grabbing the low hanging ones!**  
— Steven Chu,  
US DoE Secretary

The IEC Standardization Management Board (SMB) approved the creation of a Strategic Group to develop a framework for IEC Standardization that includes protocols and model standards to achieve interoperability of Smart Grid devices and systems (*see related article, page 8*). The Group is engaging internal and external stakeholders in order to propose a first release of such a framework based on existing IEC standards that can be used consistently for today's projects.

Then an action plan will target for the longer term the different TCs to manage their activities towards the one goal of providing, in successive, defined steps, a more complete and consistent suite of global standards for Smart Grid projects. ■

## LATEST FROM THE IEC

**Regional Indonesian Event Focuses on Energy Efficiency**

The Human Resources Development (HRD) seminar has begun to look at creating awareness of and encouraging



participation in IEC activities related to energy efficiency. The first regional seminar on this topic was held December 1 – 2, 2008, in Jakarta, Indonesia.

Organized by the Japanese Industrial Standards Committee (JISC) and hosted by the National Standardization Agency of Indonesia (BSN) with support from the Asia-Pacific Regional Centre (IEC-APRC), the seminar was officially opened by Dr. Bambang Setiadi, chairman of the Indonesian National Committee and BSN. Attendees heard presentations on the activities of the Standardization Management Board (SMB) Strategic Group (SG) 1, Technical Committee (TC) 100, *Audio, video and multimedia systems and equipment*; TC 59, *Performance of household and similar electrical appliances*, and ISO/IEC Joint Technical Committee (JTC) 1 Subcommittee (SC) 28, *Office equipment*.

Representatives from China, Indonesia, Japan, the Republic of Korea, Malaysia, Philippines, Singapore, and Vietnam shared their views on energy standards, labelling requirements, and new developments in energy efficiency. Ideas for future seminars were generated, such as expanding the scope to include more TCs, addressing conformity assessment, and setting up a public web page to share the latest new work items.

Participant Luong Van Phan, deputy director of the Vietnam Standards and Quality Centre, added, "I should like the IEC to pay more attention to developing standards related to the energy efficiency of electrical household appliances. This area is important as energy efficiency standards are becoming mandatory in many countries. It would harmonize and facilitate trade if IEC Standards of this type existed." ■



LATEST FROM THE IEC

## First North American TC/SC Information Session

Following the successful information sessions that took place in Geneva, Switzerland, in September 2008, the IEC Regional Centre for North America (IEC-ReCNA) held a similar two-day series in January 2009 in Worcester, Massachusetts, for the IEC Technical Committee and Subcommittee Chairmen and Secretaries based in North America. Seventeen people attended (14 from the United States and three from Canada).



The sessions gave these experts the chance to become acquainted, in person, with all the latest developments of the IEC. Attendees could also talk to two representatives from the Geneva Central Office: Michael Casson, IEC technical department manager, and Azar Tahbazian, IEC Technical Information Support and Services (TISS) coordination manager.

Each attendee received an information package which included a CD with the complete set of presentations made during the two-day event, the current IEC brochures, and the video "Welcome to the World of the IEC." The numerous questions that followed each presentation were evidence of the interest of participants. The interest continued into the reception dinner that followed the first day session.

The second day session ended midday with a 30-minute Q&A where attendees raised issues that had not been covered in the presentations. Participants said that the information session was most instructive and that they were glad to have attended. The consensus was that the IEC should hold information sessions on a regular basis.

### Further information

For more about the IEC-ReCNA, visit [www.iec.ch/about/rc/iec-recna/](http://www.iec.ch/about/rc/iec-recna/). ■

LATEST FROM THE IEC

## Marine Energy Converters Begin Standards Development Process

While the marine energy industry is in its infancy, industry leaders have recognized that a key element toward maturity and commercialization is the development, early on, of an accepted body of standards. As most energy extraction devices are still in the proof-of-concept stage of development, standards that guide technologists toward robust designs and steer investors away from poorly engineered systems would be a timely advancement.

The need for standardization in marine energy is especially great because most of the extractable resources are located on public waterways where devices must be tested and proven under a watchful public eye and the scrutiny of federal regulators. Uniform methods for certification, performance assessment, resource assessment, terminology, testing, and minimum design requirements will increase confidence among regulators, insurance companies, venture capital firms, and the public in the long-term viability of these technologies.

In May 2008, IEC Technical Committee (TC) 114, *Marine energy – wave, tidal, and water current converters*, held its first plenary meeting in Ottawa, Canada, attended by representatives from 11 countries. The United States is taking an active role in all areas of work within TC 114 through the USNC-approved Technical Advisory Group (TAG), led by technical advisor Neil Rondorf of Science Applications International Corporation (SAIC).

The first work project approved within TC 114 is for IEC Technical Specification (TS) 62600-100, *The assessment of performance of wave energy converters in open sea*, led by the United Kingdom. This TS will establish general principles for assessing the power production performance of wave energy converters generating electricity using the action of wind-

by Walter Musial, Principal Engineer – Ocean Renewables, National Wind Technology Center, National Renewable Energy Laboratory

generated waves when deployed in open seas.

Such performance assessment is necessary to ensure that electricity is delivered reliably to the onshore grid.

The converters include floating or bottom-mounted systems that operate in open sea resource zones, both near shore and offshore.

The TC 114 committee also approved a new working group to develop a uniform set of international terminology. New proposals have been submitted by the United Kingdom and are awaiting committee approval to expand the IEC 114 program of work to include tidal energy converter performance and wave energy resource assessments.

Perhaps the most far-reaching activity within TC 114 will be the development of design requirements, led by the United States. This will harmonize the relevant nationally based guidelines already established in various parts of the world and integrate them into a common IEC Technical Specification. This TS will cover devices that extract energy from waves, tidal currents, and other water currents, including coastal and offshore systems, and will address electrical and mechanical aspects of a design that are needed to assure the integrity of primary structural components. It will not cover functionality of the devices in terms of energy production, maintainability, personnel access, ergonomic safety, or other operational issues.

These TS design requirements will need to take into consideration the harsh environments

the conversion systems will encounter and promise to be a challenging topic.

### Further information

To learn more about renewable energy, visit [www.nrel.gov](http://www.nrel.gov). ■



## LATEST FROM THE IEC

## Indian Event Addresses Standards for UHV Transmission

by Dr. Ram Adapa,  
Power Delivery & Utilization,  
Electric Power Research Institute (EPRI)

The second IEC–International Council on Large Electric Systems (CIGRE) International Symposium on International Standards for Ultra High Voltage (UHV) Transmission was held in New Delhi, India, in January 2009. The objectives of the symposium were to collect and share information on the current state-of-the-art in UHV transmission technologies and the progress of UHV standardization, to provide recommendations for what UHV standards the market requires, and to develop strategies for international standardization of UHV technologies in response to growing needs for bulk transmission of electricity over long distances.

UHV transmission (defined as voltages of 1000 kV AC or higher, or 800 kV DC or higher) can deliver large quantities of power over long distances with lower losses and less transmission lines. Though the majority of the utilities in the world are using transmission voltages up to Extra High Voltage (EHV) levels, some countries such as China, India, South Africa, and Brazil are considering or are already developing UHV projects to transmit power from major generation sources that lie thousands of miles away from load centers.

International standards for UHV do not yet exist, so they must be developed to ensure the safe and cost-effective use of this technology. Recognizing this need, the joint IEC–CIGRE symposium in New Delhi brought together IEC Technical Committees (TCs) and CIGRE Study Committees (SCs) to discuss and coordinate UHV standardization work. Topics covered at the symposium included:

- JICCG update on UHV standardization
- U.S. interests in UHV transmission systems
- Updates on China's 1000 kV UHV AC demonstration line which was energized in January 2009 as well as the growing need for UHVAC and UHVDC lines within the Chinese power system
- India's study reports on 1200 kV UHVAC system and 800 kV DC system

- Analysis of overvoltages and stability issues for the planned UHV power grid in China
- CIGRE reports on system impacts on UHV substation equipment, insulation coordination for UHVAC, and considerations for UHV substations
- Development and testing of 1100 kV GIS
- UHV equipment requirements – circuit breakers, disconnectors, earthing switches, surge arresters, insulator strings, instrument transformers, AC transformers
- CIGRE reports on HVDC converter transformers and 800 kV HVDC applications
- A new generation of thyristor valves for 800 kV HVDC
- Current status of design, engineering, manufacturing and testing of 800 kV HVDC equipment
- Update on Yunnan-Guangdong 800 kV UHVDC project, under construction
- Electromagnetic environment study for UHVDC



The next UHV conference, organized by the State Grid Corporation of China, will take place May 20 – 22, 2009, in Beijing, China.

IEC TC 115, *High Voltage Direct Current (HVDC) Transmission for DC voltages above 100kV*, will hold its first meeting May 22 – 23, 2009, in conjunction with the Beijing conference. Efforts are underway to establish the related U.S. Technical Advisory Group (TAG) prior to this first TC meeting.

### Further information

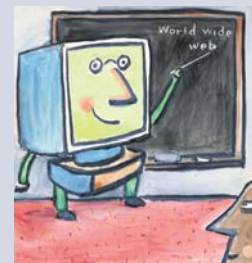
To become a member of the USNC-approved U.S. TAG to IEC TC 115, please contact:

Matthew J. Ceglia  
IEEE Standards Activities  
Tel: 732.562.3931  
[m.j.cegla@ieee.org](mailto:m.j.cegla@ieee.org) ■

## LATEST FROM THE IEC

## IEC Launches Online eTraining Modules

The IEC has evolved a series of innovative online training modules to make information available to



Technical Committee/Subcommittee (TC/SC) Officers electronically. These modules complement the dedicated in-house training sessions organized by the IEC Central Office for all TC/SC Officers.

Making training materials available remotely provides for additional flexibility, as officers can access information whenever and wherever they wish, at their own pace.

The eTraining website (which has restricted access for Officers) covers the following subjects:

- Introduction to the IEC
- Responsibilities and tasks of TC/SC Officers and Central Office
- Development of International Standards
- Forms and templates
- Technical drawing and editing
- Guidance for meetings
- Technical Information Support and Services (TISS)
- Communication and sales

The training modules are designed for IEC TC/SC Chairmen and Secretaries. They allow newcomers to familiarize themselves with the main tasks and relevant procedures involved in conducting IEC related activities and give experienced Officers an easy way to refresh and update knowledge.

The modules are presented in a variety of formats – online video, downloadable video, and PDF file – providing total flexibility.

### Further information

TC/SC Officers can access the modules at <http://etraining.iec.ch> (password required). ■

LATEST FROM THE IEC

## HOD Report on TC 100: STB Power and Energy Efficiency

IEC Technical Committee (TC) 100: Audio, video, and multimedia systems and equipment, had



a busy week of meetings during the 72nd IEC General Meeting in São Paulo, Brazil, in November 2008 that focused on the topics of set top box (STB) power use measurement and energy efficiency. The Head of the U.S. Delegation (HOD) for TC 100, Jean Baronas, director of the technology standards office at Sony Electronics, submitted an HOD report to the USNC documenting the discussions.

One issue that generated significant interest was how to develop a technique for neutral and practical STB power use measurement. The accessibility/usability project was kicked off, and plans were made for horizontal liaisons.

TC 100 Technical Area (TA) 9 discussed ideas about standards for measuring energy use in home networks within the TC 100 domain, but did not progress with any specific new proposals.

On the energy efficiency front, TC 100 Advisory Group on Strategy (AGS) discussed the IEC Standardization Management Board (SMB) Strategic Group 1 Recommendations on Energy Efficiency. Several ideas on how to coordinate with counterpart TCs are under consideration.

Discussions are ongoing in the area of information sharing about definitions, operating modes, and the general calculations for measuring energy efficiency and energy use. Where practicable, TC 100 intends to review the work of other TCs for consideration in the measurement of energy use of multimedia systems and equipment.

Unofficially, a new IEC TC 100 Energy Efficiency Ad Hoc Group (EEAHG) was discussed with the potential of the U.S. offering a new officer position. ■

LATEST FROM THE IEC

## Chinese Electricity Transmission Reaches Ultra-High Levels

The State Grid Corporation of China (SGCC) has launched its first ultra-high voltage power grid – a 1,000 kV Ultra High Voltage Alternating Current (UHV AC) pilot project connecting Shanxi, Nanyang, and Jingmen. The SGCC put the grid into commercial operation on January 6, 2009, after 28 months of construction.

Ultra High Voltage (UHV), defined as voltage of 1,000 kV or more alternating current (AC) and 800 kV or more direct current (DC), is designed to deliver large quantities of power over long distances with minimum loss and reduced transmission lines.

Meeting the steadily rising demand for electricity in China is difficult due to the great distances separating major manufacturing and population centers from the coal deposits and dams that provide electricity. Large-scale, long-distance transmission networks are one answer.



Airscape view of Jingmen Substation

The grid runs 640 kilometres, from Jindongnan Substation in Changzhi, Shanxi province, to Jingmen Substation in Jingmen, Hubei province, comprising three substations and two sections of transmission lines. It will save tremendous quantities of coal-powered energy – still by far the most common source of electricity in China – while occupying less land.

The project boasts some engineering firsts for UHV equipment, much of which was designed in China. It is the world's first UHV transmission line to enter production mode, and it has the first 1,000 kV UHV single-phase transformer with 3,000 MVA, a 1,000 kV shunt reactor with the highest voltage level, and the largest capacity of 960 MVar.

Jindongnan Substation – equipped with a 3,000 MVA transformer, a set of 3 x 320 Mvar shunt reactors, five circuits of 400 kV lines, two

sets of 240 Mvar reactors, and four sets of 210 Mvar capacitors – covers 7.8 hectares. The Nanyang switch station, on 8.15 hectares in Zhaohe, Nanyang, Henan province, has double circuits of 1,000 kV lines and two sets of 240 Mvar shunt reactors. Jingmen Substation has a single 3,000 MVA transformer, one set of 3 x 200 Mvar shunt reactors, and four sets of 210 Mvar capacitors. It spreads over 11.5 hectares.

The transmission lines are split into two sections of 359 and 281 kilometres, supported by 1,284 towers of 70 different designs.

The highest-rated operating voltage reaches 1,100 kV and largest transmission capacity is 2,800 MW. According to Yinbiao Shu, executive

vice president of SGCC and member of the IEC Market Strategy Board, the project will boost UHV grid development in China as the “state-of-the-art technology in UHV AC with the highest operation voltage, the largest transmission capability, longest transmission

distance, and least line loss.”

The U.S. Department of Energy's International Energy Outlook 2008 predicted that world net electricity generation will rise from about 17.3 trillion kWh in 2005 to 33.3 trillion kWh by 2030. Non-OECD countries will show the greatest increase in demand as they significantly expand their power grids to support economic growth.

Regarding the implications of the Chinese project, Shu said, “We look forward to making a contribution and being able to share more information with the international community for the wider application of UHV technology.”

### Further information

To learn more about the project, visit [www.sgcc.com.cn/ywlm/default.shtml](http://www.sgcc.com.cn/ywlm/default.shtml). ■



## LATEST FROM THE IEC

## IEC Welcomes Three New Member Countries: the Kingdom of Bahrain, Montenegro, and the Republic of Iraq

The IEC is pleased to welcome the Kingdom of Bahrain, Montenegro, and the Republic of Iraq as the latest countries to join the IEC. This brings the IEC Family to 75 Member countries and 83 developing-nation Affiliates, representing more than 95% of the world's population.

Bahrain and Montenegro join as Associate Members and may access and comment on all IEC technical documents at any stage. During a General Meeting they may observe any Technical Committee (TC) or Subcommittee (SC), Council, or Standardization Management Board (SMB) meeting. On request to the General Secretary they may be involved in up to four TCs or SCs as Participating members with the right to vote on technical work produced.

Iraq joins as a Full Member with the right to participate in all IEC standardization activities, including voting on all technical and management matters. Membership also gives access to the world's leading electrotechnical standards in fields as diverse as the generation, transmission, and distribution of electricity to industrial automation, healthcare, transport, and multimedia.

### The Kingdom of Bahrain

Bahrain has a population of 718,306 and estimated

electricity production of 8,187 billion kWh. Its principal industries are petroleum processing and refining, aluminium smelting, iron pelletization, fertilizers, Islamic and offshore banking, insurance, ship repairing, and tourism.



### Contact information for Bahrain

Bahrain Standards & Metrology Directorate  
Ministry of Industry and Commerce  
Khayirya Building, 2nd floor  
PO Box 5479  
Manama, Kingdom of Bahrain  
Tel: 011.973.17.574871  
[bsmcd@commerce.gov.bh](mailto:bsmcd@commerce.gov.bh)

### Montenegro

Montenegro has a population of 678,177 and estimated electricity production of 2,864 billion kWh. Its principal industries are steel making, aluminium, machine building, agricultural processing, consumer goods, textiles, and tourism.



### Contact information for Montenegro

Institute for Standardization of Montenegro  
Bulevar Svetog Petra Cetinjskog br.91  
81000 Podgorica, Montenegro  
Tel: 011.382.20.225.863  
[isme@cg.yu](mailto:isme@cg.yu)  
[www.isme.me](http://www.isme.me)

### The Republic of Iraq

Iraq has a population of 28.2 million and estimated electricity production of 33.53 billion kWh. Its main industries are petroleum, chemicals, textiles, leather, construction materials, food processing and packaging, fertilizer, metal fabrication/processing, paper, and machinery and transport equipment.

The Iraqi Electrotechnical Committee of the IEC was formed within the Central Organization for Standardization and Quality Control (COSQC). COSQC is an independent government agency, established in 1979, which acts as a consultant on quality control and standardization issues for government ministries and state-owned enterprises and maintains relationships with international standards organizations.



### Contact information for Iraq

Iraqi Electrotechnical Committee (IQC)  
P.O. Box 13032  
Al-Jadreja  
Baghdad, Iraq  
Tel: 011.964.1.7761980  
Email : [Click here](#) ■

## USNC NEWS

## USNC Reaches Out to Central American Neighbors



The USNC is once again working with the National Electrical Manufacturers Association (NEMA) to develop standards and conformance educational work and outreach in Central America. The goal is to visit up to three countries per year for three years and promote workshops, conferences, and other educational events where the U.S. standardization system can be explained and possibilities for cooperation discussed.

In the first event of the series, in April 2008, USNC deputy general secretary Rafael Lourenço presented at a technical conference in San Salvador, El Salvador. The event brought together more than 70 professionals from Salvadoran industry, academia, and government. Mr. Lourenço addressed the importance of IEC standardization work and how El Salvador could get more actively involved. There were also side meetings with the Salvadoran national standards body (CONACYT) and the U.S. Embassy to discuss cooperation opportunities.

Following up on last year's success, the USNC visited Panama on March 17, 2009. As an Affiliate country, Panama is already involved in IEC work, but options for further engagement are always on the horizon. Mr. Lourenço represented the USNC again and addressed the challenges Affiliate countries face when participating in the IEC. The attendees provided valuable feedback on their own challenges and suggested solutions. Possibilities for Panama-U.S. collaboration were also raised for further consideration.

Upcoming 2009 visits are the Dominican Republic in May and Colombia in July. ■

USNC NEWS

## USNC Deputy General Secretary Departs for International Study

Deputy general secretary Rafael Lourenço has announced his resignation from the USNC as of April 3, 2009, to pursue a graduate degree at the University of Barcelona in Spain. Mr. Lourenço will embark on a master's degree program in globalization, international trade, and emerging markets.

Mr. Lourenço has been the USNC deputy general secretary and American National Standards Institute (ANSI) program manager for international policy since June 2007. In less than two years he has made major contributions to both USNC/IEC and ANSI. His most far-reaching and important contributions have been in expanding the USNC's and IEC's roles in the region of the Americas.

In addition, he has been very effective in helping to edit this newsletter, in administering two Technical Advisory Group (TAG) Administrator Workshops, and in many other activities related to the USNC's Communications and Continuing Education program. Not long ago he was appointed as the USNC's alternate representative on the IEC Standardization Management Board. Overall, Mr. Lourenço has achieved quite a significant body of great accomplishments over a very short period of time.

While expressing regret over leaving the USNC and ANSI, Mr. Lourenço said he is very excited about the opportunity to live and study in Europe and believes that this international policy program will be a valuable asset for his future career.

The USNC and ANSI wish him the best



in this and all of his future endeavors. ■

USNC Deputy General Secretary Rafael Lourenço at a meeting of the IEC's Asia-Pacific Steering Group (APSG)

USNC NEWS

## USNC Creates TAG on the Newly Established IEC Strategic Group 3 on Smart Grid (SG3)

The IEC Standardization Management Board (SMB) has tasked the USNC with the mission of convening a Strategic Group (SG3) to undertake an analysis of the Smart Grid work currently underway in its committees. The objective is to determine how the work could be consolidated under a more cohesive framework, leading to a more efficient modernized energy grid.

This directive resulted from a thorough discussion of international standardization of Smart Grid systems at the SMB's annual meeting in October 2008 in São Paulo, Brazil.

The USNC nominated Richard Schomberg of Electricité de France (EDF) as the convener of the IEC SG3. Mr. Schomberg has been actively involved with Smart Grid standardization over the years and brings significant experience to this group (*see feature article by Mr. Schomberg, page 1*).

In addition to the convener, the USNC nominated Ken Caird of GE as the principal member to IEC SG3 and Gary Rackliffe of ABB as the alternate.

Upon the establishment of IEC SG3, the USNC called on the National Electrical Manufacturers Association (NEMA), who has been very active in domestic efforts on the Smart Grid front, to administer the U.S. Technical Advisory Group (TAG) for IEC



SG3. This committee is open to manufacturers and other stakeholders and will provide U.S. input into the IEC decision-making process on international standards and standards convergence for Smart Grid.

To ensure that U.S. interests are reflected in the IEC's Smart Grid work, the USNC urges members interested in this technical area to join the U.S. TAG to IEC SG3. This group will be the main provider of input from the U.S. to IEC SG3 and will have significant influence on both the structure and content of IEC standards involving Smart Grid components and systems interoperability.

### Further information

If you would like to become a member of the U.S. TAG to IEC SG3, please contact:

Al Scolnik  
NEMA Vice President, Technical Services  
[alv\\_scolnik@nema.org](mailto:alv_scolnik@nema.org) ■

### IEC Standards for Smart Grid

[Click here](#) for a slide presentation prepared by Mr. Schomberg explaining his vision of IEC standards for Smart Grid. Slides 15, 16, and 17 suggest his goals for the project.

[Click here](#) for the names of the international participants in SG3.

**IEC SmartGrid activities**

■ Background – SmartGrid

US DOE SmartGrid Vision

EU SmartGrid Vision



## CONFORMITY ASSESSMENT

## How to Obtain IECEx Certification

The processes that go on behind the scenes before a certificate or Conformity Mark is granted are rarely discussed in industry publications. What does the application for certification of Ex products or facilities entail? Where and how is the IECEx Conformity Mark used? These are a few of the questions that may be on the minds of interested parties.

The IECEx website has a wealth of information on the IECEx System and the different types of IECEx certification. Provided on the site are the following downloadable guides that detail the steps and processes that are required to obtain certification:

#### Guide IECEx 01A: Comparison between IECEx and ATEX

This guide provides an overview of the major differences between the IECEx System and the European Union ATEX Directive (Equipment intended for use in potentially explosive atmospheres). The document lists the major differences between the two systems, taking into account specific items that are commonly raised, such as field of application, standards used, certification procedures, conformity assessment, manufacturer surveillance, and workplace requirements. The table format makes it easy to use.

#### IECEx guides for certified equipment and for service facilities (Guide IECEx 02A and Guide IECEx 03A)

These guides cover two of the Certification Schemes offered by IECEx: the IECEx Certificate of Conformity under the IECEx Certified Equipment Programme, which deals with Ex products, and the IECEx Certification of Service Facilities (which repair or overhaul equipment for explosive atmospheres).

Both guides are constructed on the same model, taking potential applicants step-by-step, from the initial approach made by the client – who to apply to, how to prepare an application, documents needed to make an application, additional requirements – to the complete sequence of stages that lead to actual certification. In both cases, a flow chart and a table sequencing the procedure from A to Z complete the documents.

#### IECEx Conformity Mark (Guide IECEx 04A)

This guide was prepared to help applicants wishing to obtain IECEx Conformity Mark licenses as well as to provide guidance on the proper use of the Mark on products and packaging.

It starts with a brief overview of the IECEx System, which is entirely voluntary, and goes on to describe the rules and procedures that apply to the Licensing System and the application process. The second part of the guide provides information on the Mark itself, dimensions and colors of the symbol, its availability in electronic formats, and how it is to be used on products and on packaging or other materials. A sample of the IECEx Conformity Mark is also presented.

#### IECEx Certified Persons Scheme

This new Scheme, to become operational during 2009, provides a single system for the assessment and qualification of persons working in explosive atmospheres. Once the operational procedures are finalized, a further guide (to be known as IECEx 05A) will be prepared and made available.

#### Further information

For more information, please visit the IECEx website at [www.iecex.com](http://www.iecex.com). ■



## CONFORMITY ASSESSMENT

## IECQ to Hold Series of Annual Meetings in China

The IEC Quality Assessment System for Electronic Components (IECQ) announced that its annual meetings will take place May 11 – 15, 2009, in



Guangzhou, China

Guangzhou, China, and will be hosted by the Certification and Accreditation Administration (CNCA) of the People's Republic of China, the Chinese member of IECQ.

Guangzhou, the capital city of the Guangdong province, is one of the most important centers of foreign commerce and cultural activity in South China. This will be the second time this decade that the CNCA hosts IECQ annual meetings in Guangzhou.

The first day will be dedicated to the Chairman's Advisory Group (CAG), followed by the Marketing Subcommittee on May 12, the Conformity Assessment Bodies Committee (CABC) on May 13, the Management Committee on May 14, and the Specialist Working Group – Electronic Component Management (WG 4 – ECMP) on May 15. The CAG and WG 4 – ECMP meetings are for specific members only; all others are open to all National Authorized Institutions, National Member Bodies, and Certification Bodies.

The agenda will focus on future strategies to support all IECQ Technical Certification Programmes such as component certification, the IECQ Hazardous Substances Process Management (HSPM), IECQ ECMP (as applied to the aviation and railway industries), and Traditional IECQ Approval Schemes. An innovative half-day IECQ CB Training Workshop on May 12 will allow CBs to familiarize themselves with the major upgrades to the IECQ On-Line Certificate System, launched in spring 2008.

#### Further information

For more information, please visit the IECQ website at [www.iecq.org](http://www.iecq.org). ■

CONFORMITY ASSESSMENT

## Paper Competition Celebrates International Accreditation Day

In recognition of the first-ever official U.S. celebration of

International Accreditation Day on June 9, 2009, the American National Standards Institute (ANSI) is pleased to announce the launch of a paper competition focused on the value of accreditation in the global marketplace. All interested parties are invited to submit papers.

“With industry, government, and consumers the world over recognizing the importance and value of third-party accreditation, ANSI is pleased to formally recognize International Accreditation Day and kick off the U.S. celebration with our new paper competition,” said Lane Hallenbeck, ANSI vice president of accreditation services.

International Accreditation Day was launched in 2008 by the International Accreditation Forum (IAF) and the International Laboratory Accreditation Cooperation (ILAC). Every June 9, IAF and ILAC invite their national representatives around the world to celebrate the importance of accreditation in the global standards and conformity assessment community.

Interested stakeholders are invited to participate in the celebration by submitting a paper of no more than 2,000 words that highlights the value of accreditation in the global marketplace. Papers will be judged by representatives from ANSI’s five Assessment and Accreditation Committees.

The best paper will be awarded a \$1,000 prize and will be published – along with the second and third-place papers – on the ANSI website, [www.ansi.org](http://www.ansi.org).

### Further information

For more information or to submit an entry, contact Liz Neiman at [eneiman@ansi.org](mailto:eneiman@ansi.org). ■



CONFORMITY ASSESSMENT

## IEC CAB, ILAC, and IAF Put Forward New Concepts of Collaboration

On December 9–10, 2008, the IEC Central Office hosted the IEC Conformity Assessment Board’s (CAB’s) Technical Panel (TP) meetings with the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF) in Geneva, Switzerland. The meetings were chaired by Pierre de Ruvo, IECEE executive secretary and head of the CAB delegation, with Don Mader of Underwriters Laboratories as acting secretary.

The annual CAB-ILAC and CAB-IAF meetings allow participants to review the past year’s activities and discuss new avenues to enhance the collaboration between ILAC and IEC CA (Conformity Assessment) Systems (IECEE, IECEX, and IECQ) and the IEC. IECEE is the IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components. IECEX is the IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres. IECQ is the IEC Quality Assessment System for Electronic Components.

IEC CAB secretary Gabriel Barta opened the ILAC meeting by stressing the importance of collaboration between the CAB and ILAC and the strong support expressed by CAB members for such cooperation.

The CAB-ILAC TP proposed and agreed to the use of a common pool of recognized IEC CA Systems technical experts that could be “hired” by the accreditation bodies’ signatories



**For IEC CAB-ILAC and IEC CAB-IAF, 2009 will be a transitional period in which elements that further their collaboration will all be put into place.**

of the Memorandum of Understanding (MOU) to carry out on-site assessments of testing laboratories that are both members of an IEC CA System and accredited by the relevant accreditation body. The relevant IEC CA System would then take into full account the report and not repeat an on-site assessment, for a substantial time and cost savings.

A CAB-ILAC TP working group was set up to develop the concept before it is submitted to the IEC CAB and ILAC Executive Committee for formal support. If accepted, it would lead to the setting of a high-level Strategy Forum to complement the CAB-ILAC TP.

The CAB-IAF TP meeting started with a discussion of the size and makeup of the TP (four members each from CAB and IAF). Interest shown by several technical experts in joining, and the need to legitimate the weight of the initiatives by both parties, may call for additional representation. The TP’s proposal that it be empowered to deal with policy as well as technical issues should be addressed by the IEC CAB and IAF Executive Committee.

Regarding the revision of ISO/IEC Guide 65, *General requirements for bodies operating product certification systems* (the future ISO/IEC 17065), the decision was made to unite forces in defending the TP’s views – i.e., making sure that the guide focuses on product certification – before the next plenary meeting of Conformity Assessment Committee (CASCO) Working Group 29 in charge of drafting the revised guide.

The CAB-IAF TP agreed to start a one-year trial joint reassessment program of five Conformity Assessment bodies around the world, under the aegis of the TP with the head of the IEC CAB delegation as coordinator. And a decision was made toward the organization by the IECEE of joint training workshops for lead assessors who belong to both organizations that focus on exchanging experience and how to prepare to carry out a joint assessment (in the electrotechnical sector), starting in 2010. ■

## SAVE THE DATES

## Save the Dates for Upcoming Events of Interest

**MAY 2009****COPANT General Assembly**

Monday – Wednesday, May 11 – 13  
Santo Domingo, Dominican Republic

**USNC Technical Management Committee**

Tuesday, May 19  
IEEE Headquarters – Piscataway, NJ

**USNC Council**

Wednesday, May 20  
IEEE Headquarters – Piscataway, NJ

**JUNE 2009****IEC Conformity Assessment Board (CAB) Meeting**

Monday, June 8  
Geneva, Switzerland

**IEC Standardization Management Board (SMB) Meeting**

Tuesday, June 9  
Geneva, Switzerland

**IEC Council Board (CB) Meeting**

Thursday, June 11  
Geneva, Switzerland

**SEPTEMBER 2009****USNC Technical Management Committee**

Wednesday, September 9  
Washington, DC

**USNC Council**

Thursday, September 10  
Washington, DC

**OCTOBER 2009****World Standards Week**

Monday – Thursday, October 5 – 8  
Bethesda, MD

**73rd IEC General Meeting**

Sunday – Friday, October 18 – 23  
Tel Aviv, Israel

**IEC Standardization Management Board (SMB) Meeting**

Sunday, October 18  
Tel Aviv, Israel

**IEC Conformity Assessment Board (CAB) Meeting**

Monday, October 19  
Tel Aviv, Israel

**IEC Council Board (CB) Meeting**

Tuesday, October 20  
Tel Aviv, Israel

**2010****74th IEC General Meeting**

Wednesday – Friday, October 6 – 15  
Seattle, WA



## ITEM OF GENERAL INTEREST

**USNC Head of Delegation (HOD) Reports**

When a USNC delegation is appointed to attend an IEC Technical Committee (TC) or Subcommittee (SC) plenary meeting, one of the delegates is assigned as the Head of Delegation (HOD). This individual is the delegation's principal spokesperson and is responsible for casting the official USNC votes on issues coming before the committee.

The HOD is also responsible for preparing a comprehensive account of the meeting which summarizes accomplishments and emphasizes accord with or variance from U.S. opinions and practices and the potential effect on U.S. interests. The report records the nature of U.S. participation and may include comment on the conduct of the meeting, participation by other countries, the value of the activity, and possible subjects for promotion and/or publicity.

Completed HOD reports are used for a variety of purposes, including:

- To report results of a TC/SC meeting to the cognizant Technical Advisory Groups (TAGs), industrial sponsors, trade associations, government agencies, etc.
- To advise other TAGs of work of potential interest
- To publicize the work of the TC/SC to the USNC constituency via the *USNC News and Notes*, ANSI Online, or other media
- To suggest areas for possible development of featured articles
- To address specific challenges and concerns that the HOD may wish to bring to the attention of USNC management

HOD reports are available for download on the ANSI/USNC website. [Click here.](#)

**Further information**

For more information, contact Mary Johnson at [mjohnson@ansi.org](mailto:mjohnson@ansi.org). ■

For a complete schedule of upcoming meetings, or for more information on the events listed above, visit [www.ansi.org/calendar](http://www.ansi.org/calendar).

Enter either "USNC" or "IEC" in the key word search field to narrow the list of results.



## United States to Host IEC 2010 General Meeting in Seattle, Washington



The United States is hosting the General Meeting of the International Electrotechnical Commission for only the sixth time since 1904. The

events will be held in Seattle, Washington, during the period of October 6–15, 2010.

More than 1,500 delegates and 750 accompanying persons from around the globe are expected to attend. Pending sponsor support, more than seventy IEC Technical Committees and Subcommittees will be invited to the event.

Sponsorship opportunities are still available for **IEC 2010**. To learn more, visit [www.ansi.org/usnc](http://www.ansi.org/usnc).



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other items that may be of interest to members of the electrotechnical community.

#### HOW TO CONTRIBUTE

Submit proposed news items to Charles T. Zegers, USNC/IEC General Secretary American National Standards Institute  
Tel: 212.642.4965; [czegers@ansi.org](mailto:czegers@ansi.org)