International Smart Grid Action Network (ISGAN)

Thematic Area ENERGY SYSTEMS AND INTEGRATION

Goals

The International Smart Grid Action Network (ISGAN) provides a platform to bring high-level attention and action for the accelerated development and deployment of smarter, cleaner electricity grids (i.e., "smart grids") around the world.

Potential Impact

As the only global government-to-government initiative for sharing information, best practices, and competence on electricity networks, ISGAN helps to identify solutions to accelerate smart grid deployment, enable replication of proven ideas, and support greater national ambition in developing and deploying smart grids. Policy makers and other stakeholders can leverage ISGAN's activities, outputs, and network experts to inform development of smart grids and support broader power system transformation.

Why?

The implementation of smart electricity grids is a key building block for sustainable energy systems, e.g., through enabling better integration of renewable energy sources, improved management of electricity demand, and enhanced customer engagement. However, a country's ability to develop, deploy, and operate smarter grids is constrained by numerous challenges related to technology development, testing and integration, the evolution of legal and regulatory structures to take into account these new technological capabilities and new relationships among market participants, and the related investments and capacity-building needed.

Activities

ISGAN activities showcase good practices for smart grid pilots, demonstrations, and deployment; identify areas for increased attention and investment; improve international collaboration on smart grid testing and evaluation; and support a global community of smart grid practitioners. Activities are conducted in several areas:

- **The working group on smart grid case studies** captures and shares important lessons learned from the many smart grid pilot, demonstration, and deployment projects completed or underway**.**
- **A cost–benefit analysis working group** collects and evaluates existing methodologies and tools and develops new tools for assessing grid maturity and measuring smart grid benefits and costs.

- **A working group on strategic communications** helps other ISGAN activities translate complex information on smart grids for decision makers and highlight areas for further ISGAN or CEM attention.
- **The Smart Grid International Research Facility Network (SIRFN)** brings together world-class research and testing facilities to exchange knowledge, coordinate joint assessment, and advance global best practices on electricity system testing.
- **A power T&D networks working group** supports joint consideration of the technical needs and related policy–regulatory–institutional considerations for future, smart, sustainable electricity networks.
- **An ISGAN working group focused on the smart grid transition** examines the institutional change management considerations that will support or impede the evolution to smart energy systems.
- **The ISGAN Award of Excellence** is an annual competition that showcases global leadership and innovation in smart grids, highlighting the value that smart grids provide for specific objectives, such as renewables integration.
- **The ISGAN Virtual Academy** is a new online curriculum for smart grid professionals that will augment or reinforce national and regional training programs and accelerate international best practice exchange.

Progress

ISGAN has become a trusted platform for sustained knowledge exchange on smart grids and is actively sought as a valued partner for many other domestic and international efforts.

- **Provided smart grid policy assistance** through the Clean Energy Solutions Center's Ask an Expert service.
- **Conducted outreach to new countries and regions**, including Indonesia, Malaysia, and the Philippines, to identify opportunities for ISGAN participation or delivery of ISGAN expertise for capacity-building.
- **Began to establish engagements**—in many cases through the CEM Power System Challenge— with organizations such as the GO15, the Low Carbon Technology Partnerships Initiative, and the North American SynchroPhasor Initiative.
- **Began to train India's Central Power Research Institute** on the use and programming of a distribution grid simulation model, allowing for analysis of various technology deployment scenarios.
- **Developed webinars and discussion papers on several critical smart grid topics**.
- **Supported the International Energy Agency's (IEA's) development and launch of the** *How2Guide for Smart Grids in Distribution Networks*.
- **Held a joint knowledge exchange workshop with the Global Smart Grid Federation** on the importance of information and communications technologies for future energy systems, with more than 120 participants from 26 countries.

- **Held a workshop on renewables integration in electricity grids in Yokohama, Japan,** in March 2016 with more than 200 participants, of which the vast majority represented industry.
- **Supported and made expert contributions to leading grid knowledge exchange events**, including European Utility Week 2015, India Smart Grid Week 2016, Japan Smart Community Summit 2015, International Synchrophasor Symposium (2016), the South African Institute of Electrical Engineers Smart Grid Conference 2016, the European Photovoltaic Solar Energy Conference (EU PVSEC) 2016, and Smart Grid Paris 2015.
- **Launched a new website to highlight the activities and results of SIRFN work** on smart grid interoperability.
- **Announced the ISGAN Award of Excellence 2016 winners**, in partnership with the Global Smart Grid Federation (GSGF) Best Smartgrid Project Award.
- **Approved the ISGAN Virtual Academy**, in partnership with Leonardo Energy.
- **Established an SIRFN collaboration with SunSpec Alliance** on its system validation platforms.

Next Steps

- Complete the process to extend the term for the ISGAN Technology Collaboration Programme under the IEA for five additional years.
- Continue core working groups and projects, with an increasing focus on knowledge transfer activities.
- Complete a third ISGAN assessment of smart grid drivers and technology priorities to provide insights on the similarities and differences among countries, regions, and levels of economic development.
- Conduct new technical exchange workshops in Mexico, Southeast Asia, and elsewhere.

Lead CEM Government(s)	Italy, Korea, Sweden, United States of America
Participating CEM Government(s)	Australia, Canada, China, Denmark, European Commission, Finland, France, Germany, India, Japan, Mexico, Russia, South Africa, Spain
Other Key Partners	**Other official members (non-CEM): Austria** (ISGAN co-lead), Belgium, Ireland, Netherlands, Singapore, Switzerland **Operating Agents:** ISGAN Secretariat at KSGI; for ISGAN Working Groups: Austrian Institute of Technology, DERlab e.V., KSGI, STRI AB (Sweden), University of Cagliari (Italy), Universidad Pontificia Comillas (Spain) **NGOs/Private Sector:** IEA; GSGF and its member organizations **NOTE:** ISGAN is structured as an IEA Technology Collaboration Programme and accordingly is part of the IEA Energy Technology Network.