



The International Smart Grid Action Network: One Year Later

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Vice Chair, ISGAN Executive Committee***

- New countries participating
- New partnerships
- New projects
- New products and resources

***THANK YOU FOR
THE INVITATION!***



...An Invitation to a Dialogue

I will cover:

- Who we are;
- What we do together as ISGAN.

I ask you:

- What can we do better?
- With whom should we partner?

How do we get to real-world impact?

What's Not Covered Today? U.S. Smart Grid programs.

For more on the U.S., see <http://www.smartgrid.gov/>.

Reminder: What and Why is ISGAN?

A mechanism for bringing high-level government attention and action to accelerate the development and deployment of smarter electricity grids around the world.

ISGAN...

- Sponsors activities that build a **global understanding** of smart grids, **address gaps** in knowledge and tools, and **accelerate Smart Grid deployment**
- Builds on the momentum of and knowledge created by the **substantial global investments** being made in smart grids
- Is organized as a task-shared **IEA Implementing Agreement** (2011)
- Was launched as an initiative of the **Clean Energy Ministerial** (2010)
- Fulfills a key recommendation in the **Smart Grids Technology Action Plan** (released by Major Economies Forum Global Partnership, 2009)
- **Leverages cooperation** with other initiatives and Implementing Agreements



One of ~~11~~ 12 Initiatives under the Clean Energy Ministerial (CEM)

**International
Smart Grid
Action
Network**

**Super-Efficient
Equipment and
Appliance
Deployment
Initiative**

**Electric
Vehicles
Initiative**

**Bioenergy
Working Group**

**Carbon Capture
Use and Storage
Action Group**

**Clean Energy
Education and
Empowerment
Women's
Initiative**

**Clean Energy
Solutions
Centers**

**Global Superior
Energy
Performance
Partnership**

**Multilateral
Solar and Wind
Working Group**

**Solar and LED
Energy Access
Program**

**Sustainable
Development of
Hydropower
Initiative**

**21st Century
Power
Partnership
(new in 2012)**

Goal: Accelerating the Transition to Clean Energy Technologies

- 1 High-Level Policy Dialogue
- 2 Technical Cooperation
- 3 Engagement with the Private Sector and Other Stakeholders

Fourth Annual CEM meeting (CEM4) will take place in Delhi, India in 2013



Australia



European
Commission



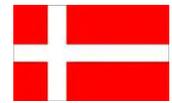
Brazil



Canada



China



Denmark



Finland



France



Germany



India



Indonesia



Italy



Japan



Korea



Mexico



Norway



Russia



South Africa



Sweden



Spain



United Arab Emirates



United Kingdom



United States

>90% of Global Clean Energy Investment > 80% of Global GHG Emissions

Who We Are: Current ISGAN Participants

Australia



India



The Netherlands



Austria



Ireland



Russia



Belgium



Italy



Spain



Canada



Japan



Sweden



*China**



Korea



Switzerland



Finland



Mexico



United Kingdom



France



Norway



United States



Germany



*European
Commission**



**Participate through the Clean Energy Ministerial (CEM), but have not yet signed the ISGAN Implementing Agreement*

Four (4) other countries invited to join: Brazil, Denmark, South Africa, and Turkey

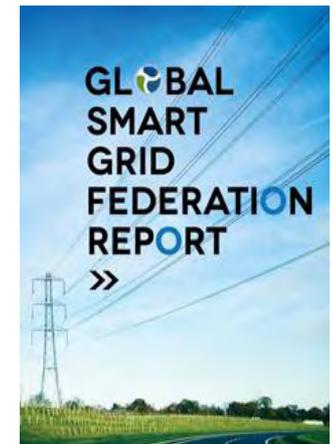


Global Smart Grid Federation

www.globalsmartgridfederation.org

- **International collaboration among national and regional smart grid stakeholder associations**
- **Launched with ISGAN at first CEM in July 2010**
- **Released cross-cutting report in April 2012**

Member organizations include Danish Intelligent Energy Alliance, EDSO for Smart Grids (EU), GridWise Alliance (U.S.), India Smart Grid Forum, Israel Smart Energy Association, Japan Smart Community Alliance, Korea Smart Grid Association, Smart Grid Canada, Smart Grid Australia, SmartGridIreland, SmartGrid Great Britain.



Foundational Projects

Annex* 1:
**Global Smart
Grid Inventory**

Annex 2:
**Smart Grid Case
Studies**

Annex 3:
**Benefit-Cost
Analyses and
Toolkits**

Annex 4:
**Synthesis of
Insights for
Decision Makers**

New Projects**

Annex 5:
**Smart Grid
International
Research Facility
Network (SIRFN)**

Annex 6:
**Power T&D
Systems**

* “Annex” = Major Project

**Approved March 2012



How do we move *international collaboration on smarter grids* from here...



Applications & Policies

* “Annex” = Major Project

Key Topics of Each Foundational Annex

<p>Annex* 1: Global Smart Grid Inventory</p>	<ul style="list-style-type: none"> • Motivating drivers and technology interests • Selection of key projects based on synergies among interests 	<p>Annex 2: Smart Grid Case Studies</p>	<ul style="list-style-type: none"> • Frameworks for internationally-comparable case studies • Qualitative project assessments
<p>Annex 3: Benefit-Cost Analyses and Toolkits</p>	<ul style="list-style-type: none"> • Methodologies for measuring the base grid “smartness,” benefits & costs • Integrated tools • Quantitative project assessments 	<p>Annex 4: Synthesis of Insights for Decision Makers</p>	<ul style="list-style-type: none"> • Knowledge sharing by design • Translation of complex data & information to inform decision making

Common projects for assessment/analysis

Common contextual information, metrics, and KPIs

Annex 5: Smart Grid International Research Facility Network (SIRFN)

- SIRFN will be a **coordinated network of Smart Grid research and test-bed facilities** in countries participating in ISGAN.
- The central driving question is how can ISGAN structure this network to better **evaluate Smart Grid concepts and technologies** in that all-important niche between R&D and commercialization.

Annex 6: Power T&D Systems

- Entails **assessment of technical and policy needs** for T&D systems as well as the **interfaces** between the two, with a focus on **renewables integration**.
- From electrical generators to end consumers, the sources and uses of electric power are becoming much more varied and complex. There is an urgent need to **make T&D systems smarter** to ensure unchanged or improved security, reliability and quality of supply.

- **Develop a comprehensive catalogue of facilities that can be used by participants, focusing on six key technical areas.**
- **Expand information sharing among facilities to include:**
 - **Non-proprietary results of current research**
 - **Best practices and methods**
 - **Internal efforts to improve and expand evaluation capabilities.**
- **Expand smart grid testing and evaluation capabilities by identifying gaps and coordinating joint research and evaluation efforts**
- **(Ultimate vision:) Create a framework for integrated project proposal, selection and implementation matching evaluation needs with testing capabilities and with a knowledge management program for sharing non-proprietary results**

- **Renewable Energy/Distributed Energy Integration**
- **Building Automation**
- **Electric Vehicle Integration**
- **Microgrids**
- **Distribution Automation**
- **Cyber Security**

- **U.S. National Laboratories**
especially Sandia and Brookhaven National Laboratories
- **DERlab e.V.**
 - Fraunhofer IWES
 - Austrian Institute of Technology
 - G2Elab (Grenoble Génie Electrique, Electrical Engineering)
- **Government of UK; Sustainable Energy Authority of Ireland**
- **Stakeholders in Chinese Taipei, Finland, Japan, Korea, and Sweden**

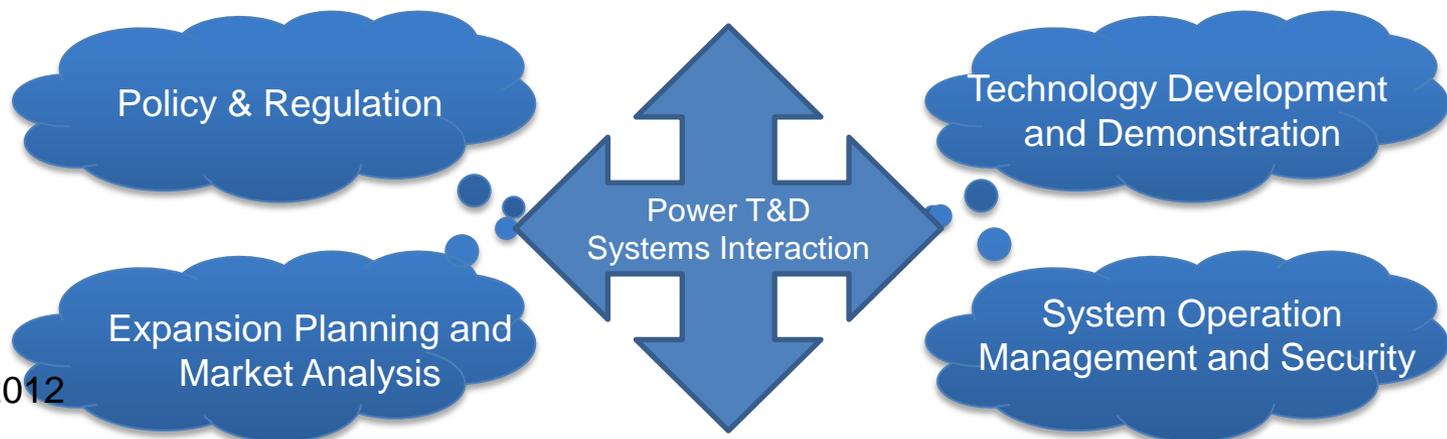


SIRFN will also be coordinated with the test bed network under the APEC Smart Grid Initiative (part of APEC's Energy Smart Communities Initiative)



Energy
Smart
Communities
Initiative

- **Establish a long term vision for the development of “smarter” Power T&D systems – and support implementation processes**
 - Start with transmission systems
 - Expand to include interactions with distribution networks.
- **Improve understanding of specific Smart Grid technologies applicable to or influencing system performance, transmission capacities, operation practices.**
- **Promote adoption of enabling regulatory and government policies.**
- **Use a systems-level approach wherever possible.**



Governance During the Smart Grid Transition
(led by AIT; social sciences focus)

Smart Grid Interoperability Frameworks
(led by Korea; comparative exercise)

- **Week of 26 March 2012 • Mexico City, Mexico**
March 26-27 – Joint IEA/ISGAN Workshop : “Smart Grids in Distribution Networks: How2Guide drafting workshop”
March 28-30 – ISGAN 3rd Executive Committee meeting
- **25-26 April 2012 • London, UK**
Third Clean Energy Ministerial meeting
- **21 May 2012 • Bregenz, Austria**
ISGAN Workshop on PV integration in distribution systems (with IEA PVPS; part of Austria Smart Grids Week 2012)
- **18-19 June 2012 • Milan, Italy**
ISGAN Annex 6 workshop on interactions between T&D systems
- **Week of 24 September 2012 • Nice, France**
ISGAN ExCo meeting, workshop(s), and technical visits
- **3 December 2012 • Berlin, Germany**
ISGAN Workshop on SIRFN (as part of 5th Int’l Conference on Integration of Renewables and Distributed Energy Resources)

**THANKS
AGAIN FOR
HAVING US!**

- **ISGAN Website (New!):** <http://iea-isgan.org>
 - *Three new white papers, released in April 2012, available.*
- **ISGAN Secretariat Email:** isgan@smartgrid.or.kr
- **ISGAN Smart Grid Glossary “Beta”:**
http://en.openei.org/wiki/ISGAN_Smart_Grid_Glossary
 - *Needs addition of content from around the world.*
 - *Wiki platform – easy to edit and add.*
- **CEM Website:** <http://cleaneenergyministerial.org>
- **IEA page on Implementing Agreements:**
<http://www.iea.org/techno/index.asp>

What can we do better? With whom should we partner?



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***THANK
YOU!***

- **ISGAN is formally organized as the IEA Implementing Agreement for a Co-operative Programme on Smart Grids (ISGAN)**
- **ISGAN is managed by its Executive Committee (ExCo)**
 - Consists of representatives from all Participants
 - Meets semi-annually; next meeting: France, September 2012
- **ISGAN is supported by a Secretariat at the Korea Smart Grid Institute**
 - Email address: isgan@smartgrid.or.kr
- **The ISGAN community includes representatives of governments, transmission and distribution system operators, national laboratories and research institutions, power generators, and more.**
- **Projects are largely task-shared through Participants' in-kind contributions. However, ISGAN has a common fund for certain joint expenses at its Secretariat.**



ISGAN Website:
<http://iea-isgan.org>

Central Questions Driving ISGAN's "Foundational Projects"

Annexes 1-3: Global Smart Grid Inventory, Case Studies, Benefit Cost Analyses & Toolkits

Given diverse definitions of “Smart Grid” worldwide, what are the concrete opportunities or needs for international cooperation, based on participants’ drivers and key technology priorities for smarter networks?

What contextual information, methodologies, metrics, and tools are needed to implement this cooperation, to share best practices, and to assess and compare Smart Grid concepts and projects internationally?

What are the best ways for ISGAN Participants to share information among themselves and with key stakeholders, including energy ministers?

What are the key issues and hot topics within Smart Grid that need more attention?

How can we call attention to the myriad of existing tools and platforms available on smarter grids?

Annex 4: Synthesis of Insights for Decision Makers