

Implementing Agreement for a Co-Operative
Programme on Smart Grids

Annual Report 2017

for the period from March 1st 2017 to February 28th, 2018

Disclaimer

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August 2018

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Message from the Chair

It is my pleasure to present to you the seventh annual report of ISGAN, which is also the first annual report since the start of ISGAN's second term (March 2017 through February 2021) as an International Energy Agency (IEA) Technology Collaboration Programme (TCP) on Smart Grids. I hope this report will give you further insights into the role of ISGAN and the relevance of Smart Grid development around the world.

Being both a Clean Energy Ministerial (CEM) initiative and IEA TCP, ISGAN continues to be a trusted partner and center of expertise for a growing number of Smart Grid-related activities and events, such as India Smart Grid Week and European Utility Week calling attention to the value and impact of smarter, cleaner electricity systems for the attainment of national, regional and global energy and climate goals. To further enhance the visibility of our activities and results a new modernized corporate identity and website have been developed and launched at the beginning of 2018, which we are particularly proud of.

Together with its 25 member countries, ISGAN has continued to successfully implement its work programme from its first term consolidating its role as a critical global platform for cooperation on Smart Grids, while also taking several measures to increase the quality of ISGAN's outputs and the reach of its outcomes. Examples of outreach tools which have been further developed since 2017 are the e-learning platform for knowledge-sharing and dissemination of Smart Grid solutions provided by the ISGAN Academy along with dynamic peer-to-peer learning through Knowledge Transfer Projects, presented in more detail in this report.

ISGAN's seven Annexes have all been active and delivered impactful output during this year. A new concept introduced in 2017 is the application of a theme-oriented approach to our work. During 2017, ISGAN has chosen flexibility and digitalization as the overarching theme for its activities, which, when applicable, has been reflected in the work of the Annexes.

ISGAN participants span the globe, including most major developed and emerging economies on five continents and the success of our work is a result of the enthusiastic participation of its national experts. I would like to express my appreciation to all of you for the engagement in the ISGAN community and especially to the Annex Operating Agents and Leads as well as to the ISGAN co-Secretariats, without whom our achievements would not have been possible.

Sincerely,



Karin Widegren



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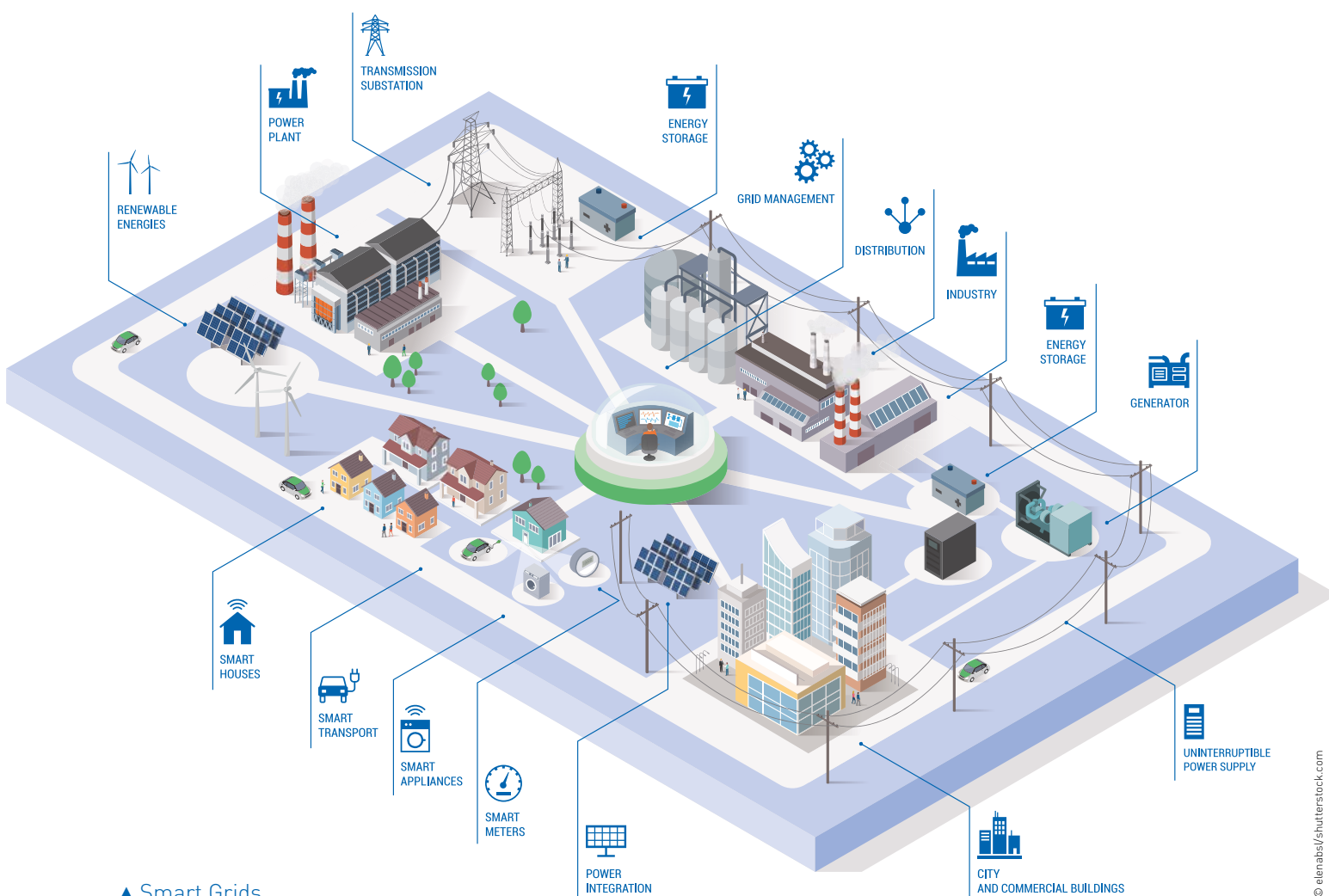
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ISGAN overview

What is ISGAN?

ISGAN is a short name for the International Energy Agency (IEA) Technology Collaboration Programme (TCP) for a Co-operative Programme on Smart Grids (ISGAN – International Smart Grids Action Network). At the same time, ISGAN is an initiative of the Clean Energy Ministerial (CEM) and was formally established at CEM2 in Abu Dhabi, in 2011 as an Implementing Agreement under a framework of the IEA.

Operating as both a CEM Initiative and an IEA TCP, ISGAN is an international platform for the development and exchange of knowledge and expertise on smarter, cleaner, and more flexible electricity grids (“Smart Grids”). ISGAN provides an important channel for communication of experience, trends, lessons learned, and visions in support of clean energy objectives as well as new flexible and resilient solutions for Smart Grids.



▲ Smart Grids

ISGAN seeks to improve global understanding of the benefits and opportunities of Smart Grids, to accelerate their development and deployment through developing knowledge, frameworks, and tools that can be used by its Contracting Parties within their own national, sub-national, or regional contexts. Impacts rely on the development of materials that will enable smarter investment and better policies but are also heavily dependent on the implementation by authorities in sovereign nations.

ISGAN creates a strategic platform to support high-level government attention and action for the accelerated development and deployment of smarter, cleaner electricity grids around the world.

ISGAN emphasizes knowledge sharing by design and seeks to identify and implement effective communication mechanisms to ensure that the results are useful to decision-makers.

ISGAN recognizes that robust and resilient Smart Grids play a key role in enabling greenhouse gas (GHG) emission reductions through the:

- management of electricity demand
- integration of growing supplies of utility scale and distributed small-scale renewable energy systems
- accommodation of an increasing number of electric and plug-in hybrid electric vehicles
- improvement of operational grid efficiency
- application of energy-efficient technologies at their full potential.

Smart Grids also enable a better utilization of existing electricity generation assets. In coordination with the International Energy Agency (IEA), ISGAN strives to improve the potential for Smart Grid technologies at country, regional, and global levels.

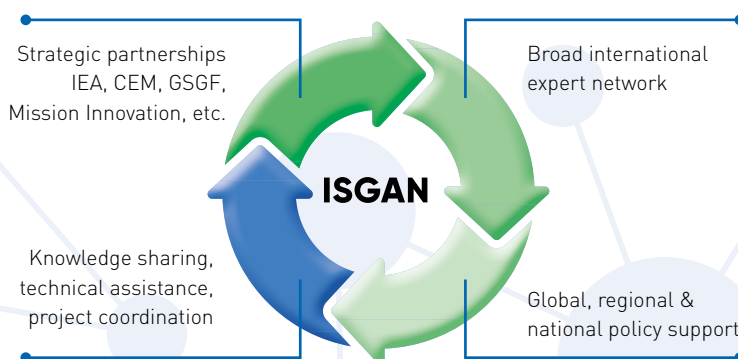
Vision

ISGAN's vision is to accelerate progress on key aspects of Smart Grid policy, technology, and investment through voluntary participation by governments and their designees in specific projects and programs. Its activities center foremost on those aspects of Smart Grids where governments have regulatory authority, expertise, convening power, or other leverage, focusing on five principal areas:

- Policy standards and regulation
- Finance and business models
- Technology system development
- Workforce skills and knowledge
- User and consumer engagement

ISGAN facilitates dynamic knowledge sharing, technical assistance, peer review and, where appropriate, project coordination among its Contracting Parties.

ISGAN's value proposition



ISGAN's strengths

Broad Expert Network

ISGAN leverages expertise from governments, national laboratories and research institutions, transmission and distribution system operators, power generators, and other stakeholders from 25 countries from five continents

Partnerships with Thought Leaders

ISGAN engages leading private sector Smart Grid initiatives, the IEA Energy Technology Network, and other Clean Energy Ministerial initiatives to advance systems perspectives on power grids and grid integration

Diverse Portfolio

ISGAN implements a range of activities to support a better global understanding of Smart Grids and the value they offer, address gaps in knowledge and tools, enhance peer-to-peer exchange, and otherwise improve international coordination

History

In July 2010, ISGAN was launched in Washington, D.C., at the first CEM meeting, a forum for energy and environment ministers and stakeholders from 23 countries and the European Union.

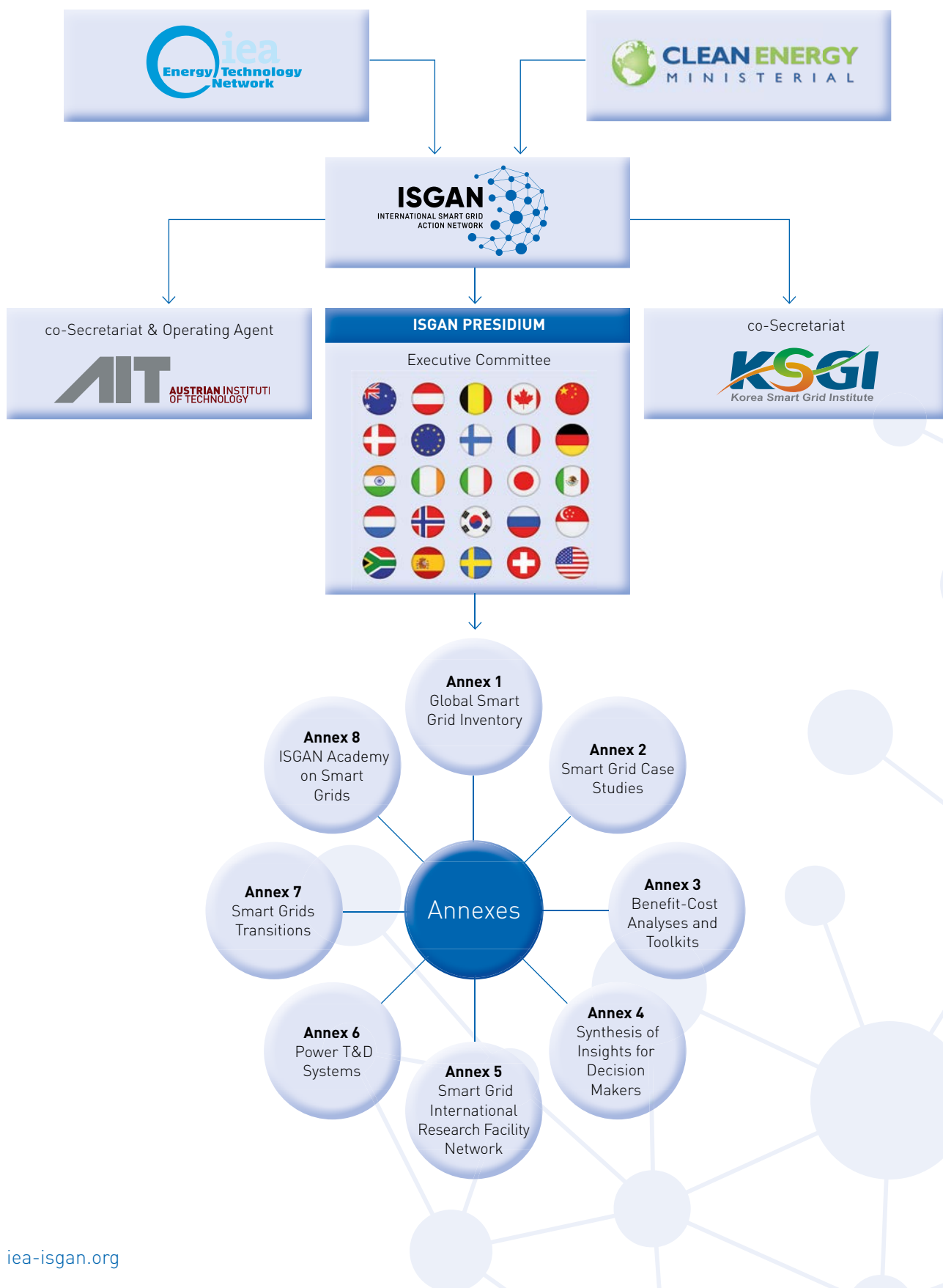
ISGAN evolved from the CEM's high-level attention and commitment to take concrete steps - both policies and programs - that accelerate the global transition to clean energy.

Then, in April 2011, ISGAN was formally established as the IEA Implementing Agreement for a Co-operative Programme on Smart Grids, operating under the IEA Framework for International Energy Technology Cooperation.

After the end of its first five-year period, a term extension for ISGAN was requested and approved by the IEA in February 2017 to last from March 1st, 2017 till February 28th, 2022.

ISGAN's organizational structure

ISGAN is an implementing agreement with currently 25 Contracting Parties. Their nominated representatives form the Executive Committee that is headed by the Presidium and assisted by the co-Secretariats and the Operating Agent of ISGAN. The work within ISGAN is organized into 8 standing working groups, Annexes, that consist of national experts from participating Contracting Parties and that are lead by Annex Operating Agents and Leads.



The Executive Committee (ExCo)

Each Contracting Party to ISGAN appoints a delegate and an alternate to the ExCo. This is the decision-making body of the TCP. The ExCo meets twice a year. Its main aims are to discuss new developments, identify knowledge gaps and implementation barriers, and shape ISGAN programme of work accordingly. ExCo meetings are well attended; on average, 79% of the Contracting Parties and 70% of Annex Operating Agents/Leads participate in ExCo meetings.



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▲ ISGAN Executive Committee

The Presidium

The ExCo is led by a Chair and one or more Vice-Chairs. Each member of the Presidium is elected for a period of two years, with possible re-election.

The first Presidium was elected at the inaugural meeting in Seoul, Korea, in June 2011. ISGAN intends to have three Vice-Chairs.

The current Presidium (after ExCo15) includes:

Karin Widegren

ISGAN Chair
Widegren Energy, representing the
Swedish Energy Agency
karin@widegrenenergy.se

Arun Kumar Mishra

ISGAN Vice Chair
Director NSGM-PMU, India
akmishra@powergridindia.com



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▲ ISGAN Presidium

Luciano Martini

ISGAN Vice Chair
Ricerca Sul Sistema
Energetico S.p.A, Italy
Luciano.Martini@rse-web.it

Russell Conklin


























IISGAN Vice Chair
U.S. Department of Energy
Russell.Conklin@hq.doe.gov

Contracting Parties

Under the IEA Framework for International Energy Technology Co-Operation, ISGAN is open to all governments, yet only upon invitation from the ISGAN Executive Committee. Although ISGAN is primarily focused on government-to-government cooperation, the TCP is also open to entities designated by the participating governments, including academic institutions, select private sector and industry associations as well as international organizations.



List of ISGAN Contracting Parties (as of February 2018):

1.		Austria
2.		Australia
3.		Belgium
4.		Canada
5.		China
6.		Denmark
7.		The European Commission
8.		Finland
9.		France
10.		Germany
11.		India
12.		Ireland
13.		Italy
14.		Japan
15.		Korea
16.		Mexico
17.		The Netherlands
18.		Norway
19.		Russian Federation
20.		Singapore
21.		South Africa
22.		Spain
23.		Sweden
24.		Switzerland
25.		The United States of America

During the 14th ExCo Meeting, the United Arab Emirates and the United Kingdom were present as observers and indicated their interest in joining ISGAN. At the same meeting, the ExCo decided by a unanimous vote to invite the UAE to become a Contracting Party to ISGAN. The accession process is currently underway.

Several other countries are in discussion with ISGAN about their potential participation in the TCP and attendance of upcoming ExCo meetings, namely, Brazil, Turkey, Costa Rica, Indonesia, Hungary, Poland and Estonia.

Secretariat and Operating Agent

As per the Implementing Agreement, an Operating Agent (OA) must be appointed as a legal representative of ISGAN. AIT Austrian Institute of Technology has been holding the position of ISGAN OA since June 2017:

- **Matthias Stifter**, Operating Agent of ISGAN, Matthias.Stifter@ait.ac.at

ISGAN is supported by two co-Secretariats, as per decision taken by the ExCo at the 13th ExCo meeting: AIT Austrian Institute of Technology and the Korea Smart Grid Institute (KSGI).

The Secretariat at AIT is responsible for all organizational and communication matters:

- **Susanne Windischberger**, Susanne.Windischberger@ait.ac.at
- **Ksenia Poplavskaya**, Ksenia.Poplavskaya@ait.ac.at

The co-Secretariat at KSGI is responsible for support of ISGAN deliverables to the Clean Energy Ministerial and ISGAN Award of Excellence:

- **Aram AN**, realaram@smartgrid.or.kr
- **Elena Yang**, elena@smartgrid.or.kr



Key Achievements in 2017

- Being a CEM initiative and IEA TCP, ISGAN continues to be a **trusted partner and a center of expertise for a growing number of Smart Grid-related activities and events**, such as India Smart Grid Week and the European Utility Week.
- **A workshop on “Smart Grids Transitions – System Solutions and Consumer Behavior”** and corresponding conference and dialogue sessions on socio-economic framework conditions for the replication of Smart Grid solutions were organized at the 8th International Sustainability Transition Conference Gothenburg, Sweden, in June 2017.
- ISGAN has co-hosted **several webinars** with the Clean Energy Solutions Center and co-organized highly recognized public **workshops**, such as “Building the Flexible Power Systems” in Genk, Belgium in September 2017, co-hosted by Belgium’s FPS Economy, SME, Self-Employed and Energy and EnergyVille, and supported by the Global Smart Grid Federation (GSGF).
- ISGAN’s Annex 2 conducted a **successful knowledge transfer project (KTP) workshop during the 14th meeting of the Executive Committee** in Genk, Belgium, in September 2017. The hands-on workshop caused a great interest among the ISGAN community and secured plans for future workshop editions (see Highlight on page 15).
- In partnership with India’s Ministry of Power, Powergrid Corporation of India, Ltd, and Central Power Research Institute, two ISGAN working groups organized **a knowledge exchange event in Bangalore, India in November 2017**. The event brought together leading Indian and international participants from public and private sectors as well as from academia. The experts exchanged best practices on catalyzing Smart Grid developments in the area of local grids, especially focusing on the integration of distributed renewable energy sources and deployment of microgrids.
- ISGAN’s working group on power transmission and distribution systems (Annex 6) supported knowledge sharing on opportunities for more flexible electricity grids through its **discussion papers on system efficiency and a single marketplace for flexibility**.
- ISGAN’s working group on cost-benefit analyses and toolkits (Annex 3) completed its **assessment of cost benefit analysis (CBA) applied to large-scale Smart Grids projects**. It defined new metrics to properly consider asymmetrically shared impacts and benefits and developed a new tool based on a combination of multi-criteria analysis (MCA) and CBA.
- The ISGAN Academy (Annex8) has been launching **new webinars** on Smart Grids topics presented by leading experts in the field every few months.

Highlight: Knowledge Transfer Project

Through sustained collective effort and thought leadership, global leaders and stakeholders are systematically addressing the barriers to the widespread deployment of clean energy technologies. Pivotal to their progress is an efficient knowledge sharing and dissemination. To address this need, ISGAN launched the Knowledge Transfer Project (KTP) in March 2016. Funded by the U.S. Department of Energy and the Swedish Energy Agency, the KTP aims to capture, collect, and share knowledge about Smart Grid technologies among countries and their key stakeholders.

Building on ISGAN's experience in delivering deep-dive workshops, the KTP fosters meaningful international dialogue on Smart Grids with a focus on developing competence and building capacity.

The workshop format, which requires significant prior preparation, promotes individual learning while emphasizing active participation in the co-creation of concrete results. This is achieved through collaboration among interdisciplinary group participants with complementary competencies. Informal and collaborative, KTP workshops:

- encourage open dialogue about successes and lessons learned from grid modernization efforts around the world
- promote cross-organizational dialogue inspired by experiences and results achieved
- create a forum for peer-to-peer learning where all participants can contribute to and benefit from the collective thinking process.

In 2017, Magnus Olofsson and Helena Lindquist have successfully conducted two KTP workshops:

Multilateral KTP targets common need to boost public support for Smart Grid RD&I

The multilateral model is exemplified by the KTP that culminated in a workshop in Genk, Belgium, in September 2017. Driven by a common need among all participants, this project spanned several months and focused on strategies and tools for effective design and execution of national Smart Grid research, demonstration, and innovation (RD&I) support structures and programs. Inputs and outputs included two pre-workshop surveys and a report summarizing responses, a one-day workshop, a post-workshop report for participants, and an executive summary for wider circulation.

Hybrid KTP applies a global lens to India's priorities

The hybrid model is exemplified by the three-day KTP held in Bengaluru, India, in November 2017. Organized by ISGAN in partnership with the National Smart Grid Mission of the Government of India's Ministry of Power and the Central Power Research Institute, this KTP focused on distributed generation, microgrids, and smart metering. While inspired largely by India's priorities, it explored them from a global perspective through multi-directional knowledge sharing. This KTP included a networking day and a site visit, a high-level conference, and an interactive workshop. Designed to identify effective ways for public and private sector stakeholders to enable smart local grids, the workshop was structured around three objectives: identifying and prioritizing challenges, sharing experiences and lessons learned, and generating concrete ideas for solutions and actions.

Workshops:



▲ Knowledge transfer workshop in Bengaluru, India



All presentations are available on the website: <http://www.iea-isgan.org/india-ktp-workshop/>



▲ Knowledge transfer workshop in Genk, Belgium

The Executive Summary of the workshop is available online at:
http://www.iea-isgan.org/wp-content/uploads/2017/11/ISGAN_KTP_Public-Support-to-smart-grid-RDI_2017.pdf





ISGAN Annexes

The activities of ISGAN are organized into Annexes. In contrast to other IEA TCPs, these Annexes are standing working groups that continuously deal with Smart-Grids-related topics and update their plans and objectives for the upcoming year at spring meetings of the Executive Committee. Only Annex 1 “Smart Grid Inventories” delivering a general picture of on-going Smart Grid project deployment has so far been completed. Any relevant activities or updates are currently included in Annex 2.

Operating Agents and – depending on an Annex, also technical leads – are nominated for each ISGAN Annex.

At present, the Operating Agents of the seven active Annexes are:

Annex	Title	Operating Agent	Country
Annex 2	Smart Grid Case Studies	Korea Smart Grid Institute - KSGI	Korea
Annex 3	Cost-Benefit Analyses	University of Cagliari	Canada
Annex 4	Synthesis of Insights for Decision Makers	Korea Smart Grid Institute - KSGI	Korea
Annex 5	Smart Grid International Research Facility Network (SIRFN)	DERLab	Germany
Annex 6	Transmission and Distribution Power Systems	Research Institutes of Sweden, RISE	Sweden
Annex 7	Smart Grids transitions	AIT Austrian Institute of Technology	Austria
Annex 8	ISGAN Smart Grids Virtual Academy	Institute for Research in Technology IIT, Universidad Pontificia Comillas	Spain

ISGAN Annex Participation (as of February 2018)

	Annex 2	Annex 3	Annex 4	Annex 5	Annex 6	Annex 7	Annex 8
Australia							
Austria	+	+	+	+	+	+ (OA/Lead)	
Belgium			+		+	+	
Canada	+		+	+	+		
China	+		+				
Denmark	+		+	+		+	
European Commission		+					
Finland				+			
France	+	+	+	+	+	+	+
Germany	+			+ (OA)	+	+	
India	+	+	+	+	+	+	+
Ireland	+			+	+		
Italy	+	+ (OA/Lead)	+	+	+	+	+
Japan				+			
Korea	+ (OA/Lead)	+	+ (OA)	+			
Mexico		+					
The Netherlands	+		+	+	+	+	+
Norway					+	+	
Russian Federation	+	+	+	+			+
Singapore	+						
South Africa		+			+		+
Spain			+				+ (OA/Lead)
Sweden	+	+	+		+ (OA/Lead)	+	
Switzerland		+			+		+
United States	+	+	+ (Lead)	+ (Lead)	+	+	

Annex 2: Smart Grid Case Studies

The objective of Annex 2 is to assess outstanding examples of current case studies, develop and validate a common case study template and a methodological framework so as to develop in-depth case studies using this framework. The common framework, a so-called Case Book, enables comparison of policies and technologies adopted in different regulatory, legislative, network (grid), and natural environments. The overarching aim is to collect enough information from case studies around the world to extract lessons learned and best practices as well as to foster future collaboration among the participating countries.

ISGAN participants contributing to this Annex shape the analyses of, and methodological frameworks for Smart Grid-related case studies, as well as the selection of topics or projects for new case studies. The participants have first-hand access to the insights identified through analyses of new and existing case studies dealing with Smart Grid developments in specific countries.

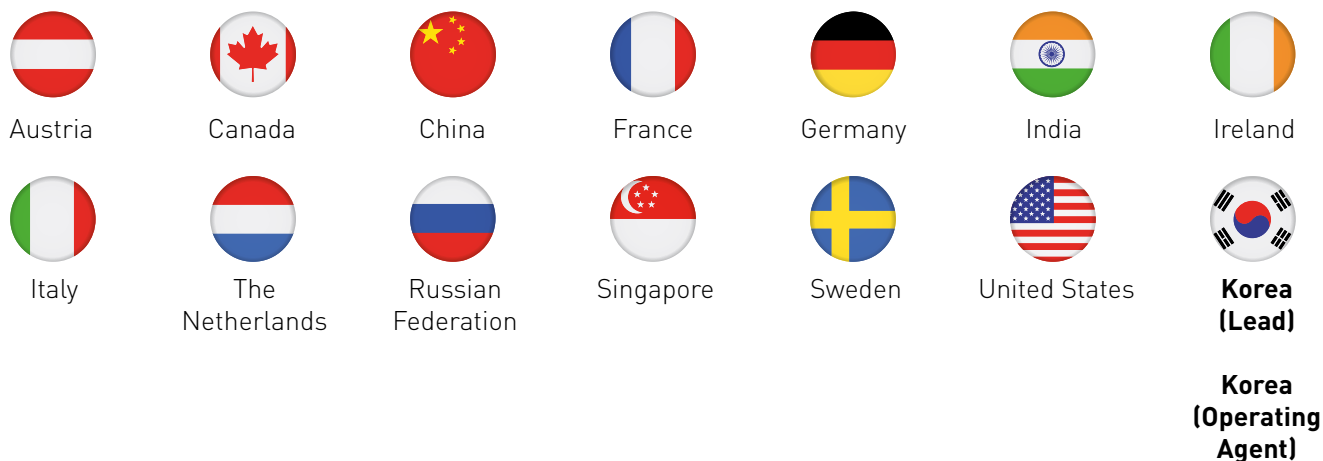
To date, ISGAN Annex 2 has published three case books: on Advanced Metering Infrastructure (AMI), Demand Side Management (DSM) and Consumer Engagement & Empowerment. These case books are easily accessible online at www.amicasebook.org and are also available for download on ISGAN website www.iea-isgan.org.

Since 2016, Annex 2, in part supported by Annex 4, has drawn special attention to its Knowledge Transfer Project led by task lead, Magnus Olofsson, and a knowledge transfer expert, Helena Lindquist. By the end of 2017, they have successfully organized three workshops in different parts of the world. More information on KTP workshops can be found in the “Highlight” section of this report as well as on ISGAN website: <http://www.iea-isgan.org/wp-content/uploads/2018/05/2.-KTP-FactSheet.pdf>



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Participating countries:

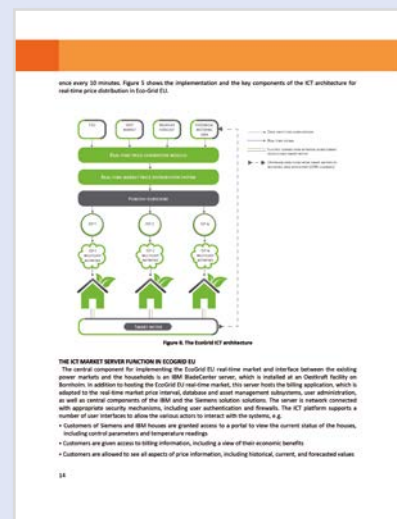
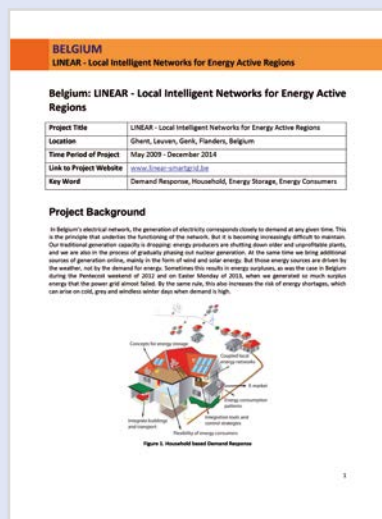


Spotlight on customer engagement and empowerment

The Case Book includes 10 cases on consumer engagement & empowerment from the winning projects from the first ISGAN Awards competition. The Case Book includes case studies from Belgium, Denmark, France, Japan, Portugal, Netherlands, and the USA. It reflects one of the ways in which ISGAN brings together experts and stakeholders from around the world to increase the awareness of consumer engagement in the field of Smart Grids.

Customer engagement and empowerment offers opportunities to save energy to consumers and to operate the power network in a more efficient and reliable way to grid operators. The Case Book showcases ways in which grid operators engaged with empowered customers by proposing them some concrete benefits in order to shift or reduce their energy consumption during peak times. In a nutshell, cases studies described in this book provide lessons learned related to developing and deploying smart consumer-oriented concepts and technologies.

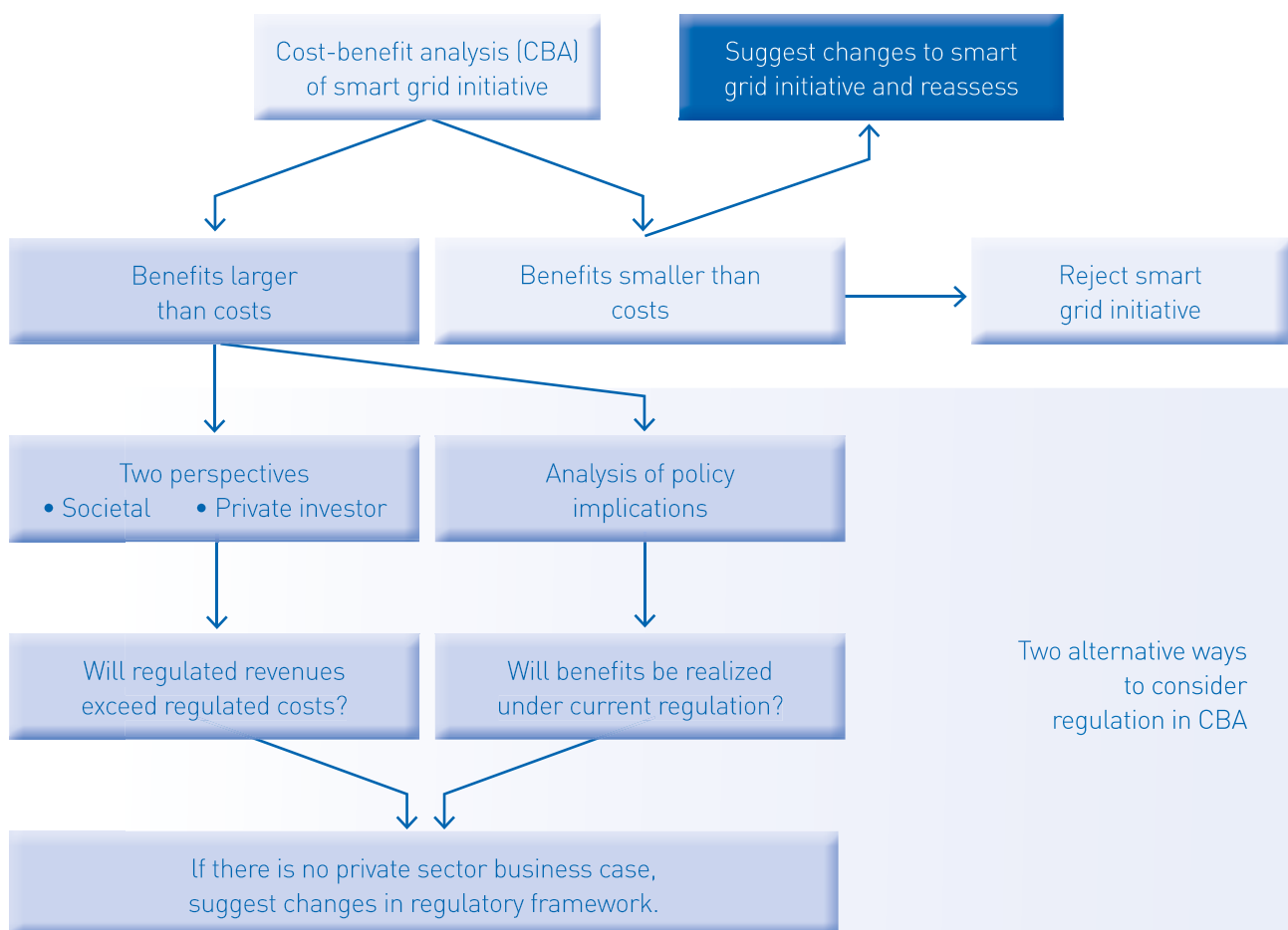
http://www.iea-iscan.org/wp-content/uploads/2018/02/ISGAN_CaseBook_ConsumerEngagement-Empowerment_2017.pdf



Annex 3: Cost-Benefit Analyses and Toolkits

Annex 3 deals with methods and techniques aimed at guiding stakeholders' investment decisions related to Smart Grid technologies by considering economic and social welfare aspects. The scope of this Annex spans the development of tools for analysts, regulators, utilities and other actors to define and decide on system needs and priorities for Smart Grid system investment along with necessary regulatory changes. Annex 3 therefore seeks to develop a global framework and related toolkits, which would provide a way of identifying types of benefits of demonstration and deployment of Smart Grids technologies in a standardized way and put them in relation to their relevant costs.

Recent activities focused on evaluating existing approaches and developing new approaches to analysing the benefits and costs and comparing a range of scenarios at the electrical system level as well as on a regional level. In particular, the experts from Annex 3 have investigated socioeconomic impacts of Smart Grids and the related regulatory implications. Three recently published reports identify existing gaps and shortcomings in current cost-benefit analyses when applied to Smart Grid projects, include new metrics for the assessment of benefits that may not be uniformly distributed among the stakeholders and, finally, propose new tools that can further improve Cost Benefit Analyses (CBA). To be specific, a CBA can be enhanced with a Multi Criterial Analysis (MCA) that fills some of the gaps of CBA and is better suited for the evaluation of non-monetary and asymmetrical benefits.



▲ CBA and Regulation for Smart Grids

In 2017, Annex 3 analysed the distribution of costs and benefits primarily in relation to decentralized electricity consumption on the residential level and published a related report. The report is centred around the discussion of whether social imbalances are induced by shifting the burdens of financing the grid towards lower-income members of the society. Such imbalances may be aggravated by the tendency to go off-grid, thereby challenging current cost recovery schemes. The report further investigates the question of how own, decentralized electricity production changes pricing and tariff schemes and which socioeconomic factors should be taken into account when designing new cost-and-benefit models to analyse and assess investments in Smart Grids-related technologies. When assessing smart technologies and regulatory regimes in the context of Smart Grids, socioeconomic analyses highlight their associated social impact and examine how related measures affect energy consumption, income and wealth distribution, equity and participation.



Participating countries:



Austria



European
Commission



France



India



Italy



Korea



Mexico



Russian
Federation



South
Africa



Sweden



Switzerland



United States



**Italy
(Lead)**



**Italy
(Operating
Agent)**

Annex 4: Synthesis of Insights for Decision Makers

The core objectives of Annex 4 are to organize knowledge, identify key issues, distill important themes, and provide insightful analysis for decision-makers. Another important task of Annex 4 consists in consolidating and disseminating the efforts of other ISGAN Annexes, as well as Smart Grid efforts beyond ISGAN, when appropriate, in support of greater outreach and impact.

Annex 4 ultimately provides communication tools, products, and platforms that foster development of greater international understanding of Smart Grids, while recognizing a diversity of drivers and approaches among related technologies, policies, practices, and systems.

Annex 4 is currently awaiting development of the ISGAN Communications Strategy and Action Plan for guidance on specific measures that can be utilized to enhance the Annexes' outreach and impacts.



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Participating countries:



Austria



Belgium



Canada



China



Denmark



France



India



Italy



Korea



Netherlands



Russian Federation



Spain



Sweden



United States



United States (Lead)



Korea (Operating Agent)

Main accomplishments of Annex 4 in 2017

• Knowledge Transfer Project Collaboration with Annex 2, November 2017

- Planned India KTP on DG, Microgrids, and Smart Metering
- Implemented the three-day event including conference and site visit
- Followed up by developing an internal full report and a public executive summary
- Drafted Terms of Reference (to be completed in 2018)

• Strategic Communications Team - ongoing

The team under the leadership of Annex 4 was established by the decision of the ExCo at the ExCo14 meeting in Genk and merged with the Private Sector Engagement Team. So far, Annex 4 has accomplished the following related tasks:

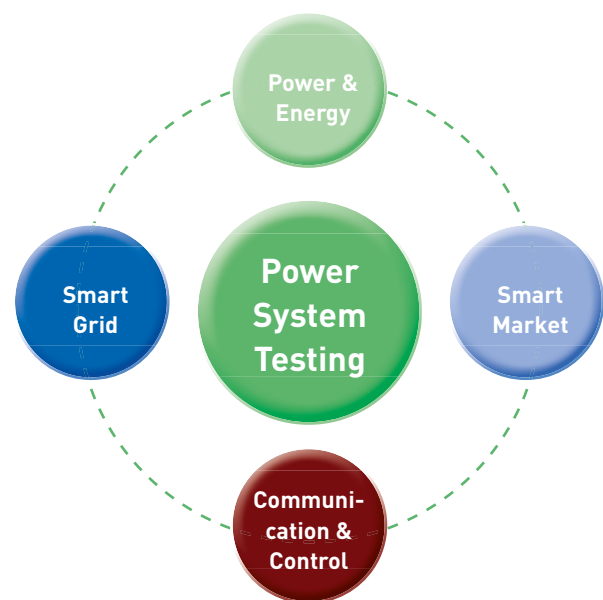
- Convened the Strategic Communications Team (phone and Vienna workshops)
- Developed proposal to the ISGAN Strategic Fund for the first phase of the ISGAN Communications Strategy Action Plan
- Authored the Scope of Work for the Communications Strategy Action Plan
- Provided expert technical and communications advice on website design and content
- Designed a StratComm workshop planned to take place during the ExCo15 meeting in Newcastle, Australia

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

SIRFN enables participating countries to evaluate pre-competitive technologies and systems approaches in a wide range of Smart Grid use cases and geographies using common testing procedures. Research test-bed facilities were selected based on their complementary capabilities to conduct specialized, controlled laboratory evaluations of integrated Smart Grid technologies, including cyber security, plug-in hybrid integration, load management, automated metering infrastructure, protection, network sensing, energy management, renewable energy integration and similar applications. In this way, research within each individual participating country can derive value of the unique capabilities and environments of the other partner nations. Data from these tests will be made available to all SIRFN participants to accelerate the development of Smart Grid technologies and systems and enable appropriate supporting policies.

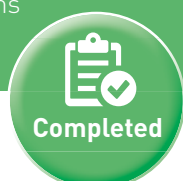
Power Systems Testing

- Numerous interdependencies in power system control
- Testing components alone may overlook these interactions/interdependencies
- Seeks to define requirements for true systems testing, applying state-of-the-art advanced lab testing methods



Smart Grid Modeling

- Developing model server for the use by SIRFN facilities
- One-to-one replica utility systems – using real-world data and network topologies wherever possible, allowing a holistic view of system effects
- Evaluation of alternative designs against policy goals



Microgrids

- Evaluate microgrid requirements for on-grid and off-grid operation
- Define the microgrid functionalities for on-grid operation
- Define the testing procedure for the functionalities

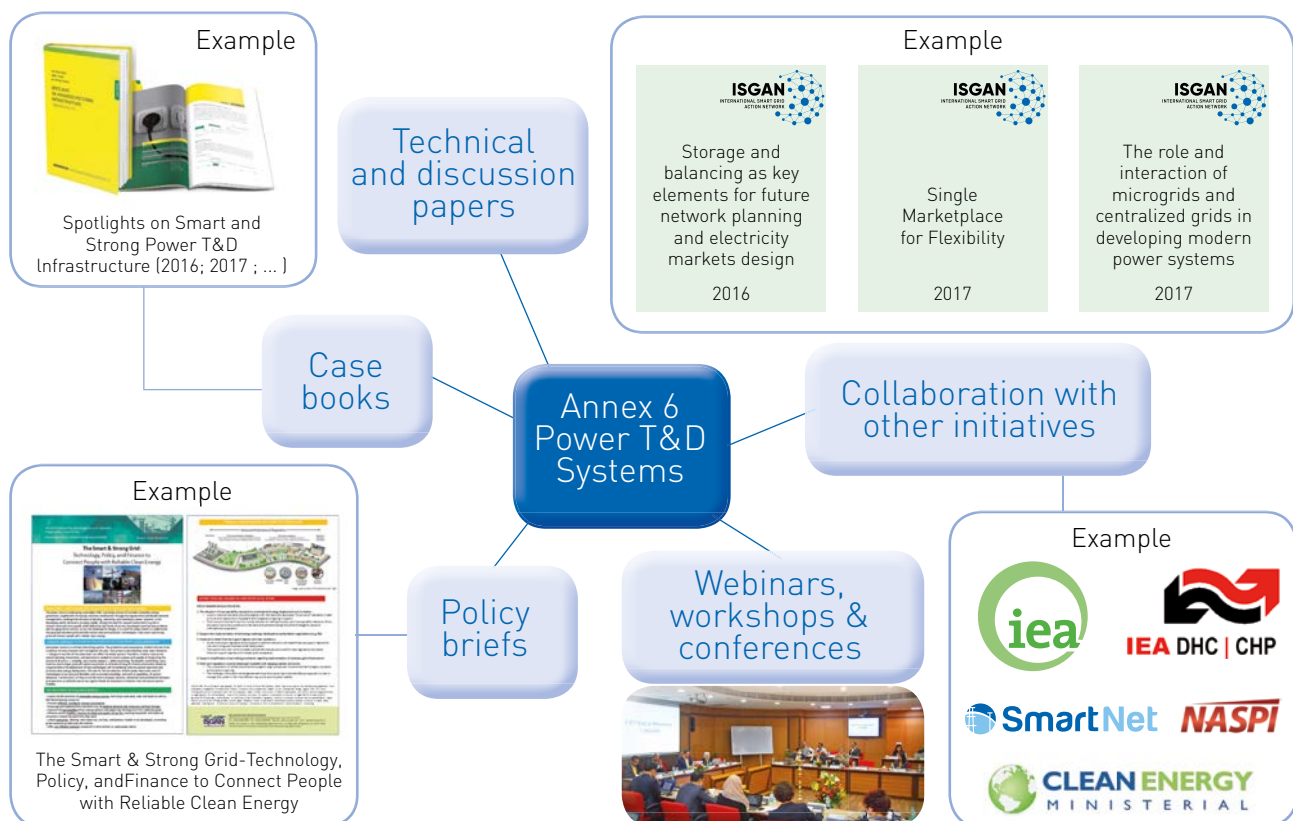


Annex 6: Power Transmission and Distribution Systems

Annex 6 focuses on the potential system-related challenges in the development of future smarter grids. The Annex's main goal is to facilitate the application of advanced technologies needed for power grids to contribute in the best way to the attainment of clean energy and climate goals as well as sustainable energy access to all. The Annex promotes solutions that enable power grids to maintain and improve security, reliability and quality of electric power supply.

The Annex's work is based on collecting, integrating, synthesizing, and distributing information on Smart Grid technologies, practices, policies, and systems through discussion papers, webinars, reports and presentations at relevant seminars, conferences and workshops. The idea is NOT to repeat what is already done but to draw valuable lessons. Different countries around the world have different challenges, apply different solutions to those challenges, and have reached different maturity levels in the implementation of those solutions. By learning from each other, both when it comes to best practices and success stories and also from projects confronted with problems we can quicker reach solutions proven successful and avoid repeating previous mistakes.

Annex participation gives access to an international network of experts in the area of building future grids. The possibility of gaining and sharing knowledge within the Annexes brings us closer to the goal envisaged by ISGAN, the one of achieving national, regional and global clean energy and climate goals with the help of Smart Grids.





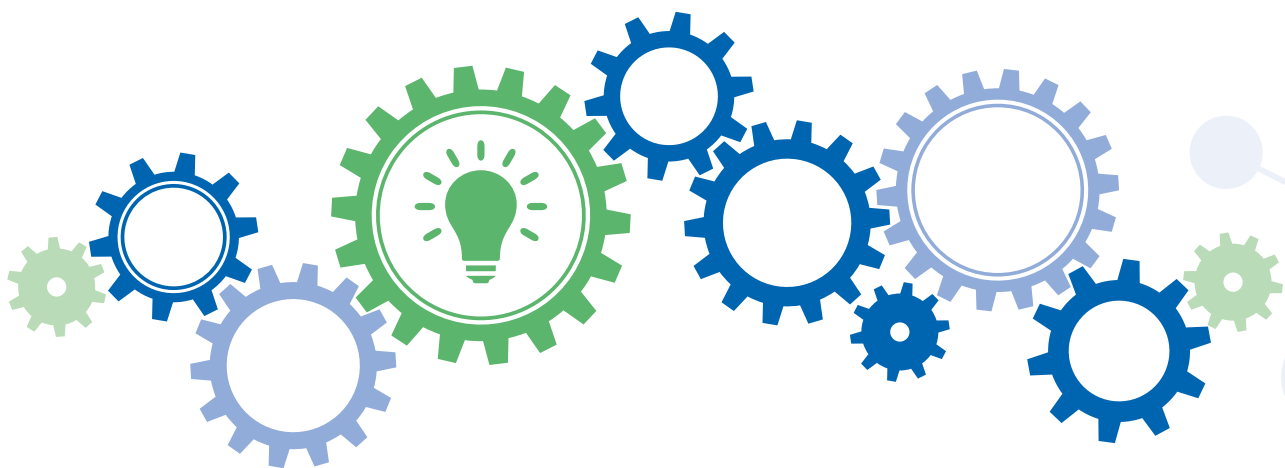
▲ Annex 6 deliverables

In 2017, ISGAN Annex 6 has published a discussion paper on TSO-DSO interaction, “a Single Marketplace for Flexibility”. Annex national experts gave presentations at the Innogrid 2020+ conference in Brussels, at the ISGAN public workshop in Genk and at the Cigré 8th Southern African Regional Conference in Cape Town. The work with a discussion paper on system efficiency has been ongoing. The paper is finalized and the ambition is to publish it at the beginning of 2018. The third step under the focus area TSO-DSO interaction is also initiated with a distributed questionnaire.

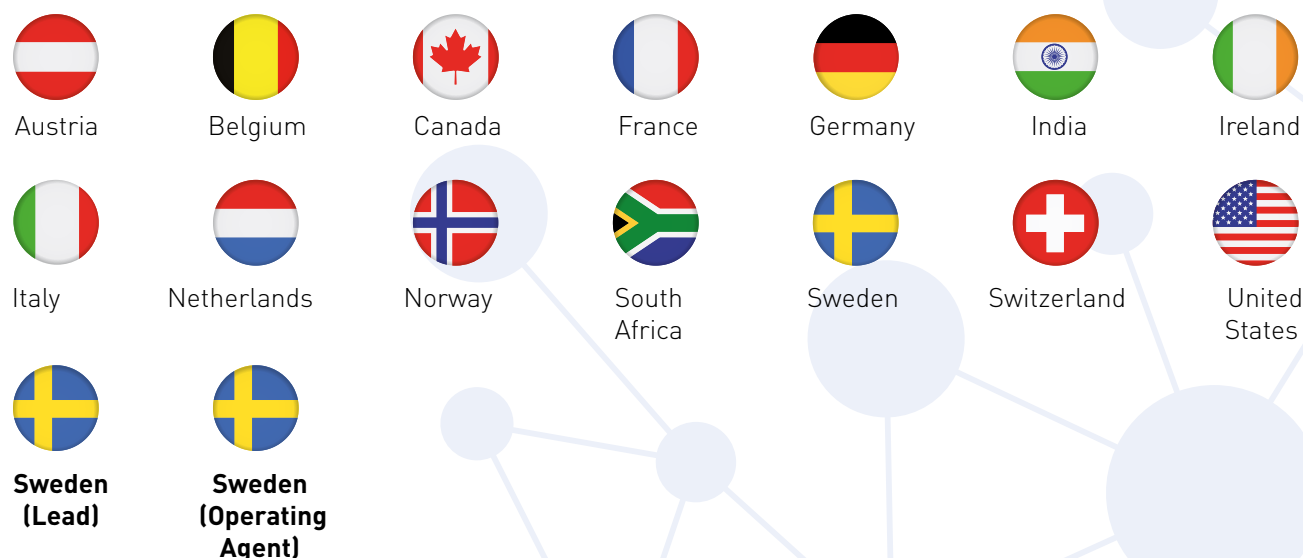
Single Marketplace for Flexibility

Key takeaways

	The single marketplace is a lean and transparent concept. It builds on existing market implementation and considers the evolving role of DSOs. Theoretically, it could lead to an economic optimum for the entire system, while respecting technical boundary conditions.
	Prerequisite: a liquid market with sufficient flexibility offers Assumptions and simplifications are yet to be validated, e.g. through market-theory-based analysis ICT requirements for its implementation have not been assessed yet.

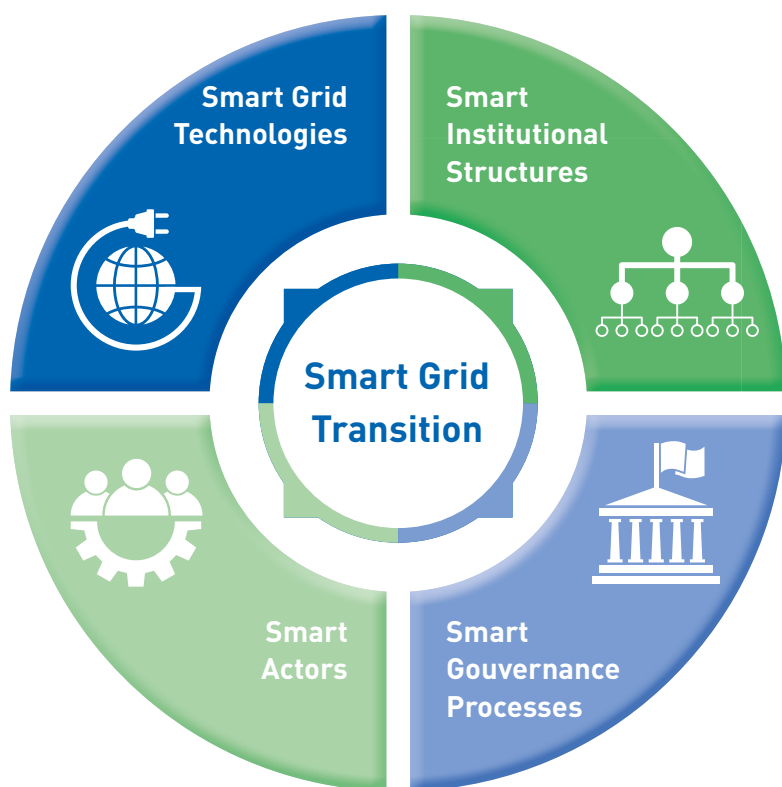


Participating countries:



Annex 7: Smart Grid Transitions and Institutional Change

The transition of the energy systems describes the process of replacing a comparatively simple regime of just-in-time electricity production and unidirectional trickle-down distribution to complex, responsive, multidirectional systems. As a result, the electricity sector is undergoing a transformation into an industry providing energy logistics services to match demand with volatile energy supply. Smart Grids will become the backbone of smart energy logistics. First of all, this requires new institutional structures and governance processes, as well as shared views on socio-technical transition pathways. How this institutional change shall be orchestrated is the key topic of Annex 7 and is one of the key policy issues for the IEA and the Clean Energy Ministerial.



▲ Transition towards Smart Grids at the cross-section of technical, sociological, economic and policy questions

Annex 7

Research on Smart Grid Transition in Denmark

On the 23th August 2017, the Technical University of Denmark, DTU, hosted a one-day seminar that presented and discussed central aspects of the transition to a smart electricity grid and a flexible energy system.

The seminar highlighted innovative research and demonstration projects that will contribute to the transition to a Smart Grid in Denmark, Europe, and elsewhere. The seminar focused on the key role of consumer engagement in this transition, as well as on solutions that operate at aggregated or higher levels in the energy system. In connection with the seminar, a publication entitled “Smart grid Transitions: System solutions and consumer behaviour” was developed to communicate some of the important research being undertaken on the subject in a more readable format. The publication features mainly Danish research, but also includes some international contributions from the Annex.

The scope of this Annex is to co-ordinate applied social science on the socio-technical change processes related to the transition towards a sustainable electricity system and to collect results to inform policymakers. The Annex experts further seek to analyze shared cognitive frameworks (e.g. shared visions, norms and concepts) and informal modes of social organization, reflecting human psychology, culture, habits and customs. Thus, their work clearly complements other ISGAN approaches like technology development, technological system integration and techno-economic analyses. Hence, the Annex contributes analysis and policy advice regarding the framework conditions of the system transition from the fossil-based to a more sustainable decarbonized energy regime.

The Annex aims at establishing a network of researchers and practitioners sparking off an international, coordinated interdisciplinary research activity in the social sciences supporting and complementing technology-oriented Smart Grid activities. In short, Annex 7 accumulates information and knowledge from innovation studies, political sciences, institutional economics, sociology and energy law, and makes it palpable for policymakers and other stakeholders at multiple administrative levels.



Participating countries:



Austria



Belgium



Denmark



France



Germany



India



Italy



Netherlands



Norway



Sweden



United States



Austria (Lead)



Austria (Operating Agent)

Annex 8: ISGAN Academy on Smart Grids

The ISGAN Academy offers the ISGAN community a possibility to share knowledge and engage with experts in the field of Smart Grids through an e-learning platform, where it presents different webinars on topics ranging from power system fundamentals to more specialized seminars on breakthrough Smart Grids solutions. The information presented includes, among others, recent developments, best practices, interesting methodologies, Smart Grids theory, applications and deployment. The ISGAN Academy is therefore proposed as a set of e-learning modules dealing with different Smart Grids aspects, where fundamentals and further reading material are considered as appendices out of the critical learning path. In the future, the ISGAN Academy intends to become a more interactive platform with specialized courses and ad-hoc solutions. To achieve this objective, partnerships with international organizations such as Innoenergy and IEEE Smart Grids are being explored. With the help of Annex 8 developed webinars stakeholders obtain a means to stay updated on recent developments, pilot projects, demonstrations, software tools and case studies. Supporters of the Annex can contribute as well on judging the quality of the contents and the relevance of the selected topics by nominating representatives to the Academic Committee.

The webinars held in 2017 are listed in this report in the section on deliverables in 2017 on page 39.



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Participating countries:



France



India



Italy



Netherlands



Russian
Federation



South
Africa



Spain



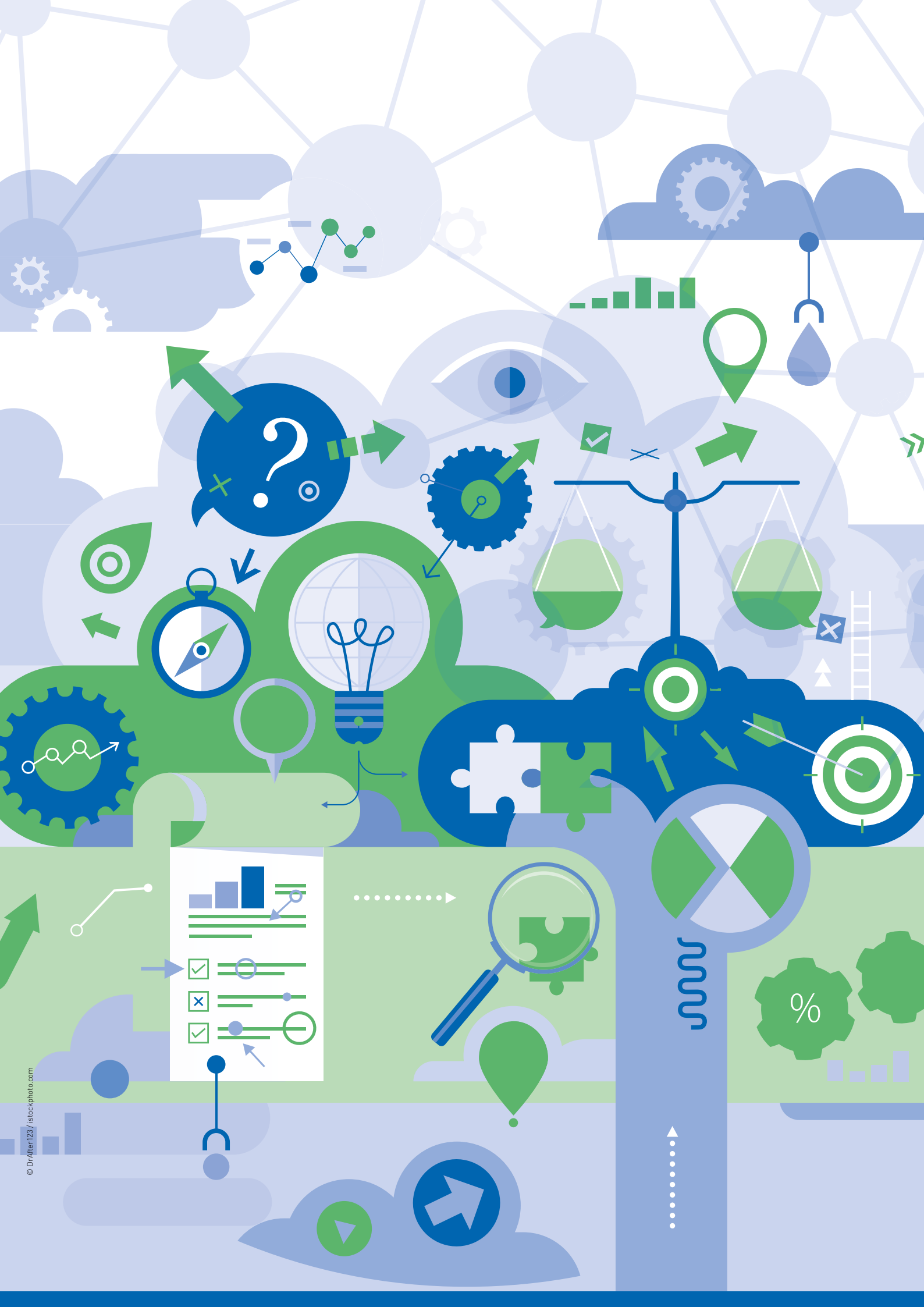
Switzerland



**Spain
(Lead)**



**Spain
(Operating
Agent)**



Deliverables in 2017



ISGAN Publications

One of ISGAN's most important outputs are publications for a target audience of policymakers and other stakeholders meant to support decision-making with the experience and insights from Annex national experts and a continuous international knowledge exchange.

Policy Brief: The Smart & Strong Grid: Technology, Policy, and Finance to Connect People with Reliable Clean Energy

March 2017

In the developing world, demand is growing rapidly, driving the need for massive investments in grids to connect more and more people while delivering high-quality services.

Developed countries face problems with an aging infrastructure. Across this landscape of change, it is crucial for policymakers to understand the synergies between grids and information and communication technologies. Only smart and strong grids will connect people with reliable clean energy in the long run. To achieve this, policymakers should focus on:

1. The adoption of interoperability standards to accelerate technology deployment and innovation.
2. Support the implementation of technology roadmaps developed by authoritative organizations (e.g. IEA).
3. Implement stable financial support regimes and clear regulations.
4. Support simplification of permitting procedures regarding implementation of necessary grid infrastructure.
5. Roles and regulations must be developed in parallel with changing markets and actors.

Smart Grid Policy Messages for the Clean Energy Ministerial

May 2017

The document was disseminated at the 8th Clean Energy Ministerial that took place in Beijing, China. It was developed by ISGAN Annex 4: Synthesis Insights for Decision Makers.

Discussion Paper: Single Marketplace for Flexibility

May 2017

In order to use emerging system flexibility in a coordinated way, an ever closer cooperation between system operators will be required. Several approaches for the coordinated use of flexibility for system balancing and congestion management are imaginable and are discussed in detail in the paper. Notably, it introduces the concept of a single marketplace for flexibility and assesses it based on the requirements concerning TSO-DSO interaction. This evaluation does not provide a comparison with other ways to ensure a coordinated use of flexibility; instead, it shows the strengths and weaknesses of a single marketplace for flexibility.

The single marketplace is a lean and transparent concept to deal with the procurement of flexibility, which could theoretically lead to an economical optimum for the entire system, while respecting technical boundary conditions. On the other hand, the marketplace will not function properly without sufficient flexibility offers, there is no practical experience with this concept and the ICT requirements for its implementation are challenging. This work thus points the direction for further investigation.

Policy Brief: Why Don't We Know Much about the Social Dimension of Smart Grids Transition?

May 2017

Three years of activity of Annex 7 make it evident that, dealing with Smart Grids transitions, policy makers are having many important questions about the dynamics of institutional change, which need new answers. However, rather than being able to provide ready-made answers about the institutional and social dimensions of Smart Grids, much more can be said about what we don't know. Annex experts identified two main reasons why we do not know enough about Smart Grid transition.

The first one lies in the structural challenge: energy research is mainly focusing on technologies for the physical grid with little knowledge about institutional change and the social dimension of energy transition. It is necessary to insert social and environmental dimensions in the projects dealing with Smart Grid deployment as well as in the decision making processes needed to select the most appropriate solutions. It is not enough for projects to be perfect from the technical and economic point of view, they should be based on a sound social analysis and include specific actions to take into consideration the concerns, needs, and expectations of citizens and consumers. Secondly, although political will to further substantially increase the public energy-R&D investment in the CEM countries already exists, statistical evidence shows a stagnation of energy related social-science-humanities R&D investment at a very low level. The intention of Mission Innovation to double public clean-energy R&D investment over five years is an encouraging signal for R&D actors and will likely lead to structural changes in the research and innovation ecosystem. However, it remains to be seen if this could also lead to a substantial rise in the knowledge about the social dimension of Smart Grids.

Project Report: Knowledge Transfer Project on Public Support to Smart Grid Research, Demonstration and Innovation

October 2017

The KTP Public Support to Smart Grid RD&I project that took place in Genk, Belgium, engaged 13 member countries, 6 of which participated in all parts of the project. Feedback suggests that the project was successful in creating a fact-based, structured and interactive dialogue between key stakeholders working with various aspects of public support to Smart Grid development.

Some of the main discussion points from the workshop included:

- ISGAN should arrange regular KTPs on this topic to allow more deep-dive into key challenges and opportunities. One example mentioned could be on life cycle cost (LCA) analysis of Smart Grid projects. In part, such KTPs could be facilitated online, to complement physical meetings in conjunction with ExCo meetings.
- Success stories on good funding practices in individual countries/regions as well as important lessons (incl. mistakes that should not be repeated) could be elaborated on further within Annex 2 through the publication of case books.
- Idea to create a joint funding program based on common ISGAN priorities where all interested countries could contribute funds and help deliver results.
- It would be useful to enable more ready access to information (abstracts and keywords) about key projects in individual countries, e.g. this could be done through the ISGAN website.
- The participating funding agencies could help facilitate contacts and create networks between stakeholders in different countries, e.g. enabling PhD student exchanges and similar.

Policy Brief: Phase-sensitive Enabling of Household Engagement in Smart Grids

November 2017

Today, flexibility in energy end use, particularly from households, is not sufficiently stimulated in many countries. Hence, system-level benefits, such as reduced electricity bills, better integration of renewable electricity generation and lowering of grid costs, are not realized. A widespread adoption of active demand by households is needed to tilt the cost-benefit balance of the investment in advanced metering infrastructure (AMI) towards a net benefit for society.

Although a variety of interventions aimed at activating households' flexibility potential have been piloted in Smart Grid projects, a consistent and integrated view on how to incentivize end users to change their behavior is still lacking. From an energy policy perspective, it is important to understand key enabling factors that contribute to active demand by households, in order to leverage them by targeted policy interventions. From a research and innovation policy perspective, social innovations and involvement of end users in the innovation process constitute important factors needed to overcome the barriers in bringing Smart Grid technologies from technological readiness to actual system-wide deployment. This policy brief highlights key success factors for active household engagement in Smart Grids.

Conference Paper: Electricity Supply to Africa and Developing Economies ... Challenges and Opportunities

November 2017

This conference paper deals with the enabling conditions for a universal access to electricity in developing economies with the help of microgrids and their interaction with centralized grids in modern power systems. The paper was drafted by Annex 6 experts, Susanne Ackeby, Jonas Tjäder and Caroline Bastholm and presented at the 8th South Africa Regional Conference.

An extension of microgrids is now underway, primarily to allow increased electrification in growing economies but also to meet the need of reducing global CO₂ emissions and to provide ancillary services to centralized grids. Energy access constitutes one of the fundamental building blocks for economic growth as well as social equity in the modern world. Access to sustainable energy is needed to achieve sustainable development. A microgrid should not be seen as a competitor to the centralized grid but as a complement. Through examination of several implemented cases from different parts of the world the following topics are considered:

- Analysis of the interaction between centralized grids and microgrids
- Analysis of stakeholder decision parameters for electrification
- Analysis of design differences and requirements for microgrids, depending on the intended purpose and the need of the end customer.

It was determined that good planning, suitable requirements and clear regulations for microgrids limit the risk of stranded assets and enables better business cases for the involved stakeholders.

Executive Summary of ISGAN Knowledge Exchange on Distributed Generation, Microgrids, and Smart Metering

December 2017

This report describes the programme of events and gives a summary of conclusions from an interactive knowledge exchange workshop and public conference that took place 13-15 November 2017 in Bengaluru, India, with 100 participants of which about 20 international experts. Key takeaway points from the workshop are:

1. Incentives for investment in early Smart Grid technology and R&D should be considered in regulation design.
2. Regulation is key to accelerate Smart grid developments – incentives must be in place.
3. Depreciation is much faster on Smart Grid devices and should be considered in regulation regarding network companies.
4. Utilities require business models based on public and private partnership, which are viable and sustainable and provide a reasonable profit to the investors as well as value to the end consumers.
5. There is a need for efficient load management and forecasting tools due to the ever-increasing penetration of renewable energy generation.
6. Priority areas for skill management & capacity building of utility officials should be identified and prioritized and continuously improved upon in the areas of Smart Grid technologies as well as those related to data privacy, cyber security etc. through international collaboration.
7. Smart devices are to be standardized to ensure interfacing among consumer/prosumer technologies.
8. Communication technologies should be selected depending on geographical location, speed required, actual topology along with economic and climatic conditions.



ISGAN Workshops and Other Events

Several workshops and events organized by ISGAN-Annexes and ExCo members took place in 2017. Some of them were organized back-to-back with ExCo meetings while others were stand-alone events.

India Smart Grid Week Conference

March 2017

India Smart Grid Week (ISGW 2017) was the third edition of the Conference cum Exhibition on Smart Grids and Smart Cities, organized by India Smart Grid Forum from 07-10 March 2016 at Manekshaw Centre, Dhaula Kuan, New Delhi, India. ISGF is a public private partnership initiative of the Ministry of Power, Government of India with the mandate of accelerating Smart Grid deployment across the country. With 200+ members comprising ministries, utilities, technology providers, academia and research, ISGF has evolved as a think-tank of global repute on Smart Grids and Smart Cities. The India Smart Grid Week took place back-to-back with the 13th meeting of the ISGAN Executive Committee.

Workshop on “Smart Grids Transitions – System Solutions and Consumer Behavior”

June 2017

The workshop took place at the 8th International Sustainable Transition Conference in Gothenburg, Sweden

Annex 4 ExCo14 Side Event “Enhancing ISGAN’s Outreach”

September 2017

The workshop took place back-to-back with the 14th meeting of the ISGAN Executive Committee in Genk, Belgium. Its goal was to identify practical ways to enhance ISGAN’s outreach and membership. For this, it was envisaged to identify an objective, vision and move on to the actual steps for achieving that, making the approach action-oriented and accounting for the (additional) resources needed.

After an introduction to the topic, the new ISGAN Website was introduced and feedback from the participants was collected. Then two break-out sessions focused on the following topics:

- Session #1 on Private Sector Engagement, Including Collaboration with the Global Smart Grid Federation and Mission Innovation.
- Session #2 on Expanding Participation in ISGAN and Geographical Representation of our Members.

Workshop participants in the first session identified a number of potential partner organizations and called for their active engagement. In turn, the participants in the second session discussed the concrete criteria for participation in ISGAN, called for defining specific value propositions and for making an effort to engage more countries, particularly in Africa and Latin America, through regional representatives.

ISGAN Public Workshop “Building the flexible power systems - From analog to digital, from lorry to EV, from customers to prosumers”

September 2017

In four sessions and three plenary discussions, representatives from countries around the world and stakeholders from IEA TCPs & GSGF to national ministries, agencies, research centers, TSO, regulators and the European Commission, among others discussed top priorities for power systems.

The workshop focused on the need to explore innovative ways of boosting system flexibility, contribution of Smart Grids to energy transition, ways to establish new cooperation and involvement of a wide range of stakeholders at all grid levels. The workshop was moderated by Nancy Mahieu from DG Energy, FPS Economy.



▲ Karin Widegren introduces the work of ISGAN to the international audience in Genk



▲ Donhang Feng (China), Bob Hebb (Belgium), Atul Kumar Bali (India), and John Ward, (Australia) discuss the contribution of Smart Grids to a more flexible power system at the public workshop

ISGAN Webinars

As part of the deliverables of Annex 8, ISGAN Academy on Smart Grids, several webinars took place:

Topics	Date of the Webinar
Reference network models	March 3 rd , 2017
GARPUR Project: Generally accepted reliability principle with uncertainty modelling and through probabilistic risk assessment	May 23 rd , 2017
Cybersecurity, resiliency and reliability	June 28 th , 2017
Cybersecurity for Smart Grids: Technical approaches to improve cybersecurity	September 11 th , 2017
2 nd GARPUR Project: TSO reliability management: A probabilistic approach for better balance between reliability & costs	October 2 nd 2017
Augmented reality for Smart Grids	December 13 rd 2017
Distribution planning for Smart Grids	February 14 th , 2018



ISGAN Award of Excellence

Awards Committee: KSGI(Administrator), PNNL (Coordinator), Singapore, Japan and USA

In 2017, ISGAN in partnership with the Global Smart Grid Federation (GSGF) launched the fourth annual ISGAN Award of Excellence, international competition envisaged to showcase leadership and innovation in Smart Grid projects around the world. With the fourteen nominations submitted from around the world, the final evaluation is in progress by a group of international jury members. It is expected that the winner(s) is going to be finally selected early in March and officially announced at the Ninth Clean Energy Ministerial (CEM9) in Copenhagen, Denmark, on May 25, 2018.



For the year 2018, the Executive Committee agreed on the theme **“Smart Grid for Flexibility”**.

Fourteen projects from 10 different countries took part in the competition:

- **“Integration Regenerativer Energiesysteme (IREN2)”**
by Institut für Hochspannungstechnik, RWTH Aachen, Germany
- **“Smart Operator – Efficient control and monitoring of the low voltage grid”**
by InnogySE, Germany
- **“Das Proaktive Verteilnetz (Proactive Distribution Grid)”**
by InnogySE, Germany
- **“ SysDL 2.0 - Ancillary services from large-area distribution grids “**
by DREWAG NETZ GmbH, Germany
- **“ Unified Real Time Dynamic State Measurement (URTDSM)”**
by POWERGRID, India
- **“The development the RPA of a digital substation with a flexible functional structure”**
by NRU MPEI, Russia
- **“Development And Industrial Introduction Of Power Quality Meters For Direct Measurements”**
by JSC Profotech, Russia
- **“Local Energy System with Customer Flexibility”**
by EON Energi distribution AB, Sweden
- **“Coordinating Power Control”**
by Sustainable innovation, Sweden
- **“Smart Grid Demonstration Project of Korea Electric Power Corporation”**
by KEPCO, Korea
- **“Heimdall Power Neurons-upgrading the grid to 21st century flexibility”**
by Heimdall Power AS, Norway
- **“OpenADR4Chile”**
by ENEL, Chile
- **“Instability Detector of the Gaspésie Regional Power System: DIR-Gaspésie (CGART-ALGOIRES)”**
by Hydro-Quebec Research Institute (IREQ), Canada
- **“ Power Off and Save”**
by EirGrid, Ireland



Eighth Clean Energy Ministerial (CEM8)

The 24 ISGAN member countries and the European Commission as well as other associated international organizations were brought together to the meeting by the recognition that clean energy is a driver of economic growth, energy security, energy access, and sustainability and the ambition to strengthen clean energy efforts. The Netherlands was present as a new observer country.

CEM8 was co-located with the Second Mission Innovation Ministerial (MI-2). While CEM focuses on scaling up the deployment of clean energy technologies and solutions that are available today, MI focuses on scaling R&D of the technologies of the future. Together, CEM and MI afford the world's leading nations a robust platform for accelerating clean energy innovation and facilitating its uptake by the global market.

At the meeting, it was highlighted that CEM Members can each make a unique contribution to the work that we are undertaking together, be it through the leadership of CEM initiatives and campaigns, through the provision of financial resources, or through the provision of in-kind contributions and expertise to certain work streams. In this respect, it was noted that CEM is well placed to contribute to the advancement of clean energy goals through its ongoing technical work in the form of CEM initiatives and campaigns, ISGAN being one of them.

CEM Secretariat was encouraged to organize a review of existing CEM initiatives and campaigns before CEM9 in order to maximize their effectiveness and impact to reflect the priorities of CEM members in a balanced and sustainable portfolio of activities, and to leverage the particular strengths and characteristics of CEM.

ISGAN released a series of deliverables for CEM8, including recently issued ExCo & Annex publications, including:

- Annex 2: Mexico KTP Workshop Report, Case Book on Consumer Engagement & Empowerment,
- Annex 5 : Draft Test Protocols for Advanced Battery Energy Storage System Interoperability Functions,
- Annex 6: Discussion Paper on Single Market Place for Flexibility, Case Book on Strong Power T&D Infrastructure,
- Annex 7: Policy Brief on why we do not know about the social dimension of Smart Grids transition.

ISGAN's fourth Award of Excellence competition was officially launched with the announcement of this year's theme. It is believed that the ISGAN Award of Excellence in Smart Grids for Flexibility will advance improvement of grid flexibility by balancing supply and demand simultaneously, thereby reducing customer losses from power disruptions.

On the other hand, Karin Widegren was one of several executives and other key stakeholders invited to participate in one of four high-level public-private roundtable discussions on "How policies for renewable energy and energy efficiency can be optimized". The roundtable was organized as a moderated and unscripted free-flowing conversation held under the Chatham House Rule following the discussion topics outlined in advance to the participants. The focus was to exchange experience on the need for a more coordinated approach to policies that deliver better outcomes for energy efficiency and renewable energy. As the scale and pace of deployment grow, the risk of misalignment or contradiction among policies is also expected to increase. Participants in the roundtable were encouraged to give their views on how to better understand the challenges, tensions or unintended consequences of implementing separate renewable energy and energy efficiency policies and to identify the opportunities for a streamlined approach.



ISGAN Executive Committee Meetings

The Executive Committee Meetings in FY 2017 took place in New Dehli, India, March 6th - 9th, 2017 and in Genk, Belgium, September 11th - 15th, 2017.

ISGAN 13th Executive Committee meeting (ExCo13), New Delhi, India

The start of the meeting was a traditional inaugural ceremony led by the Indian Ministry of Power Joint Secretary Arun K. Verma, PGCIL Chair I. S. JHA. On behalf of ISGAN, the ISGAN Chair and Vice Chairs were recognized. At the ExCo13 meeting, Contracting Parties from 18 countries participated together with observers from Singapore and the United Arab Emirates.

The following changes in the leadership team of ISGAN took place at ExCo13:

- Michele De Nigris stepped back from his position as Chair of ISGAN. Karin Widegren, a Swedish ExCo representative, was elected as new Chair. The three Vice-Chairs at ExCo 13 were determined as follows:
 - Michael Hübner, Austria, maintained his position of a Vice-Chair
 - Russell Conklin, USA, was re-elected as Vice-Chair of ISGAN for another period of 2 years till ExCo17, 2019.
 - Luciano Martini, Italy, was elected to replace Karin Widegren, as she stepped up as Chair of ISGAN, till the end of her period, namely until ExCo14.



Highlights from ExCo13

- To streamline Annex reporting and clarify Annex participants' commitment to different tasks, Russell Conklin laid out **an outline of the proposed structure for the future format of Annex Program of Work**, to be formalized during ExCo14. The ExCo requested a trial of the proposed approach by at least one Annex for its review and noted the corresponding offer from the Annex 3 Operating Agent.
- In terms of financial and in-kind support to Annexes, the ExCo agreed that an approach for **confirming Contracting Parties' strategic resources available for each Annex** in which they participate should be established. The ExCo encouraged its representatives, when they designate official Annex national experts to confirm sufficient resources are available to ensure that those national experts are capable of providing sufficient time and in-kind contributions.
- **Karin Widegren**, Swedish ExCo, was elected **as the ISGAN TCP Chair** for a term of two years (i.e. until ExCo17 in Q1 CY2019).
- Based on the result of its evaluation, the Terms of Reference Team recommended **AIT Austrian Institute of Technology to be selected as the future ISGAN OA/Secretariat** for a period of two years. At the same time, **KSIGI-Korea Smart Grid Institute was assigned as a Co-Secretariat** to take over the responsibility for the Clean Energy Ministerial (CEM) and the ISGAN Award of Excellence and regional coordination for Asia.
- During ExCo12, the ExCo decided to **establish a Communication Team** with the mission to develop ISGAN's strategic future communications in alignment with the development of the ToR for the ISGAN Secretariat functions. During ExCo13, the ExCo decided to prolong the mandate of the Communication Team until the new co-Secretariats are in full operation and report back on their recommendations during ExCo14.
- Following the discussions among ExCo members, the Budget Review Group was directed to add a line to **the budget for "strategic actions," to include Ex-Co-coordinated activities that expand or extend ISGAN's opportunities and impact**, taking into account not only annual income from Contracting Party dues but also carried-over balances from previous fiscal years. The ExCo encouraged its representatives and the Annex Operating Agents to bring forward proposals for "strategic actions" that could be funded by the ISGAN Common Fund for consideration and decision at the 14th ExCo meeting.

ISGAN 14th Executive Committee meeting (ExCo14) Genk, Belgium



The 14 Meeting of the Executive Committee of ISGAN took place at Energy Ville, a former coal mine site in Genk. EnergyVille is an association of the Flemish research institutes, KU Leuven, VITO, imec and UHasselt, in the field of sustainable energy and intelligent energy systems.

At the ExCo14 Contracting Parties from 22 countries participated as well as observers from the United Arab Emirates and the United Kingdom.

The following changes in the leadership of ISGAN took place at ExCo14:

- Michael Hübner stepped back from his position of Vice-Chair and his position remained vacant;
- Luciano Martini was re-elected Vice Chair for the entire period of two years (i.e., through ExCo18 in Q3/Q4 CY 2019).

In addition to the meeting, a Public Support Knowledge Transfer workshop (11 September 2017, all-day) an internal ISGAN workshop “Reaching beyond the border – How to expand ISGAN’s outreach?” (11 September 2017, afternoon) and a public workshop “Building the flexible power systems. From analog to digital, from lorry to EV, from customers to prosumers” (12 September 2017, all-day) took place in the same week. The program also included a technical visit to Boucle de l’Est project led by the Belgian transmission system operator, Elia, which showcased last-generation pylons, and a lab tour through Energy Ville Smart Grid laboratories.



▲ ExCo representatives at the technical visit organized by the Belgian transmission system operator, Elia

Highlights from ExCo14

- In an effort to give a fresh boost to ISGAN's identity, the Operating Agent of ISGAN presented options for a new logo and corporate identity for the ExCo's consideration. **The corporate identity of ISGAN** was then refreshed at the end of 2017.
- First steps were made to design **a new ISGAN website**. The Operating Agent presented the prototype to the ExCo and collected comments. The new website went online in February 2018.
- **The ISGAN theme** for 2018 was updated to "Digitalization, Flexibility and Resilience". The issue of resilience became a new component of the theme, following a decision at ExCo14, given its rising importance in the face of cyber-security threats and extreme weather events. Starting from ExCo14, the Annexes have been explicitly requested to address these issues in their Annex activities and to incorporate the theme in their respective presentations and programs of work.
- In an attempt to streamline **Annex Programs of Work**, ISGAN Vice-Chair, Russell Conklin, presented **a new format** of the document, following the decision taken at ExCo13, and conducted a brief training for the Operating Agents during the ExCo14 meeting. The format was approved by the ExCo and is expected to be used by Annex Operating Agents for their future programs of work.
- For the first time, Annexes as well as ExCo members had an opportunity to present **proposals for the use of the ISGAN Common Fund** to promote ISGAN's strategic interests. Three proposals were presented for the ExCo's consideration:
 1. **ISGAN Knowledge Transfer Project – India 2017**: travel support proposal for the experts participating in the workshop.
 2. Proposal for the Use of Common Funds to Develop an **ISGAN Strategic Communications Action Plan**.
 3. Proposal for Use of Common Funds to Organize a Joint Strategic **ISGAN – Mission Innovation Challenge #1 Workshop** in Canada in spring 2019.

The decision was taken to allocate financing for the travel support at the KTP workshop in India as well as for the first stage of the development of a strategic communications plan in FY2017. The third proposal received the ExCo's support while further details and the final decision will be taken at a later time.
- A roundtable on the future strategy of ISGAN took place during the ExCo (see box).

Roundtable "ISGAN Strategy beyond September 2017": Summary of Key Actions

- Develop communication strategy to the world outside ISGAN with other TCPs, with international and national stakeholders and with partner organizations
- Foster discussion and collect information about each country's priorities and expectation from ISGAN
- Update ISGAN contact list and involve more interested experts into Annex activities
- Streamline and support the work of Annexes, where substance and progress is made.
- Improve interaction and link between ExCo Vision and capability of the Annexes (committed resources)
- Facilitate information and knowledge sharing - Knowledge Transfer Projects (KTP)
- Develop engagement and support structure to make ISGAN attractive for experts to work in the Annexes.



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