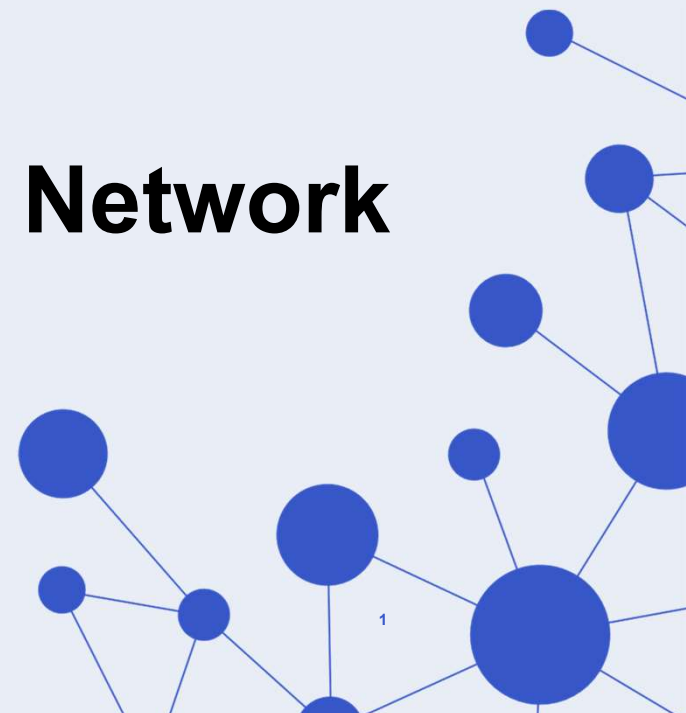


# ISGAN

## International Smart Grid Action Network



# Our work



**ISGAN activities build a global understanding of smart grid, address gaps in knowledge and tools, improve peer-to-peer exchange and recognize excellence**

- No direct technology development or demonstration activities
- Develop protocols, tools and best practices, identify environmental issues and mitigation options
- Focus on exchange and dissemination of information and perspectives
- A global benchmark and collaborative attitude among participating countries
- Indicate to emerging economies the technological alternatives available for their own development

# Our work



Each Working Group is lead by a Working Group Manager:

| Working Group | Working Group Manager                                 | Country |
|---------------|---|---------|
| CWG           | Comillas Pontifical University                        | Spain   |
| 3             | University of Cagliari                                | Italy   |
| 5             | DERLab  | Germany |
| 6             | Research Institutes of Sweden, RISE                   | Sweden  |
| 7             | AIT - Austrian Institute of Technology                | Austria |
| 9             | Department for Business, Energy & Industrial Strategy | UK      |

# Communication Working Group – CWG



- Synthesis of findings for stakeholders (Policy Messages)
- National priorities and best practices (Survey of drivers and priorities, Case-books, Events)
- Structured knowledge exchange (KTP Projects)
- Virtual learning (Webinars)
- Outreach and liaison functions (other IEA organizations and CEM initiatives)
- Public media (Website and Social Media content, Press releases)



## Working Group 3 – Cost Benefits

- Working Group 3 deals with methods aimed at guiding stakeholders' investment decisions related to Smart Grid technologies by considering economic and social welfare aspects.

### Scope:

- development of tools for analysts, regulators, utilities and other actors
- define system needs and decide on priorities for Smart Grid system investments along with necessary regulatory changes



WG Manager

# Working Group 3 – Cost Benefits



- **Updating, maintenance and promotion of the ISGAN MCA platform**
- **Distribution development when flexibility competes with grids**
  - Review and literature analysis
  - Regulation analysis (France, UK, Italy, Spain, Portugal, etc.)
  - Flexibility Market and TSO/DSO coordination
  - Planning process design (starting from relevant cases)
  - Policy brief on a suitable



WG Manager

# Working Group 5 – SIRFN Testing Labs

- Research and testing facilities, test beds, testing projects: identification of collaboration opportunities among test facilities, state of the art testing practices, identification of testing protocols needing attention
- Strong and active community of researchers engaging in applied research and impactful work on Smart Grids testing: DER, power systems, microgrids, protocols for advanced inverter functions for PV and storage integration etc.
- Smart Grid Modelling: Server and interfaces to use these systems and topologies. SunSpec Alliance System Validation Platform, to reduce barriers to testing in emerging / developing economies
- Open source software tools, test cases and procedures to be used by DER vendors, universities, research institutions, certification laboratories, standards organizations, etc.



Lead      WG  
Manager

## Working Group 5 – SIRFN Testing Labs

- Provides a Research Infrastructure Database including Consultancy & Testing Requests distribution among participants
  - Enhancement of DER Certification Testbeds and provision of open-source testing scripts
  - Two journal papers published on IEEE 1547.1 ride through and interoperability tests.
- Power System testing:
  - Collection of testbeds and test systems for cyber-physical power system testing
- Knowledge exchange sessions on Microgrids testing
  - “Microgrid testing with the IEEE 2030.8” standard – Technalia, Spain
  - “Development of a Microgrid Controller for Black Start Procedure and Islanding Operation”, Fraunhofer IEE, Germany.
  - “Heuristic Optimization for Resilient (Multi) Microgrid Scheduling”, AIT, Austria.
  - “Harmonic Stability of Inverters in Distribution Systems”, UCD, Ireland.
  - Grid-Forming Converter-based Virtual Inertia Control of a MG, KERI, Korea.



# Working Group 6 – Power Systems

- Facilitate the application of advanced technologies needed for power grids to contribute in the best way to the attainment of clean energy, climate goals and sustainable energy access to all
- Solutions that enable power grids to maintain and improve the security, reliability and quality of electric power supply while facing challenges related to significant trends in the electricity sector
- Condense to conclusions and recommendations for policy makers: case books, discussion papers, workshops and collaboration with other initiatives



# Working Group 6 – Power Systems



- System operation and security
  - Discussion paper on Interoperability of digital (ICT) systems in energy sector published
  - report on Flexibility for resilience (cooperation between annex 6 and ETIP-SNET)
- Lessons learned from international projects on TSO-DSO interaction
  - Video and a Case-book published



WG Manager

# Working Group 6 – Power Systems

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CLEAN ENERGY MINISTRIAL lea-isgan.org ISGAN INTERNATIONAL SMART GRID ACTION NETWORK

Power Transmission & Distribution Systems

**Modelling storage operation for markets participation and supply of advanced system services**

Discussion paper

S. Canevese, A. Gatti, D. Siface (Ricerca sul Sistema Energetico – RSE)  
ISGAN Annex 6 Power Transmission and Distribution Systems

June 2021

Technology Collaboration Programme

lea-isgan.org ISGAN INTERNATIONAL SMART GRID ACTION NETWORK

Interoperability of digital (ICT) systems in the energy sector

**How to Improve the Interoperability of Digital (ICT) Systems in the Energy Sector**

Discussion paper

ISGAN Annex 6 Power Transmission & Distribution Systems  
Focus area "System Operation and Security"

September 2020

CLEAN ENERGY MINISTRIAL

Technology Collaboration Programme

CLEAN ENERGY MINISTRIAL lea-isgan.org ISGAN INTERNATIONAL SMART GRID ACTION NETWORK

Power Transmission & Distribution Systems

**Power System Flexibility from Local Energy Grids**

Workshop summary

Joni Rossi (RISE), Anjali Wadhwa (NRCAN/RNCAN)

January 2021

Technology Collaboration Programme

## Working Group 7 – Transitions

- Governance and socio-technical issues associated with smart grids deployment
- Preparation of a prototype of a smart grids foresight process to help policy makers to orchestrate a sustainable transition
- Evaluation of processes of market, forming, actor involvement and integration
- LinkedIn discussion group entitled “Smart Grid Transition”



WG Manager

## Working Group 7 – Transitions

- Regulatory Sandboxes 2.0 project:
  - 3 KTP workshops with participants from ministries, funding agencies, regulatory authorities, academia and research from 15 countries
  - Policy Brief for CEM12: <https://www.cleanenergyministerial.org/publications-clean-energy-ministerial/isgan-regulatory-sandbox-20-policy-messages-cem>
  - Side event at CEM12: <https://www.cleanenergyministerial.org/events-cem/12th-clean-energy-ministerial-cem12>
  - Updated Casebook including regulatory sandbox programmes from 10 countries (AT, BE, CA, DK, FR, IL, IT, NO, SE, UK)



WG Manager

# Working Group 9: Flexibility Markets- development and implementation

- To enrich and disseminate participant's understanding of flexibility market design
- To create and curate an evidence base all can draw upon to support decision making in the flexibility market space
- To further the debate on best practice in market design



WG Manager

# Working Group 9: Flexibility Markets- development and implementation



- Flexibility Characteristics
- Consumer focused flexibility
- Interoperable Markets (UK)
- Dissemination of insights from initial scoping exercise (UK):
  - Updated version of incubator team report published
  - Factsheets on metering, consumer interaction on energy markets and Incentives published



WG Manager



[iea-isgan.org](http://iea-isgan.org)



# Thank you

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