

An aerial night view of Europe, with city lights glowing in yellow and orange, and natural features highlighted in green. A white network of lines and nodes is overlaid on the top and bottom left corners of the image.

National and Regional Smart Grids initiatives in Europe

Cooperation opportunities among
Europe's active platforms

May 2016

2nd EDITION





Editing by DERlab
www.der-lab.net



This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 308897.

Foreword and Scope

In many European countries, research and development in the smart grids area are constantly increasing aiming to support the cost-effective transition to a secure, efficient and sustainable electricity grid of the future.

In this context, the European national activities are in different stages of development, ranging from fundamental research (proof of concept) projects in some countries to the built up of large scale demonstration and pilot sites and finally starting with the implementation and roll-out of smart technologies and solutions. Regardless of the different development stages, national smart grid stakeholders share the common goal with the European Technology Platform (ETP) on SmartGrids: to advance the development and to facilitate the way to a smarter grid.

National and Regional Smart Grids initiatives (N/RTPs) with the focus on local conditions and the ETP as the key European forum in the SG sector have supported each other in the past and will continue this fruitful cooperation. In the future, the voice of N/RTPs will be even stronger within the new European Technology and Innovation Platform (ETIP) for Smart Grids and Storage that will succeed the ETP. In this new structure the European Member States will play a key role to promote the European view on smart grids development.



Nikos Hatziargyriou,
ETP SmartGrids
Chairman
www.smartgrids.eu

The active SG initiatives of these Member States present themselves in the second edition of this booklet. It keeps its three main objectives:

- It provides an overview of the different profiles of smart grids initiatives in Europe, reflecting different challenges, approaches and solutions.
- It presents an overview of ongoing activities and projects in the European smart grids area.
- It serves as a guide for smart grids initiatives, allowing to compare the activities of the various EU platforms and to find links or common interests in order to facilitate transnational collaboration.

We would like to thank all the active initiatives that contributed to this publication and we look forward to strengthening our collaboration in the years ahead - in the framework of the new ETIP Smart Grids and Storage. Collaboration among initiatives and platforms all over Europe is indispensable in order to shape the energy network of the future in the most efficient way.

Nikos Hatziargyriou,

**ETP SmartGrids
Chairman**

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ETP SmartGrids

European technology platform for the electricity networks of the future

ETP SG MISSION STATEMENT

The ETP Mission is

- To offer strategic guidance for its stakeholders on the development of technologies related to smart grids that will address the future needs of electricity networks in the European electricity supply system.
- The strategic guidance is developed through mobilisation of the expertise resident in the stakeholders and exerts its influence through efficient dissemination of the strategic agendas developed.
- Contribute to realise the SET Plan Integrated Roadmap vision by
 - Finding gaps in technology by evaluating RD&D projects.
 - Identifying barriers to smart grids deployment.
 - Adopting an integrated energy systems approach including all energy carriers.
 - Bringing together views and efforts of all smart grids stakeholders: National TPs and various ETPs which are working in isolation.

CURRENT ETP SMARTGRIDS

Working Groups

- WG1: Network operation and assets
- WG2: Energy storage and grid integration
- WG3: Demand side, metering and retail

In addition, a number of ad hoc working groups are focusing on specific topics, like security and resilience and energy digitalisation.

Their overall goal is to provide strategic advice and help making the ETP Vision become a reality. By the second half of 2016, the ETP is turning into an ETIP, European Technology and Innovation Platform, and will enlarge its scope of activities, representing an increasing number of stakeholders as well as working closer with national smartgrids actors.

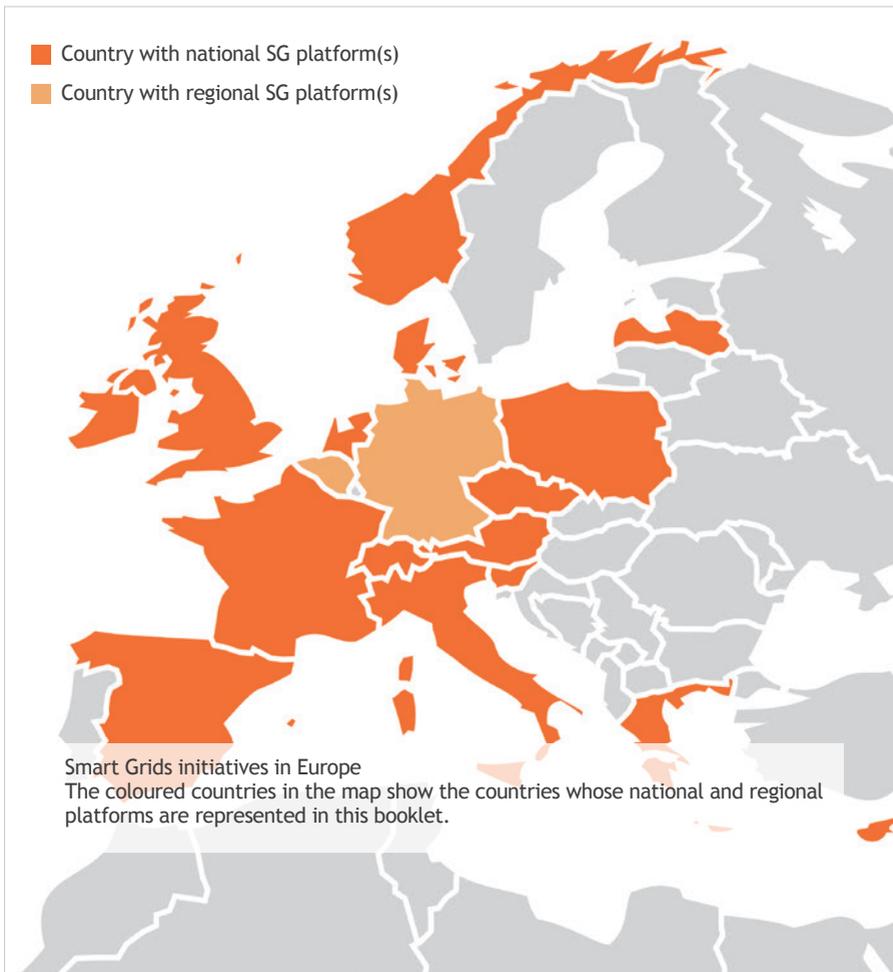
The ETP's mission is to contribute to realise the SET Plan Integrated Roadmap vision

ETP SmartGrids stakeholders

- Distribution and Transmission System Operators
- Energy Technology Providers
- ICT Technology Providers
- Research Organisations and Academia
- Regulators
- Associations

all supporting the European Commission

Map of National and Regional Smart Grids Initiatives in Europe



Centres of Excellence

	Austria	Belgium: Flanders	Cyprus	Czech Republic	Denmark PowerLabDK	Denmark SEN	France	Germany: BW	Greece	Ireland	Italy	Latvia	Netherlands	Norway	Poland	Slovenia	Spain	Switzerland	UK	
Smart Metering																				
Demand Response																				
Market Integration																				
Storage																				
Privacy/Data Security																				
Regulation																				
Integration of Renewables																				
Reference Architecture																				
Island Power Systems/Cells																				
Smart Cities																				
Home Intelligence																				
E-Mobility																				
Distribution Network Solutions																				
Education/Training/Seminars																				
Grid (infrastr.) Intelligence																				
Holistic Energy Concept																				
Industrial Prosumers																				

All National Technology Platforms in Europe have individual strengths. Platforms and initiatives, leading in a certain topic, can act as a reference for others and share its best practices. In the following matrix, the top competencies of all platforms are listed, making it easy to find common strengths.

NATIONAL AND REGIONAL SMART GRIDS INITIATIVES IN EUROPE

Main Goals

	Austria	Be: Flanders	Cyprus	Czech Republic	Denmark Lab	Denmark SEN	France	Germany: BW	Greece	Ireland	Italy	Latvia	Netherlands	Norway	Poland	Slovenia	Spain	Switzerland	UK	
Network	Be a network, bringing SG stakeholders together																			
	Knowledge sharing																			
	Be consulting capacity/SG centre of competence																			
	Project support/find collaboration opportunities																			
	Offer SG education/share best practices																			
Decarbonising	Support sustainable energy/ decarbonise economy																			
	Facilitate transition to SG/ roll-out																			
	Be involved in developing national/regional roadmaps																			
	Ensure reliable supply of customers (long-term)																			
	Prepare optimal SG concept for country/region																			
Promote the SG concept																				
Economy	Create long-term economic wealth for country/region																			
	Create jobs in country/region																			
	Support local industry																			
	Position country/region as a leader of SG development																			
	Independence from foreign energy																			
Research Fields	Fundraising for research work																			
	Release flagship projects																			
	Standardised/modular products/solutions																			
	Promote technology and innovation																			
	Data protection																			
Reduction of black-outs																				

In order to identify initiatives with common goals, the main goals of all platforms are listed in the following matrix. As the majority of the goals refers to networking and the transition to a sustainable smart energy system, a large share of goals are common to all platforms. Please note, that the marked goals should be understood as main focus without excluding the non-marked goals.



National and Regional Smart Grids Initiatives in Europe



Austria
National SG Platform

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Technology Platform Smart Grids Austria

Founded in: 2008

No. of Members: 30

Target Audience: Technology providers, energy sector (grid operator), R&D Institutions, public authorities, various stakeholders.

Top competencies: Demand Response | Market Integration | Privacy/Data Security | Integration of Renewables | Reference Architecture | Distribution Network Solutions

Our main goals: Be a network | Knowledge sharing | Project support | Be involved in developing national roadmaps | Prepare optimal SG concept for country | Promote the SG concept | Support local industry | Position country as a leader of SG | Release flagship projects | Standardized/modular products/solutions | Promote technology and innovation development

Cooperation interests: Knowledge exchange and cooperation with other platforms

Who are we?

The Technology Platform Smart Grids Austria is an association of important stakeholders in the electrical energy supply sector. It aims at combining all strengths for future intelligent electricity grids to support a cost efficient and sustainable electrical power supply system.

Our mission and goals

The stakeholders' synergies from industry, energy economy and research are used efficiently in this platform. Flagship projects shall strengthen the Austrian competencies in the area of smart grids and enable international visibility.

Projects

2016: IES - Integrating the Energy System

Interoperability is essential for the success of the energy transition. The purpose of the project is to design a modular process chain to achieve interoperability of standards, a specification of a normalised use of these standards in interoperability profiles and a demonstration of the processes for testing interoperability. Within this project, one of the main issues is the transfer of one established methodology from the healthcare domain into the electricity distribution. The project leads to a cross-sector knowledge exchange of the proven practices from the health system, which was successfully established in Europe. A result of the project is a detailed documented process for the normalised usage of standards in smart grids.

2015: RASSA - Stakeholder Process

In consultation with all relevant stakeholders, the RASSA (Reference architecture for secure smart grids in Austria) initiative of the Technology Platform Smart Grids Austria has set itself the goal to promote the evolution of technical reference architecture for secure smart grids in Austria. Based on technological-scientific elements a process was worked out, which meets the requirements of stakeholders like operators of infrastructure, industry and also public agencies to achieve nationally accepted and internationally orientated reference architecture.

2014: Technology Roadmap Smart Grids Austria

The platform developed the “Technology Roadmap Smart Grids Austria” which focuses on the period from 2015 to 2020. It covers the short- and medium-term development steps for the implementation of smart grids to an industrial development and the implementation of marketable products and services. Three key steps for the implementation of smart grids in the coming years are identified in the roadmap. In a first step, the development of an Austrian lead market as an internationally visible reference is important to enable the positioning of Austrian companies as technology leaders. As a second step, large-scale validation projects are necessary. For the validation and testing of smart grid systems in the field, entire distribution network areas need to be equipped with appropriate technologies within large-scale implementation projects. In a third step, an overall ICT architecture, starting from the current state of the ICT architecture, has to be developed. The path to a unified, scalable and efficient solution requires a clarification and process optimisation by a large-scale system validation.



Belgium

Regional SG Platform

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Smart Grids Flanders

Founded in: 2010

No. of Members: 100 companies/organisations

Target Audience: Industry

Top competencies: Grid | Smart Homes & Buildings | Industry | Storage & E Mobility | Business Models | Regulation

Our main goals: Stimulate innovation in the smart energy sector | Facilitate international collaboration | Be a mouthpiece towards the government | Position Flanders as a 'Smart Energy Region'

Cooperation interests: Large scale 'Living Labs' (also international) | Support SMEs in smart energy sector | Focus on integrated solutions

Who are we?

Smart Grids Flanders (SGF) is the membership organisation that aims to facilitate the roll-out of intelligent electricity networks or "smart grids", both in Flanders and internationally. Smart Grids Flanders brings together relevant players from industry, academia and government and provides them with a knowledge sharing platform, networking opportunities and project support.

Our mission and goals

SGF aims to position Flanders as a "Smart Energy Region" by focusing on five innovation zones, in which a complete, innovative value chain will be created.

Projects

Flanders - Smart Energy Region

SGF aims to position Flanders as a 'Smart Energy Region' by focusing on five innovation zones, in which a complete, innovative value chain will be created. These five zones are (1) energy harbours, (2) microgrids, (3) integrated energy flows on larger sites, (4) energy platforms and apps and (5) nearly zero energy building renovation.

In each innovation zone an ecosystem of companies will work to bring integrated solutions to one of the following markets: (a) energy-efficient industry, (b) smart cities and communities and (c) energy in residential buildings.

Smart Grid School

After five successful editions, SGF's annual Smart Grid School has become a reference in the smart energy world. Participants in this intensive, three-day training course gain a broad understanding of the most important aspects of smart grids.

At the Smart Grid School over 30 national and international speakers present the proceedings of ongoing smart grid projects. They clarify the philosophy and business cases behind smart grids. Of course, participants are also offered many opportunities to network with fellow 'students'.

The 6th edition of SGF's Smart Grid School takes place in the autumn of 2016. Visit www.smartgridsflanders.be for the full programme and/or to register. Registration is possible for one day or all three days of the event.

SME support in a broad context

Smart Grids Flanders is working with partners from Luxemburg, Great-Britain and the Netherlands to create largescale living labs, where SME's can find their unique place in a broad ecosystem of smart energy companies. SGF supports SMEs and helps them focus on innovation and integrated solutions.



Cyprus
National SG Platform

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Cyprus Technology Platform for Smart Grids (CyTP4SG)

Founded in: 2014

No. of Members: 8 organisations/associations

Target Audience: All stakeholders for smart grids in Cyprus

Top competencies: Demand Response | Market Integration
| Storage | Regulation | Integration of
Renewables | Island Power Systems |
Education/Training/Seminars

Our main goals: Be a network | Knowledge sharing | Project
support | Support sustainable energy |
Promote technology and innovation

Cooperation
interests: Build regional and pan-European networks |
Contact R&I activities | Share competencies
for stronger education, training and seminar
programmes

Who are we?

The CyTP4SG offers strategic guidance for its stakeholders on the development of technologies related to smart grids that will address the future needs of electricity networks in Cyprus. The stakeholders include: the regulator of Cyprus CERA; the TSO and DSO of Cyprus, the manufacturers, industrialists and traders of Cyprus represented by KEBE and OEB, the RES producers of Cyprus represented by ΣΕΑΠΕΚ, the research centre FOSS of the university of Cyprus and the Cyprus Energy Agency.

Our mission and goals

We support the development of sustainable energy solutions with a flexible adaptive electricity grid capable of facilitating the seamless connectivity and operation of sustainable technologies and systems. Furthermore, we strategically develop the required critical mass by mobilising the expertise resident in the above-mentioned stakeholders of Cyprus in close cooperation with the ETIP SG and storage, the work groups that are functioning under its auspices and the Mediterranean Forum of national technology smart grid platforms in the region. Cooperation, sharing of information, bilateral exchange of expertise and knowhow, development of an effective platform for dissemination of results, common research efforts on projects of common interest and targeted workshops discussing current problems of the industry are means by which we aim to build the momentum for the evolution of the electrical grid in support of the energy strategy of Cyprus, the Mediterranean region and Europe.

Projects

SmartPV

The Project “Smart net metering for promotion and cost-efficient grid-integration of PV technology in Cyprus” with the Acronym SmartPV, is co-financed by the EU via the LIFE+ Programme. This Project is in line with the general and specific objectives of LIFE+ Environment, Policy, and Governance - particularly with regard to contribution to implementing, updating and developing environmental policy.

The SmartPV Project is thoroughly investigating pilot net metering schemes for cost-effective PV implementation and higher grid penetration in Cyprus of distributed generation with the target of achieving a win-win situation for both consumers and energy utilities. Demand side management is pivotal in the targeted objectives of the project and every endeavour is made for correctly informing the 300 prosumers participating in the project for informed decisions in managing their energy needs.

Green+ of NER300

The project entitled Green+ falls within the sub-category DRMa, i.e. Renewable energy management and optimisation for small and medium scale distributed generators in rural environments with predominant solar generation: 20 MWe on Low Voltage (LV) network + 50 MWe on Medium Voltage (MV) network. Expected entry into operation is 30 June 2020. The project will cover all technologies to develop a multi-microgrid system with 20 MWhrs of storage for facilitating RES penetration to meet the energy needs of the rural areas of Cyprus.

MEnS

MEnS is a Horizon2020 project conceived in order to provide and enhance the nZEB skills of building managers, such as engineers and architects, through a series of accredited training activities developed by nine universities and three market players. The idea behind MEnS - Meeting of Energy professional Skills - originates from the need to provide answers and solutions to current problems faced by societies. Therefore, our proposal was, for instance, to take up the specific challenges in the field of skills upgrading for the professionals involved in the construction industry. The project was officially launched during a kick-off meeting held in Rome, Italy, on 29 March, 2015.



Czech Republic
National SG Platform

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Czech Republic Technology Platform Smartgrid

- Founded in: 2009
- No. of Members: 11
- Target Audience: All participants of energy market in Czech Republic
- Top competencies: Smart Metering | Demand Response | Integration of Renewables
- Our main goals: Be consulting capacity | Offer SG education | Prepare optimal SG concept for CZ | Promote SG concept
- Cooperation interests: International collaboration fora | Sharing of experiences from SG/SM implementation in EU | International SG/SM projects | Joint use of international research infrastructure

Who are we?

The Czech technological platform Smartgrid is an association of legal bodies open to any interested party with appropriate expertise. The association was founded at the end of 2009 as a response to the ED 72/2009. Members are, among others, a university, software houses, research institutes, a smart meter producer, a phase shift metering system producer and consulting companies.

Our mission and goals

Our mission is to establish an independent engineering and consulting capacity and to help prepare an optimal national smart grid/smart metering concept.

Our activities cover the following fields (beside educational and promotional activities connected with the concept of smart grid/smart metering): Market management, Trading and Settlement, Asset management and Maintenance (Smart maintenance of transmission grids), Generation management, Smart metering systems, Technologies (WAMS, WAMPaC), Automatic System of Voltage and Reactive Power Control, Automatic Voltage Controller, Group Voltage Controller, Dynamic models of Transients in Power Networks, Verification model for sensitivity analyses, Analyses and Dynamic Models of "Island".

Projects

Project ACMart

ACMart is a complex Asset Condition Monitoring system addressing the needs of Transmission System Operators (TSOs). ACMart increases reliability and safety of the transmission network and also reduces its maintenance and replacement costs.

ACMart automatically monitors and evaluates the condition of high voltage (HV) TSO equipment. ACMart covers almost all HV equipment in the transmission network. With the exception of power transformers, the system does not require additional installations of hardware sensors on every unit of the equipment. ACMart works fully in line with the latest trends of smart transmission networks and CIGRE initiatives. The ACMart software package components are:

- ACMart Platform: Kernel of the solution and the basic user working environment
- ACMart Extensions: Additional modules enhancing the ACMart functional features
- ACMart Plug-ins: Components enabling monitoring of individual event, values etc.

Project ASRU - Automatic System of Voltage and Reactive Power Control

The general power system is characterised by almost constant supply of reactive power of all the power plants involved in this system and by permanent, greater or lesser voltage fluctuations in the nodes (substation busbars) of the power system. Voltage fluctuation is resulting from the dynamic nature of the power system. Voltage fluctuation occurs at all voltage levels of the electricity system and is transmitted up to the end customer of electricity and adversely affects its quality. Fluctuation of voltage also has a negative impact on power system operation efficiency and security of the electricity supply to the end customers.

The project involves the methodology and realisation procedure to implement the Automation System of Power Network Voltage and Reactive Power Control (used for wind power plants as well). Several successful references in Europe.

Project Damas Power

Damas Power is a comprehensive electricity and heat generation management system built on the Damas platform. It was designed specifically to meet the needs of conventional generating facility operators, operating in open energy market environments.

Damas Power's major added value is to fully cover business-technical processes associated in particular with combined heat and power generation. Damas Power supports generation scheduling in multiple time cycles (year, month, day, intraday), the use of reserves to provide ancillary services, including operation scheduling and communication with the transmission system operator, as well as sales support and operation balancing based on evaluation of metered values.



Denmark
National SG Platform

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PowerLabDK

Founded in: 2012

No. of Members: 3 partners and over 400 users

Target Audience: Energy sectors (grid operators), technology providers, R&D Institutions, students, public authorities, various stakeholders

Top competencies: Demand Response | Market Integration | Storage | Privacy/Data Security | Integration of Renewables | Island Power Systems | Smart Cities | E-Mobility | Grid (infrastructure) Intelligence | Holistic Energy Concept

Our main goals: Support sustainable energy | Prepare optimal SG concept for the region

Cooperation interests: Workshops | Researcher exchange | Intl. collaboration fora | Joint proposals and projects | Joint publications | Summer schools | Joint use of intl. research infrastructure

Who are we?

PowerLabDK is an experimental platform for electric power and energy, which supports technology development, test, training and demonstration. It is a national GreenLab under the Danish Energy Agency - part of the Danish Ministry of Climate, Energy and Building. The facilities contain flexible test laboratories, large-scale experimental facilities and a complete full-scale power distribution system at the island of Bornholm, which is a data source and platform for full-scale and real-life experiments. Our customers include industries, energy companies, authorities, research institutions and students. Design, test and demonstration of: DER and flexible consumption; Power system stability, security assessment; Smart grid communication platforms; Integrated energy and microgrid systems; Electric power components, software and systems; SG appliances, sensors and actuators

Our mission and goals

Our mission is to provide internationally leading experimental facilities at all levels of electric power and energy, supporting cutting-edge research, technology development and education in order to meet the future needs of society and industry. Our vision is to be a driving force for groundbreaking new knowledge and innovative technologies related to electric power and energy created in a dynamic and open environment of collaborating researchers, professionals and students from companies and universities.

Projects

EnergyLab Nordhavn - New Urban Energy Infrastructures

The project utilises Copenhagen's Nordhavn as a full-scale smart city energy lab for the development and demonstration of future smart-energy technologies, innovative business models and new operational solutions at all levels - components, buildings, grid infrastructures and system level. The project provides a basis for the design and dimensioning of the future energy infrastructure in sustainable low-energy city districts, where electricity and heating, energy-efficient buildings and electric transport can be integrated into an intelligent, flexible and optimised energy system.

www.energylabnordhavn.dk

EcoGrid EU continues in ECOGrid2.0

The project EcoGrid EU demonstrates a real-time market concept in a large-scale field test on the Danish island of Bornholm. With 1,900 electricity customers and up to 100 industry/commercial buildings, Bornholm is an ideal field test site. Accordingly, the EcoGrid EU demonstration intends to show the potential of a power system balancing different kinds of electricity customers on this island.

The EcoGrid EU pilot test includes different demand response solutions for real-time activation of the flexibility consumption. The central part of the ICT real-time market place and systems is based on three robust and well-proven software developments and solutions developed by the industry partners IBM, TNO and Siemens. EcoGrid EU investigates the technical and commercial feasibility of 'state of the art' ICT solutions rather than constituting novel standards for the utilised hard- and software components.

EcoGrid2.0 is a national project that continues the development of a smart grid platform and tests the system robustness and market development.

www.eu-ecogrid.net

Secure Operation of Sustainable Power Systems (SOSPO)

The objective of the SOSPO project is to carry out research and development for the purpose of methods for a real-time assessment of system stability and security, as well as methods for intelligent wide-area prosumption control that can ensure stable and secure operation of the future power system.

The research in the SOSPO project focuses on methods that enable system stability and security assessment in real-time and on methods for automatically determining control actions that regain system security when an insecure operation has been detected.

www.sospo.dk



Denmark
National SG Platform

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SmartEnergy Networks RD&D

Founded in: 2013

No. of Members: 60

Target Audience: Decision-makers in the research and innovation system and in industry (system operators, production and distribution companies, trading companies and consumers)

Top competencies: Integration of Renewables | Holistic Energy Concept

Our main goals: Be a network | Support sustainable energy | Facilitate transition to SG/roll-out | Prepare optimal SG concept for country

Cooperation interests: Exchange of knowledge and experiences within analysis and roadmaps to prioritise and specify needs for future RD&D activities to develop the future smart energy system

Who are we?

SmartEnergy Networks is Denmark's national public-private partnership for Smart Energy. The network acts as catalyst and initiator of a strengthened strategic agenda for research, development and demonstration (RD&D) that will support energy policy goals as well as attractive and sustainable growth conditions for Danish trades and industries. The network brings together the Danish energy companies, industry and knowledge institutions from the fields of electricity, heating, cooling and gas.

Our mission and goals

The role of the SmartEnergy Networks partnership is to enable optimal exploitation of resources through strategic planning of research, development and demonstration of integrated and intelligent energy systems. The network is supported by the Energy Technology Development and Demonstration Programme (EUDP).

Projects

Vision for Smart Energy in Denmark

The Danish agenda for climate and energy is very ambitious aiming at a renewable-based energy system by 2050. The road to 2050 will not be easy - new technologies, architectures, markets, actors and business models need to be developed. This involves changes in the regulation of the energy systems and tax systems which allow for and support new business models and new consumption patterns.

This ambitious goal can only be achieved in a sustainable way through combinations of high energy efficiencies, integration of the various energy infrastructures (electricity, gas, heating and cooling), flexible energy consumption in buildings, industry and transport, and smart system operation.

The transition of the energy system requires rethinking the energy management and the way we use energy. It is essential that the overall design and solutions for the future smart energy system are cost-effective and, not least, socially acceptable and feasible.

Analysis of framework conditions for Smart Energy RD&D

SmartEnergy Networks is also working on an analysis of present and possible future framework conditions for Smart Energy RD&D that could support development and optimise the implementation of smart energy solutions.

Smart Energy Roadmap

The Smart Energy Roadmap focusses on the interaction between electricity, gas and district heating/cooling, parts of the transport system as well as the consuming and producing units. Recommendations for priorities in the Smart Energy RD&D effort in the short and the long term will be made in order to support a cost-effective, sustainable and secure transition of the energy system.



France
National SG Platform

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Think Smartgrids

Founded in: 2015

No. of Members: 80

Target Audience: All stakeholders of the smart grids sectors: businesses (SMB and big companies), academia and governmental bodies

Top competencies: Smart Metering | Demand Response | Market Integration | Storage | Privacy/Data Security | Regulation | Integration of Renewables | Island Power Systems/Cells | Distribution Network Solutions | Grid (infrastructure) Intelligence

Our main goals: Be a network | Offer smart grids education | Support sustainable energy | Be involved in developing national roadmaps | Promote smart grids concepts | Create long-term economic wealth | Create jobs | Support local industry

Cooperation interests: Joint work on European projects | Sharing of best practices and knowledge | Collaborative projects and communication

Who are we?

Established in April 2015, Think Smartgrids aims to develop the smart grids sector in France and to promote French solutions in Europe and around the world.

Think Smartgrids ensures the development of the French smart grids sector among the world's greatest economies. By means of its actions and the support it provides, the association hopes to create 10 000 direct jobs in France by 2020, and a revenue of 6 billion Euros (with 50% from export).

Our mission and goals

The Think Smartgrids Association is responsible for:

- Federating and developing the smart grids sector in France
- Promoting the sector in Europe and around the world
- Representing its members and their accomplishments among the industry's key stakeholders

Projects

The Meta Campus

In 2015, in order to create a Meta Campus, the Scientific Council of the Think Smartgrids Association selected and labelled four French university campuses based on their proven excellence. These four campuses form our Meta Campus.

With an interoperation between the four selected campuses (Paris Saclay, Sophia-Antipolis, Grenoble, and Lille), the next stage of the effort is to form a national distributed research, innovation, and training platform designed to serve the smart grid sector, which will also be a protected testing ground for the most innovative solutions. Being a unique platform, it will further strengthen the international standing of French academic and technological research.

Charter of Good Behaviour for SMB/big companies collaborations

This project aims to create and implement a Charter of Good Behaviour between SME and big companies to support trade relations in the smart grids sector.

This code of behaviour will cover three fundamental phases in SME's product lifecycles:

- R&D: the SME would bring forth the initial concept and big companies would help with co-developing these ideas.
- Innovation: the SME would provide a proof of concept. Cooperating big companies would take care of prototyping (experimentation).
- Business: the SME would develop the product and big companies would be responsible for the sales aspect.

Supporting SMB/big companies collaborations allows for a greater development of new products in the best possible conditions. Most notably, the integration of SME solutions into the international offer of big companies is strongly encouraged.

Cost/Benefits Studies - a New Methodology for the Smart Grids Sector

Thanks to the efforts of a working group, consisting of smart grid solutions manufacturers, electricity systems participants, academics and government agency players around RTE, including ADEME and the French Energy Regulatory Commission, there is now a methodological reference framework for conducting a comparative cost-benefit analysis of smart grids from the economic, environmental and social standpoints. The methodology can be applied to any context and any country.

Dedicated to a socio-economic assessment of smart grids and developed and shared by a wide range of players, a methodological framework like this allows comparing the value of smart grid functions on a uniform basis and creates added value to the industrial sector's consolidation.

The study summary is available upon request at thinksmartgrids@gmail.com.



Germany
National SG Platform

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SmartGrids Baden-Württemberg

- Founded in: 2013
- No. of Members: 64
- Target Audience: Energy industry, research institutes, industrial and private prosumers
- Top competencies: Regulation | Cells | Grid Intelligence | Industrial Prosumers
- Our main goals: Be a network | Project support | Facilitate transition to SG/roll-out | Be involved in developing regional roadmaps
- Cooperation interests: Best practice sharing | Guest authors for our new blog: www.blog.smartgrids-bw.net | Participants for our 2017 smart grids annual conference in Stuttgart (18+19th January), especially for the workshop session “Foreign Smart Grids Markets”

Who are we?

The members of SmartGrids Baden-Württemberg are companies from the energy industry, research institutes, key players in politics and industry, established large companies as well as startups from new fields.

Our mission and goals

The platform aims at promoting the smart grids infrastructure and related innovative smart grids products and services in RD&D with the long-term goal of a widely CO2-free energy generation.

The main purpose of the association SmartGrids BW (SmartGrids Plattform Baden-Württemberg e.V.) is to enable networking among our members in order to put the SmartGrids-roadmap of Baden-Württemberg into practice in the next few years.

Projects

SmartGrids-Route

The SmartGrids-Route is Germany's first online route planner for smart grids projects in southwest Germany based on Google Maps. Interested users will find profiles of each project and can learn more about smart grids in practice. The project leaders invite users to visit them on-site and plan individual smart grids visiting tours with the Google Maps application for route planning. The profiles are also available in English.

www.smartgrids-route.net

C/sells

The project C/sells is a showcase of the model region "Solar Area South Germany"; implementing a supra-regional smart grid infrastructure in a solar-dominated area. 63 partners - industry, research institutes and energy industry - situated in Bavaria, Hesse and Baden-Württemberg collaborate in order to put into practice Germany's largest operational smart grid. Within four years, 100.000 households shall be connected within the C/sells project.

The "C" in "C/sells" represents cells which are local network sections that act autonomously but are interconnected. "sells" stands for new business models which will be developed in order to initialise cooperations for a new branch.

www.csells.net

Task forces

SmartGrids BW offers several task forces with different core businesses. The members of the association can join the following:

- Task Force Business Models
- Task Force Technologies
- Task Force Grid and Security of Supply
- Task Force Regulation and Policy

This variety of task forces makes SmartGrids BW unique, as the only platform in Germany bringing together interests of different branches, consumers and prosumers as well as policy regulators.



Greece

National SG Platform

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Hellenic Technology Platform for Smart Grids (HTPSG)

- Founded in:** Establishment in progress, Interim SC formed in December 2014
- No. of Members:** Smart grids stakeholders in Greece
- Target Audience:** All stakeholders for smart grids in Greece
- Top competencies:** Demand Response | Storage | Integration of Renewables | Island Power Systems | Distribution Network Solutions | Grid Intelligence
- Our main goals:** Be a network | Project support | Be involved in developing national roadmaps | Promote SG concept | Promote technology and innovation
- Cooperation interests:** Joint projects | Joint webinars | At the local level, the Greek DSO, HEDNO, launched a series of workshops on smart grids to enhance the collaboration with Greek universities and research centers

Who are we?

The Hellenic Technology Platform for Smart Grids (HTPSG) aims to promote smart grid technologies in Greece by establishing a forum for promoting the vision and implementing strategies towards a smarter grid at a local level. HTPSG will act as a catalyst in the development of a national roadmap by bringing together utilities, industries, universities, research centres and all stakeholders related to smart grids in Greece.

Our mission and goals

The HTPSG will help local utilities and industries to collaborate with academia and research institutions by identifying and providing partnership opportunities at local and international level, mobilising local stakeholders to actively engage in international networks related to smart grids. HTPSG will actively cooperate with ETP SG and other local and regional platforms, as well as with other key stakeholders such as the European Electricity Grid Initiative (EEGI), the European Energy Research Alliance, the ERA-Net, ENTSO-e, EDSO-e and more.

Projects

Smart Grids activities in Greece are performed by HEDNO, Greek universities and research centres.

Distribution Network solutions

HEDNO has launched 12 projects in its 5 year strategic plan concerning SCADA and telecontrol, automation, island EMS, smart meters, etc. to modernise and smarten its distribution network.

Smart Meter and AMI

AMI of MV Customers and Smart meter deployment for large LV customers

HEDNO has completed a MV remote metering centre and collects remote meter readings from large MV customers and RES producers (~10.000) while 60,000 smart meters have been installed at large LV customers' sites with EU co-funding. HEDNO is evaluating the offers for its large pilot project concerning the installation of 160,000 smart meters in the homes of domestic customers in three selected regions.

HEDNO is evaluating the offers for its large pilot project concerning the installation of 160,000 smart meters in the homes of domestic customers in three selected regions.

Smart Grids small scale pilots within EC co-funded R&D projects

- Pilot application in Gaidouromantra on Kythnos island (PPC, CRES-NTUA) with 100% RES supply in 12 isolated households utilising PVs, batteries and advanced methods for load management within the framework of European RD&D programmes (MICROGRIDS etc, coordinator NTUA)
- Smart grid pilot application in the village of Meltemi near Rafina (PPC-NTUA) within the framework of the European RD&D Programme SmartHouse/SmartGrids (installation of smart load controllers)

Selected on-going EC co-funded R&D projects:

IGREENGrid - Integrating Renewables in the European Electricity Grid

HEDNO and NTUA are partners of IGREENGrid (Integrating Renewables in the European Electricity Grid) which focuses on increasing the hosting capacity for Distributed Renewable Energy Sources (DRES) in power distribution grids without compromising the reliability or jeopardising the quality of supply.

DREAM - Distributed Renewable resources Exploitation in electric grids through Advanced heterarchical Management

HEDNO and NTUA participate in the DREAM project, which lays the foundations for a novel heterarchical management approach of complex electrical power grids, providing new mechanisms for stable and cost effective integration of distributed RES, as well as for enhanced consumer involvement in economic and ecological electricity use.

INCREASE - Increasing the penetration of renewable energy sources in the distribution grid by developing control strategies and using ancillary services

INCREASE focuses on how to manage renewable energy sources in LV and MV networks, provides ancillary services for distribution system operators (DSOs) but also for transmission system operators (TSOs). The project aims at delivering tools and solutions to DSOs, in particular regarding voltage control and the provision of reserves.





Ireland
National SG Platform

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Smart Grid Ireland

Founded in: 2009

No. of Members: 21

Target Audience: Policy makers, regulators, energy companies, supply chain, public

Top competencies: Smart Metering | Integration of Renewables | Island Power Systems | E-Mobility | Distribution Networks Solutions

Our main goals: Support sustainable energy | Facilitate transition to SG/roll-out | Prepare optimal SG concept for country | Create long-term economic wealth for Ireland

Cooperation interests: Knowledge exchange and cooperation with other platforms

Who are we?

Smart Grid Ireland is a non-profit, all-island advocacy network for smart grids, also founding member of the Global Smart Grid Federation.

Our mission and goals

Our mission is to facilitate the delivery of a secure, affordable and sustainable energy infrastructure, positioning Ireland at the forefront of global smart grid development to create long-term economic wealth for the people of Ireland.

In support of this mission we will:

- Support rapid implementation of smart grid technologies in Ireland (North and South) by advocacy on relevant technologies and policy issues.
- Create avenues for dialogue and cooperation between the public and private sectors on issues relating to the deployment of smart grid technologies.
- Promote awareness and understanding of the benefits of smart grid solutions.
- Facilitate the collaboration of national and international bodies, industry and academia to conduct and foster research, development and demonstration in the application of smart grid technologies and to foster the exchange of ideas and best practices on energy issues.

Projects

The DS3 Programme: Delivering a secure, sustainable Electricity System

The Ireland and Northern Ireland power system is already operating with one of the highest percentage of renewables anywhere in the world, relative to the size of the system. As operators of an island power system, EirGrid and SONI are facing unique challenges with regard to management of the variability of the generation while maintaining power system stability and security. These challenges are not likely to be encountered in other larger systems for many years, allowing Ireland and Northern Ireland to lead the way in the integration of renewable generation.

The DS3 programme brings together many different strands, including development of financial incentives for better plant performance, and development of operational policies and system tools to use the portfolio to the best of its capabilities. Standards for wind farms and conventional plants are also being reviewed to give enhanced operational flexibility for the future.

www.eirgrid.com/operations/ds3

National Smart Metering Programme

The CER (Commission for Energy Regulation), working closely with the Department of Communications, Energy and Natural Resources (DCENR), established the National Smart Metering Programme (NSMP). The smart metering solution is one in which minimal functionality is performed on the smart meter while supplier back office systems perform the majority of data processing and hold 'Master' versions of key data sets. Real-time consumption data is provided directly into the home from the meter allowing customers visibility of their energy usage. Energy customers will be moved onto Time of Use (ToU) tariffs. The introduction of ToU pricing is a key component of the NSMP and will contribute significantly to realising the benefits and opportunities created by the rollout of smart meters. ToU tariffs will offer consumers the ability to use electricity at cheaper times.

www.cer.ie/electricity-gas/smart-metering

ESB ecars Ireland

ESB (Electricity Supply Board) established ESB ecars in 2010 to roll out the charging infrastructure for electric cars and vehicles across Ireland and to support the introduction and demand for electric cars nationally. ESB, as the single owner/operator of the electricity distribution system, is responsible for implementing this across Ireland. ESB will provide a home charge point to the first 2,000 applicants who qualify under the SEAI (Sustainable Energy Authority of Ireland) Electric Vehicle Grant Scheme. There are currently 1,200 public charge points available across the island of Ireland. This includes fast chargers which are located on all major motorways and interurban routes, approximately every 60 kilometres, connecting major towns and cities. Fast charging provides an EV with an 80% charge in as little as 25 minutes. The progress can be viewed on the electric car charge point map.

www.esb.ie/electric-cars



Smart Grids Italia

Italy
National SG Platform

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SMARTGRIDSITALIA

Founded in: 2014

No. of Members: 50

Target Audience: Industry (ICT; components, systems integrators; service providers); distribution operators; industry association and - in general - all stakeholders of the smart grid sector

Top competencies: Demand Response | Storage | Integration of Renewables | Reference Architecture | Smart Cities | E-Mobility | Education/Training/Seminars | Holistic Energy Concept

Our main goals: Be a network/Bringing SG stakeholders together | Knowledge sharing | Offer SG education/Share best practices | Prepare optimal SG concept for Italy | Support local industry | Standardised/modular products/solutions | Promote technology and innovation

Cooperation interests: Exchange best practices and project ideas | Methodology sharing | Stakeholder consultation | Joint webinars and events | Develop joint EU-funded projects

Who are we?

SMARTGRIDSITALIA is the Italian Industrial System for Smart Grids representing the Italian Excellences in Network. SMARTGRIDSITALIA fosters Italian smart grids industrial operators by directing them, firstly, to consider offering integrated standardised and interoperable products and solutions which are capable to fit modular applications in Italy as well as abroad and, secondly, to keep informed about smart grids technologies & initiatives at a national and international level.

Our mission and goals

Some of the main policy objectives of SMARTGRIDSITALIA are to promote national business clusters, to contribute to the development of standardised products/solutions which are tested in testing facilities and demonstrated on the Italian grid to define quality brands, as well as to facilitate the sharing of experiences, good practice and regulatory updates.

The focus of SMARTGRIDSITALIA is the interoperability between devices and systems in the field of smart grids which can be obtained through the use of standard architectures and application development based on advanced standardised approaches.

Projects

Implementation of demonstration projects and interoperable systems testing

SMARTGRIDSITALIA works on demonstration projects consisting of pilot smart plants developed in a specific geographical area (different territorial levels could be taken into consideration, namely a quarter, a city and a whole territory). These projects are characterised by the presence of distributed energy generation from renewable sources and communications infrastructures with a boost potential for different technologies. Different demonstration fields could be implemented (e.g. integration of renewable energy sources, smart grids applications for energy efficiency, electric mobility, optimised electric distribution grid management and new innovative market rules).

Different smart grids technologies adopting Distributed Energy Resources (DER) and grid control strategies could be tested in test facilities for the integration, interconnection and performance of interoperable systems and components of smart grids.

Deployment of Pilot Projects

National energy regulators have been supporting pilot projects in the distribution network in the past four years focusing on: increasing the hosting capacity of DG of active distribution networks as well as developing a business model for electric vehicles regarding a public recharge infrastructure and energy storage systems. The results have been analysed, presenting new and useful data. Furthermore, new incentives have been defined for the deployment of the pilot projects including important aspects regarding the Smart grids stakeholders.

Smart Cities Project

The smart cities project deals with the energy efficiency of buildings (e.g. wall insulation, better use of energy), general welfare and efficiency (e.g. traffic control, air quality monitoring, and telecommunication growth). Smart grids are considered an integral part of the planning, particularly in terms of integration of renewables, energy monitoring and efficiency and electric mobility.

All the projects mentioned above will be supported by SMARTGRIDSITALIA, taking into consideration the fundamental role of technology providers' interoperable solutions and components in the implementation of the projects.



SMART Grids
LATVIA 

Latvia
National SG Platform

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Smart Grids Latvia

Founded in: 2014

No. of Members: All Stakeholders for smart grids in Latvia

Target Audience: Electricity grid stakeholders in Latvia

Top competencies: Smart Metering | Demand Response | Market integration | Integration of Renewables | Reference Architecture | Smart Cities | Home intelligence | Distribution Network Solutions

Our main goals: Be a network | Knowledge sharing | Project support | Offer SG education | Facilitate transition to SG/roll-out | Be involved in developing national roadmaps | Prepare optimal SG concept for Latvia | Support local industry | Promote technology and innovation

Cooperation interests: All kind of international cooperation in the national interest | Active engagement in international networks related to Smart Grids

Who are we?

The SGL was established on the basis of the Smart Grid Research Centre at the Institute of Physical Energetics with the aim to support innovation for businesses by identifying and providing partnership opportunities at a local and international level

Our mission and goals

SGL's mission is to develop a national roadmap related to smart grids by identifying the best technological solutions for the Latvian power system, promoting technology transfer and providing best practices in smart grid education.

The main goals of SGL are:

- bring together views and efforts of all national smart grids stakeholders
- identify best technology solutions for national application
- actively cooperate with ETP SG and other local and regional platforms, as well as with other key stakeholders like the European Electricity Grid Initiative (EEGI), European Energy Research Alliance, the ERA-Net, ENTSO-e, EDSO-e and more.

Projects

ELECTRA, FP7 IRP (European Liaison on Electricity Committed Towards Long-term Research Activities for Smart Grid), project partner

The wholesale deployment of renewable energy resources connected to the network at all voltage levels will require radically new approaches for real-time control that can accommodate the coordinated operation of millions of devices of various technologies at many different scales and voltage levels, scattered across EU grid.

ELECTRA will establish and validate proofs of concept that utilise flexibility from across traditional boundaries in a holistic fashion. An elaborated new control concept is needed to develop and test vertically-integrated control schemes reinforced with horizontally-distributed control schemes to provide for a dynamic power balance that is closer to its equilibrium value than a conventional central control scheme.

www.electrairp.eu

CloudGrid, ERA-Net Smart Grids Plus (Transnational CLOUD for Interconnection of Demonstration Facilities for Smart Grid Lab Research & Development), project partner

This project addresses the common European challenge of the integration of RES into the grid, as well as assessing the new market architectures and the role of the consumer from the perspective of

- Grid system stability
- Ancillary services and energy management system
- Converter interoperability. The smart grid lab facilities of the consortium partners will be interconnected through a transnational smart grid cloud to facilitate the validation of concepts through the results derived from testing in different environments and with various equipments.

The transnational cloud will lead to a stronger promotion of demonstration and piloting in the field of smart grids, as well as an increase of knowledge sharing between members. Further on, all work packages in the project will be utilised for inter-lab validation leading to an increased focus on integration, scale-up as well as providing a foundation for the replication of test-results in different settings.



Netherlands
National SG Platform

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TKI Urban Energy

Founded in: 2012

No. of Members: 400

Target Audience: Companies in the (new) energy business, academia, DSO's, (local) energy initiatives and (local) governmental bodies

Top competencies: Demand Response | Market Integration | Integration of RES | Distribution Network Solutions | Net-zero buildings | Flexible energy infrastructures | Energy management and energy services

Our main goals: Be a network | Knowledge transfer | Project support | Be involved in developing national roadmaps | Innovation programmes

Cooperation interests: Reference architecture | Privacy and data security

Who are we?

The Topconsortium for Knowledge and Innovation (TKI) Urban Energy (UE) is a public private partnership on the area of urban energy. UE (since 2015) is a merger of the former TKI's (2012-2015) Switch2SmartGrids, Solar Energy and Energy for the built environment.

Smart energy systems and smart grids are experiencing a turbulent development with 50 projects running. Half of them are demonstrations in realistic environments: household equipment, heat pumps, solar panels, electric vehicles, storage, homes in districts, companies on industrial parks and DSO assets are connected. They supply and use services and flexibility to and from each other in order to integrate renewables and to optimise the energy system.

Our mission and goals

The long-term agenda of TKI Urban Energy consists of three items:

- Being an innovation platform for urban energy technologies, including smart energy systems and smart grids, from RD&D up to market application.
- Actively stimulate cooperation between companies, academia and governments (match making), create critical mass for selected topics and support innovation projects.
- Create an 'eco system' at both local and international level, and organise knowledge transfer.

Projects

Universal Smart Energy Framework (USEF)

USEF describes an integral market for ‘flexibility’ that enables smarter solutions for energy exchange to the benefit of every actor in the system. The USEF Foundation has been established to drive the fastest, most cost-effective route to an integrated smart energy future. It delivers one common standard on which to build all smart energy products and services and it unlocks the value of flexible energy use by making it a tradeable commodity. USEF fits on top of most energy market models, extending existing processes to offer the integration of both new and existing energy markets.

The USEF framework outlines the approach to a flexible market design. This framework includes a description of the structure, market roles, tools and rules. The specifications deliver technical guidelines for the implementation of an optimised market-based smart energy system. They include, for instance, privacy and security guidelines, such as the USEF’s definition for balancing consumer confidence with security of supply while complying with the new European general data protection regulation. A reference implementation to accelerate large scale deployments is publicly available. The USEF framework has been launched in November 2015. Two pilot projects to test USEF under real-life conditions have been started.

Partners: ABB, Alliander, DNV GL, Essent/RWE, IBM, ICT, Stedin

www.usef.energy

Flexible and future power links for smart grids (FLINK)

The objective of FLINK is the increase of the flexibility and control of the distribution grids, particularly at the lowest voltage levels. For this increase, the feasibility of reconfigurable DC links will be investigated. A novel concept based on utility-interactive power electronics equipped with appropriate control algorithms will be developed to increase grid capacity and control and steer the power flow within the network. Thus, a larger number of new renewable technologies can be integrated in the future energy system at acceptable costs and without the direct need for consumer engagement.

Partners: DNV GL, TU Eindhoven, TU Delft, EMForce, Early Minute, Alliander, Stedin

Energy management in industrial park in Limburg (KOEMPEL)

KOEMPEL is a demonstration investigating the possibilities of demand response in an industrial park to mitigate investments for the HV-MV transformer that supplies the electricity for the park. The flexible loads of the participating companies will be connected to software enabling these loads to be reduced when the load of the transformer approaches a peak.

The CIREP paper 1124 (June 2015) shows a positive perspective. Companies asked to reduce their load experienced limited inconvenience. Extrapolation of the results until today indicates it is possible to reduce the load of the transformer during peak moments significantly.

Partners: Laborelec, TU Eindhoven, CoE Neber, Cofely



Norway
National SG Platform

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Norwegian Smartgrid Centre

Founded in: 2010

No. of Members: 46

Target Audience: Industry, Research Institutes, Education, Government

Top competencies: Advanced Metering Infrastructure | Demand Response | Private & Industrial Prosumers | Storage | Market Integration | Grid Intelligence | Distribution Network Solutions | Island Power System | E-Mobility

Our main goals: Bring SG stakeholders together | Promote SG concept | Facilitate transition to roll-out | Develop roadmaps | Promote technology & innovation

Cooperation interests: Demand Response & Prosumers | Big Data | Smart Cities | Island Power Systems | Storage

Who are we?

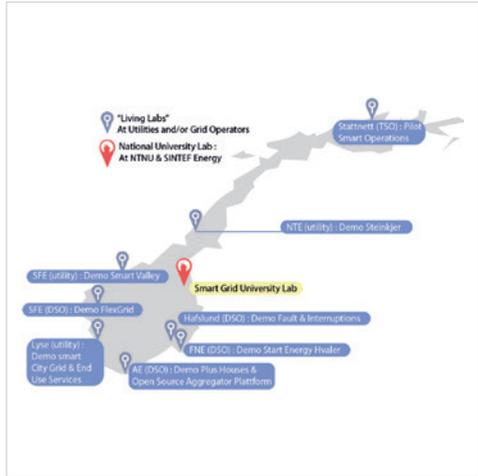
The Norwegian smart grid technology platform (NSGC) has members from power companies, telecom and the supply industry as well as universities and research institutes. The platform promotes research and development, education, demonstration projects and commercialisation of the smart grid. A key priority is the coordination of the Norwegian Demonstration programme for smart grids, “Demo Norway”, with “real-life” demonstration sites at power companies comprising more than 20,000 network customers and one national smart grid laboratory at NTNU/SINTEF. Such a demonstration programme is needed to successfully address the novel integration challenges identified by the new EU SET-Plan: *the consumer becomes active and is put at the centre of the energy system; a demand focus that increases energy efficiency across the energy system; an energy system optimisation leading to a secure, cost-effective, clean and competitive energy supply.*

Our mission and goals

Facilitate the collaboration of national and international bodies, industry and academia to conduct and foster research, development and demonstration in the application of smart grid technologies. The NSGC will actively cooperate with ETP SG and other national platforms as well as with other key stakeholders such as ETIP SG and Storage, the European Energy Research Alliance, the ERA-Net, the Global Smart Grid Federation and more.

Projects

Historically, hydro power has been the main energy source for electricity generation in Norway. 98-99% of the total electricity generation is hydropower-based. Due to this fact, it is not on the Norwegian smart grid agenda to convert fossil-based electricity generation to renewable generation. But as Norway is committed to fulfil the European Renewables Directive, 67% of the total energy use in Norway should be based on renewable energy by 2020 which requires an increase in renewable electricity generation to substitute the use of fossil-based energy in industry (on-shore and off-shore) and in transport. In total, Norway's power system and markets are well positioned for a future smarter and more renewable power and energy system, yet, there is still the need to develop national-specific, cost-efficient and smart solutions for some barriers such as weak grids within the LV system.



The NSGC coordinates 7 national smart grid demonstration projects in which 6 are executed by regional DSO's and one is executed by the Norwegian TSO.

Selected ongoing demonstration projects:

Demo Smart Energy Hvaler: Consists of 6800 customers in an island community. The demo focuses on developing and testing enhanced network utilisation, end user flexibility, residential PV and storage solutions, prosumers, local energy market solutions.

Demo Steinkjer: Energy companies, vendors, researchers, customers and governmental bodies can test smart meters, communication, system services, and other products on 800 end users consisting of ordinary households, commercial companies and industry. Flexibility of end users, value added services for DSOs, dynamic tariffs schemes, and feedback solutions to customers of Smart Meter Data are particularly in focus.

Demo Lyse Customer Services & Demo Smart City Grid: Testing of new energy services for residential customers. Gateway rollout to >150,000 customers as a new service platform. Testing of 25 smart secondary substations, combined with smart meter information, data processing and integration into a new DMS.

Demo Hafslund Grid Faults and Interruptions Handling: Installation of sensors capable of detecting grid faults; information about grid faults from sensors connected to the control system. Combination with various measurements in the grid for calculation of the distance to the fault location. A new methodology for calculation of costs and benefits.

Demo BKK Flexible Grid Operation: Monitoring equipment and control of MV/LV substation where special loads are connected, e.g. charging stations for EV, prosumers, tram, charging of electric ferry/ships; evaluation of energy storage as an alternative to grid investments; remote control of power switches and smarter control the power supply to small islands; DR as an alternative to grid investments (industry customers).

TSO Pilot North Norway: Load management and smart system operation on the basis of the monitoring and control of 200 load objects. Executed in cooperation with local DSOs.

Smart Grid National Laboratory: Equipped with advanced infra- and control structures with high modularity to simulate different scenarios in a realistic setting. Regional facilities and demonstration sites will be linked to the central laboratory by a high speed communication system via remote access.

http://smartgrids.no/demo_norge



Poland
National SG Platform

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Smart Power Grids Poland Consortium

- Founded in:** 2010
- No. of Members:** 15 (6 scientific community, 9 business)
- Target Audience:** TSOs, DSOs, smart power grid infrastructure vendors, ICT hardware & software & service providers, science and research centres
- Top competencies:** Smart Metering | Storage | Privacy/Data Security | Integration of Renewables | Distribution Network Solutions | Education
- Our main goals:** Be a network | Be consulting capacity | Offer SG education | Support sustainable energy | Prepare optimal SG concept for country | Fundraising for research work | Standardized/modular products/solutions | Promote Technology and Innovation | Data Protection | Reduction of Black-outs
- Cooperation interests:** Sustainable energy (smart power grids, renewable energy sources, energy storage, etc.) | Innovative technologies and industrial processes (ICT, big data, cyber security, etc.)

Who are we?

The Smart Power Grids Consortium, led by the Wrocław University of Technology, brings together a wide range of highly qualified partners with the necessary experience in conducting research, development and commercialisation of research results and aims at the development of innovative technologies related to smart power grids.

Our mission and goals

Among other goals, the partners of the consortium aim at realising the SG concept in Poland, supporting research, standardisation and educational activities. A further focus is the commercialisation of research results.

In terms of R&D, the consortium is active in the fields of sensors and advanced metering infrastructure for efficient network operation with all participating players. Other topics of interest are storage technologies as well as reduction of blackout risks. Cyber security is also considered in order to ensure safe data procession in smart grids.

Projects

Data transmission efficacy in the PLC technology in LV and MV power grid

The aim of the project is to analyse selected PLC technology in terms of data transmission efficacy in power grids which is done through: analysis of the data transmission depending on the type of power grid; appointment of the conditions of data transmission in which a PLC technology is optimal; methods of optimal technology choices for a pointed PLC grid fragment.

Expected project benefits include: reducing the cost of deploying smart metering systems by DSOs; use of PLC technology to launch e-services, eg. demand management, emergency power lowering systems; minimising the “misguided” investments undertaken by T/DSOs.

Smart Power Grids Competence Centre

The Competence Centre is running at the Faculty of Electrical Engineering at Wrocław University and is part of the initiative IATI (Institute of Technology and Innovation) founded in 2014 by the Wrocław University of Technology and the AGH University of Science and Technology. It unites universities and companies interested in joint research projects.

The Smart Power Grids Competence Centre’s activity involves 15 institutions who are the members of the Smart Power Grids Consortium. The Competence Centre focuses its research and development activities on the field of energy, cogeneration and rationalisation of energy, cyber security, as well as ICT.

We would like to invite you to the cooperation.

Smart Power Grids Postgraduate Studies Department

Programme participants are provided with useful knowledge regarding energy business management using new technologies. The classes are conducted as an extramural programme in the form of lectures and auditorium exercises. Particular emphasis is put on engineering education in terms of understanding aims, rules and ways how to realise smart power grids, as well as on ensuring the exchange of experiences and a standard arrangements forum. The final thesis should cover an issue concerning the participants’ business problems. The programme has didactic and practical character and targets medium and top-level managers as well as engineers of the professional power industry, power departments in industrial enterprises and IT companies serving the power sector.

The development of distribution networks based on hybrid renewable energy resources

A concept for the Polish power system based on hybrid renewable resources with storage as an integral part is developed and implemented. This allows smoothing the load curve and an effective use of DSM. The desired project result is the development of a modern solution demonstrator for the distribution network which significantly increases the efficiency of renewable resources.

Advantages from the implementation are the ability to reduce load peak in the power system; the possibility of reducing electricity losses in the distribution network/energy saving; improving the efficiency of the power system and the ability to reduce CO₂ emissions.

We are open to cooperation in this project.



Tehnološka platforma za
PAMETNA OMREŽJA

Slovenia
National SG Platform

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Slovenian Technology Platform

Founded in: 2006

No. of Members: 39

Target Audience: Industry, utilities, R&D

Top competencies: Smart Metering | Demand Response | Storage
| Privacy/Data Security | Regulation |
Integration of Renewables | Smart Cities |
Distribution Network Solutions

Our main goals: Be a network, bringing SG stakeholders
together | Project support/find collaboration
opportunities | Be involved in developing
national/regional roadmaps | Ensure reliable
supply of customers (long-term) | Support local
industry | Promote technology and innovation

Cooperation
interests: Joint projects | Joint workshops | Regional
cooperation

Who are we?

The Slovenian platform for smart grids unites stakeholders from all sectors related to smart grids. The platform consists of representatives from industrial enterprises, companies of the electricity sector and research institutes. The overall purpose of all stakeholders and the fundamental purpose of the platform is to promote the concept of smart grids, ensuring a safe, reliable, inexpensive and sustainable electricity supply for the Slovenian customer.

Our mission and goals

The main goals of the national Technology Platform for smart grids are:

- to decrease long-term investments in the distribution network
- to enable the domestic industry to develop niche solutions for a breakthrough in the global market
- to pursue the long-term environmental goals to which Slovenia is committed to
- to ensure a long-term reliable supply for customers.

Projects

Slovenian-Japanese Smart Grids demonstration project

The project is at the beginning of the implementation phase. It is planned to cover smart grids systematically, focusing mainly on voltage regulation, demand response and energy management systems. The main goals will be lower investments in the primary infrastructure, lower costs of system services and lower energy costs for final consumers.

SUMO - A System for Real-Time and Short-Term Forecast Assessment of Operational Limits for Slovenian transmission system operator

This system, which is in test operation at the Slovenian TSO ELES, enables better utilisation of the already existing infrastructure by applying dynamic operational limits according to weather conditions on specific power lines.

KC SURE Competence Centre: Advanced Systems of Efficient Use of Electrical Energy

This project represents a comprehensive treatment of the problems of the active networks in Slovenia, from power generation to its distribution and consumption, to establish a concept of active networks. This enables the verification of the solutions on parts of the Slovenian electricity network and confirms the suitability of newly developed partner products to be engaged in the active electricity networks of the future. The accurate evaluation of newly developed concepts in real-world conditions allows industrial partners the testing and final specification of the newly developed solutions.

<http://www.sure.si/en/projekt/informacije-o-projektu>



Spain
National SG Platform

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FUTURED

Founded in: 2005

No. of Members: 125

Target Audience: Electricity grid stakeholders at Spanish level
- utilities, companies, research organisations, universities, associations, public administration and more

Top competencies: R&D | Distribution Network Solutions | Smart Cities

Our main goals: Be a network | Project support | Support sustainable energy | Independence from foreign energy | Promote Technology and Innovation

Cooperation interests: Thematic Workshops & webinars | Joint projects | European capabilities map

Who are we?

The Spanish Technological Platform of Electrical Grids FUTURED was created for the purpose of integrating all of the agents involved in the electricity sector to define and promote strategies at the national level to allow the consolidation of a much more advanced network capable of responding to the challenges of the future.

FUTURED was formed in October 2005 as a meeting point and a common forum for dialogue to allow greater mutual understanding among its member organisations and bodies, to identify potential opportunities for collaboration, to define a shared vision, and if necessary, defend a common position in relation to their target audience.

Our mission and goals

The Spanish Electrical Grid Platform was created to foster the technological evolution of Spanish electricity transmission and distribution systems in order to promote technological leadership, sustainable development and to increase competitiveness.

FUTURED tries to achieve the main objectives of the Spanish energy policy by increasing the independence from foreign energy and consistently reducing the environmental impact caused by electrical system infrastructures. The primary strategies to achieve these objectives consist of saving and using energy rationally via the most effective electrical systems and taking greater advantage of domestic resources

Projects

Three flagship projects in the field of smart grids (transport and distribution) have been promoted in Spain with promising results for the future.

Price

PRICE aims to give an answer to the technological challenges worldwide regarding the next generation of electrical systems which include the aging of systems and electrical infrastructure, the growth in demand for energy supply, the increasing presence of renewable energy sources, the integration of electric vehicles (EV) in the network and the need to improve the security of energy supply. This initiative covers different areas in order to develop a smart grid within a framework of efficiency, security and sustainability. (www.priceproject.es/)

ESP-LIDER Project: Redirection of Power Flows

It consists of high voltage equipment for controlling the electric current flows that travel through an electricity line. The overall objective of the project is the development of technologies based on power electronics, specifically FACTS (Flexible AC Transmission Systems) and HVDC (High Voltage DC), capable of maximising the utilisation of the current electricity grid to achieve mass integration of renewable energies. (www.ree.es/en/red21/rdi/rdi-projects/redirection-power-flows)

Smart City Málaga

Smart City Málaga Project is Europe's largest eco-efficient city initiative covering 4 km² and involving some 11,000 domestic and 1,200 industrial and service customers. It aims to increase energy efficiency, reduce CO₂ emissions and boost the use of renewable energy sources. Currently, the zone has around 11 MW of renewable generation capacity including solar and wind generation as well as a cogeneration facility. It is a living lab with technologies of smart metering, communications, network automation, generation and storage, and smart recharging infrastructure for e-vehicles.

www.endesa.com/en/aboutEndesa/businessLines/principalesproyectos/Malaga_SmartCity

Technological capacities for networks

FUTURED carries out the mapping of the infrastructure and capabilities of the research centres, universities and companies involved in the platform, which currently consists of 52 technological capacities for networks and storage.

www.futured.es/en/capabilities

Development of the smart grids in Spain

FUTURED performs studies to quantify the impact of smart grids in macro-economic terms. Together with The Boston Consulting Group, this report analyses such impact at national level for the next 10 years.

Vision reports towards 2030

FUTURED publishes reports establishing the perspectives on the development of smart grids and smart cities from the technological platforms' perspective in order to contribute to their future needs.



Switzerland
National SG Platform

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Association Smart Grid Switzerland

Founded in: 2011

No. of Members: 12

Target Audience: Members, energy sector

Top competencies: Smart Metering | Market Integration | Privacy/
Data Security | Integration of Renewables |
Distribution Network Solutions

Our main goals: Be a network | Knowledge sharing | Offer SG
education | Facilitate transition to SG/roll-
out | Prepare optimal SG concept for country
| Create long-term economic wealth for
Switzerland

Cooperation
interests: Joint webinars | Managing smart grids
| Storage | Interface grid-home | Data
communication

Who are we?

The non-profit Association Smart Grid Switzerland aims at the engagement of its members to support a common Swiss smart grid. The objective is to build a common understanding and to use synergies towards smart grids in Switzerland. Members of the association are 12 of the bigger DSOs in Switzerland, covering 50% of the end customers. In addition to the initial White Book Smart Grid the extended update White Book Smart Grid Vol. 2 has been published at beginning of 2016. The association is organised in working groups.

Our mission and goals

The Association Smart Grid Switzerland aims at the commitment of its members to promote a common Swiss smart grid solution. The goals are:

- The interoperability and compatibility of smart grid devices and systems is ensured via an open, vendor-independent Swiss industry standard. This industry standard is based on international standards.
- The resulting solution can serve as a basis for new innovative offerings and services on the Swiss energy market.
- The Swiss smart grid can be built cost-effectively and with farsightedness.
- The interests of all stakeholders can be optimally included.

Projects

Data hub for supplier change processes

The data hub project investigates, whether and how a central data hub for the organisation of the supplier change processes can be implemented. This is considered as basic preparatory work for the market liberalisation expected to come in the next years. At the moment, the implementation of a data hub is a common initiative among most of the members of the association, without any regulated obligations.

Working Group Smart Grid

The working Group Smart Grids performs common investigations of the distribution network regarding expected changes in the electricity industry. Hereby, the focus is on the integration of distributed power generation. Work items are:

- investigation of impacts and measures
- network simulation and comparison for large integration of distributed generation
- investigation of additional smart functionalities in transformer substations

Working Group Standardisation and Communication

The working Group Standardisation and Communication performs common investigations of communication requirements and solutions for identified use cases including:

- Smart Metering
- Smart Grid
- Smart Market

Besides well-known communication technologies, PLC solutions (power line communication) are in the focus.

Working Group Standardisation and Communication

The working group Smart Market is working on the creation of a causal market model including electricity grid and market issues. Currently, the focus is on the coupling between the grid and the market in both directions.



Smarter^{UK}
techUK's Smart Infrastructure Initiative

United Kingdom
National Smart
Infrastructure Platform

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SmarterUK

Founded in: 2015 (previously Smart Grid GB founded in 2012)
No. of Members: 35
Target Audience: Policy makers, regulators, energy companies, supply chain
Top competencies: Smart Metering | Smart Cities | Home Intelligence
Our main goals: Champion smart infrastructure developments | Demand Side Response | Support energy storage | Drive concept of smart cities in UK context | Bring SG stakeholders together | Drive a sustainable low carbon economic transition
Cooperation interests: Joint projects | Joint webinars | Information exchange

Who are we?

SmarterUK is an initiative of techUK, the UK's technology trade association. We are a champion of smart infrastructure deployments in the UK and a champion of UK companies who are providing smart solutions.

Our mission and goals

Our mission is to connect those parts of the UK economy on the cusp of the 'smart' revolution in order to drive the uptake of solutions and a sustainable, low carbon economic transition whilst delivering value to the country and the quality of life of its citizens.

Our objective is:

- to champion the economic, environmental and societal benefits that smart infrastructure (focusing primarily on transport, energy & utilities and smart cities) solutions can deliver to UK plc and its citizens.
- to promote a policy and regulatory environment that stimulates the growth of smart solutions across key industries.
- to bring together the social and economic value chains to address challenges facing smart infrastructure development.
- To drive conditions that make the UK a global powerhouse in the development of smart infrastructure and the export of products and services.
- To act as a forum for stakeholders and interested parties to promote their activities and disseminate their outputs.

Projects

Smart Metering Programme

This national programme strives for the deployment of smart meters to all households in Great Britain by 2020. As part of the roll-out, the Data Communications Company (DCC) has been established, which is regulated by Ofgem. The DCC will provide the wireless network that will allow information from household smart meters to be transmitted to suppliers, network operators and other external parties such as energy advice companies. Organisations using the DCC will be bound by a number of rules. Real-time data on energy consumption will be provided to the consumer via an in-home display (IHD). Over time suppliers will offer users time-of-use tariffs. Pilots in the UK have shown that these tariffs can result in a decrease in individual energy consumption of 10% in busy periods.

Smart Energy City Projects

Several cities are interested in setting up a public-interest organisation that will coordinate the smart use, distribution and supply of power across their footprint for the benefit of citizens and businesses. This involves the integration of renewables, monitoring and electric mobility. See, for example, Bristol Smart Energy Collaboration.

Contact Information



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Working Groups and Task Forces

WG1 Network Operation and Assets Venizelos Efthymiou, EAC
WG2 Energy Storage and Grid Integration: Jean-Baptiste Bart, EDF R&D
WG3 Demand Side, Metering and Retail: Maher Chebbo, SAP
TF Resilience and Security of Supply: Goran Strbac, Imperial College London
TF Smart Metering for Network Operation: Miguel Sánchez-Forníe, Iberdrola
TF Vision on the Future of Utilities: Thierry Pollet, Landis+Gyr

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