



## 3<sup>rd</sup> SmartGrids ERA-Net Call for applied research proposals

Application deadline: 01.09.2013, 17:00 CET

### Involved funding agencies:

The Research Council of Norway

Energinet.dk

NCBR in Poland

The Environmental protection and energy  
efficiency Fund (FZOEU) in Croatia

The Swedish Energy Agency

The Scientific and Technological Research  
Council of Turkey – (TUBITAK)

## Summary

In order to support joint research on European smart grids, the EU's initiative SmartGrids ERA-Net launches a 3<sup>rd</sup> call for research projects. At least three partners from three different participating countries must participate in each project. Nordic Energy Research is facilitating the call process on behalf of the participating national funding agencies. The call is organised in a two-step process.

### 1. The objectives of the SmartGrids ERA-Net

The SmartGrids ERA-Net (2008-2012) is an EU initiative that aims at contributing to European research cooperation in the area of smart grids. It provides co-ordination of related research activities within national public (co)funded research and development schemes. The initiative creates a network of programme managers, closely connected to policy makers and industry that undertakes joint activities.

The SmartGrids ERA-Net is actively cooperating with existing smart grid activities organised under the SET-plan/EU Electricity Grid Initiative (EEGI) and the European Technology Platform (ETP). In addition, an alignment with the existing FP7<sup>1</sup> ongoing research projects will be sought.

One instrument within the SmartGrids ERA-Net is joint calls. In the 3<sup>rd</sup> call, projects are encouraged to contribute to the fulfilment of the:

- EEGI-roadmap, <http://www.gridplus.eu/>
  - ENTSO-E Implementation plan 2014-2016
  - ENTSO-E Research & Development roadmap 2013-2022
- ETP-strategic research agenda from 2012, <http://www.smartgrids.eu/documents/sra2035.pdf>

### 2. General information about the 3<sup>rd</sup> SmartGrids ERA-Net call

#### 2.1 The aims of the 3<sup>rd</sup> call for proposals

The aims of the 3<sup>rd</sup> SmartGrids ERA-Net call are to:

- Generate joint European relevant applied research activities on smart grids with focus on the thematic areas specified in section 2.3;
- Create added value to national R&D activities in the field of smart grids through planned transnational cooperation for the benefit of public funding agencies, scientists, the environment, industry, regulators, utilities and society;
- Bring together different national research communities, industry and actors within distribution/transmission to create a critical mass for cross-disciplinary research;
- Complement R&D activities in FP7.

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<sup>1</sup> [http://ec.europa.eu/research/fp7/index\\_en.cfm](http://ec.europa.eu/research/fp7/index_en.cfm)

## 2.2 A definition of a smart grid

SmartGrids ERA-Net uses the same definition of a smart grid as is being used in the Strategic Deployment Document (SDD)<sup>2</sup> of the SmartGrids Technology Platform:

*A SmartGrid is an electricity network that can intelligently integrate the actions of all users connected to it - generators, consumers and those that do both – in order to efficiently deliver sustainable, economic and secure electricity supplies.*

A SmartGrid employs innovative products and services together with intelligent monitoring, control, communication, and self-healing technologies to:

- better facilitate the connection and operation of generators of all sizes and technologies;
- allow consumers to play a part in optimizing the operation of the system;
- provide consumers with greater information and choice of supply;
- significantly reduce the environmental impact of the whole electricity supply system;
- deliver enhanced levels of reliability and security of supply.

SmartGrids deployment requires power technology, market, commercial and environmental considerations, regulatory framework, standardisation, ICT (Information & Communication Technology), migration strategy as well as societal requirements and governmental edicts.

## 2.3 Preferred focus areas and scientific content

The 3<sup>rd</sup> SmartGrids ERA-Net call is open for project proposals which fit into the five main thematic areas listed below.

- Energy efficient operation of active distribution networks;
- Smart retail and consumer technologies and services including smart metering hereunder costs& benefits, customer aspects, user behaviour and flexible demand and energy management strategies in and energy market environment;
- Information and communication technology (ICT) tools for smart grids;
- Interface between the grid and the end users including aspects related to security, privacy, regulation and business cases;
- Storage and balancing.

In a proposal the connection and support of the EEGI-roadmap, the SET-plan, or the ETP-strategic research agenda should be explicitly specified.

Please refer to the ETP-SmartGrids Strategic Research Agenda 2035<sup>3</sup> for more detailed information of prioritised research topics.

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<sup>2</sup> [http://www.smartgrids.eu/documents/SmartGrids\\_SDD\\_FINAL\\_APRIL2010.pdf](http://www.smartgrids.eu/documents/SmartGrids_SDD_FINAL_APRIL2010.pdf)

<sup>3</sup> <http://www.smartgrids.eu/documents/sra2035.pdf>, page 56 and 61.

## 2.4 Involved countries/regions and programmes

The countries and funding agencies participating in this 3<sup>rd</sup> SmartGrids ERA-Net call are Croatia, Denmark, Norway, Poland, Sweden and Turkey.

## 2.5 Funding arrangements

Research will be funded from national sources and will be subject to national funding rules. Each participating funding agency has made separate arrangements for funding the national participants. The public funding available for the individual projects funded in the frame of this call follow national rules. Additional co-financing from stakeholders is expected following national and European rules for R&D funding. The total funding budget is limited to €3 200 000. For details and possible national restrictions concerning eligibility and preferred topics please contact your national/regional agency, see page 8 in this document. In Appendix I, a table of the main national topical interests is shown.

Public funding from the 3<sup>rd</sup> SmartGrids ERA-Net call partners will be provided as shown in Table 1.

Table 1: Countries, funding levels and links to the programmes participating in the 3<sup>rd</sup> SmartGrids ERA-Net call

Country /region	Funding body	Approx. 3 <sup>rd</sup> call funding in €	Link to relevant funding programmes
Norway	Research Council of Norway	600 000	<a href="http://www.forskningsradet.no/servlet/Sa tellite?c=Page&amp;pagename=energix%2FHov edsidemal&amp;cid=1253980140037">http://www.forskningsradet.no/servlet/Sa tellite?c=Page&amp;pagename=energix%2FHov edsidemal&amp;cid=1253980140037</a>
Denmark	Energinet.dk	500 000	<a href="http://www.energinet.dk">http://www.energinet.dk</a>
Poland	NCBR	500 000	<a href="http://www.ncbr.gov.pl">www.ncbr.gov.pl</a>
Turkey	TUBITAK	700 000	<a href="http://www.tubitak.gov.tr/">http://www.tubitak.gov.tr/</a>
Croatia	FZOEU	200 000	<a href="http://www.fzoeu.hr">www.fzoeu.hr</a>
Sweden	The Swedish Energy Agency	700 000	<a href="http://www.energimyndigheten.se">www.energimyndigheten.se</a>

### 3. Type of project proposals & consortia - requirements

#### 3.1 Type of project proposals

Projects should involve actual cooperation/task sharing between the project partners. The consortia of this 3<sup>rd</sup> SmartGrids ERA-Net call should include partners from at least three of the countries participating in this call as shown in Table 1.

#### 3.2 Consortium composition – who can apply?

Within the framework of the national limitations the 3<sup>rd</sup> SmartGrids ERA-Net call is open to any resident researcher/eligible institution/business within the participating countries shown in Table 1 – complying in each case with the national regulations on public funding, unless specified otherwise by the specific programme.

### 4. Submitting project proposals

#### 4.1 Submitting procedure

The 3<sup>rd</sup> SmartGrids ERA-Net call is structured as a two-stage process.

Stage 1: Each consortium submits a pre-proposal. These will be evaluated by experts in the funding bodies or involved programmes.

Stage 2: Pre-proposals will be selected for the second stage according to the evaluation criteria in section 5. The chosen consortia are then asked to write full proposals. Full proposals will be selected by the processes described in section 5. The chosen projects can begin after national funding decisions.

Table 2: The timeline for the 3<sup>rd</sup> SmartGrids ERA-Net call procedure

Stage 1	Publication date – invitation for pre-proposals	31 May 2013
	Deadline for submitting pre-proposals	2 September 2013, 17 hours CET
	Selection of pre-proposals to be invited to submit full proposals	1 October 2013
Stage 2	Deadline for submitting invited full proposals	1 November 2013
	Deadline peer evaluation of full proposals	1 December 2013
	Selection/ranking of projects for funding	10 December 2013
	Deadline national funding decisions	31 December 2013
Project	Start of first projects	2014
Project	The projects should end within 3 years from start	

## **4.2 Application forms and language**

The pre-proposals and the full proposals are to be written in English. See the list of suggested topics in 2.3 for thematic guidance.

The pre-proposals have to be submitted via an electronic form, which is available on the website of the SmartGrids ERA-Net [www.eranet-smartgrids.eu](http://www.eranet-smartgrids.eu). This electronic form cannot be saved and edited. The submitters are asked to give brief descriptions of the following:

- Problem description
- Objectives
- Expected project results and impacts
- Participants
- Method, work plan and milestones
- Expected costs
- Possible sources and amount of co-financing

For the invited full proposals another electronic form (called Full proposals form), available on the web site of the SmartGrids ERA-Net, is to be used. This full proposal form can be saved and edited until submission.

Pre-proposals and full proposals will be rejected if they have not been submitted within the time limits or not with a properly filled-in electronic form.

## **5. Evaluation of projects proposals**

### **5.1 The evaluation procedure and timelines**

The pre-proposals of the 3<sup>rd</sup> SmartGrids ERA-Net will be evaluated by experts in the funding bodies or involved programmes. Full proposals of the 3<sup>rd</sup> SmartGrids ERA-Net will be evaluated by independent international experts (peers). The final decisions on what projects to support will be made by the involved funding bodies based on evaluations from the international experts (peers), national/regional priorities and funding criteria and European collaboration perspectives.

### **5.2 Evaluation criteria**

There will be complementary evaluation criteria for pre-proposals in the first stage and the full proposals in the second stage.

Evaluation criteria for pre-proposals:

- Relevance to the scope and objectives of the call;
- Feasibility of the project plan;
- Contribution to a reliable, sustainable and affordable energy supply;
- Quality of international collaboration and chance of project success;
- Possible impact on society;
- Degree of novelty and applicability;
- Conformity to national/regional funding programmes, their objectives and criteria;

- Economic and environmental impact;
- Contribution to the fulfilment of the EEGI-roadmap and/or the ETP-strategic research agenda.

Evaluation criteria for full proposals:

- Scientific quality;
- Feasibility of the research and budget plan;
- Actual task sharing;
- Competence and expertise of the applicant/research team/consortium;
- International contact networks of the applicants/consortia;
- Added value generated by the consortium (transnational, multi- or interdisciplinary);
- Knowledge reinforcement and dissemination;
- Strategic vision;
- Costs and co-financing;
- Conformity to national/regional funding programmes, their objectives and criteria.  
Not a criteria for proposals regarding "Legal and regulatory theme".

### **5.3 Communication of project evaluation decisions**

The outcome of the evaluation of the pre-proposals and the full proposals will be communicated to applicants. Brief feedback from the international experts' (peers) consensus evaluation will be given to the submitters of full proposals.

### **5.4 Management of the decision process and the start of projects**

The formal funding decisions will be taken by the funding agencies after the full proposals have been evaluated by the international experts (peers). Accepted projects will be funded by the involved funding bodies of the respective countries/regions. Each country/region will fund its own researchers.

When final decisions have been conveyed to project participants, successful applicants must enter into individual contractual agreements with their national/regional funding agencies. A consortium agreement must be concluded between the project participants to inter alia regulate intellectual property rights (IPR) issues. A template consortium agreement will be made available. Both the consortium agreement and the above mentioned individual contractual agreements are prerequisites for the first payments made to the project participants from the regional/national funding agencies. The involved funding agencies will monitor and supervise the funded projects (reporting).

## 6. Additional information and contact information

### 6.1 SmartGrids ERA-Net web site

On the SmartGrids ERA-Net web site ([www.eranet-smartgrids.eu](http://www.eranet-smartgrids.eu)) there are information/functions related to the call, e.g.:

- Application forms for the pre-proposal and the full proposal;
- Documents related to the EEGI-roadmap and the ETP-strategic research agenda;
- An optional Partner Search Form for finding partners to a project team (as a "matchmaking function"): find potential partners, and/or upload your own research interest profile.

### 6.2 National/regional contact persons

Applicants should contact the national funding agency in order to get information about prioritised focus areas and other national specific information. The following persons are contact persons for the call in the involved countries:

#### Research Council of Norway, [www.rcn.no](http://www.rcn.no)

- Mr Erland Staal Eggen, Tel. +47 91 51 45 29, e-mail: [ese@forskningsradet.no](mailto:ese@forskningsradet.no)

#### Energinet.dk, [www.energinet.dk](http://www.energinet.dk)

- Ms Jeanette Møller Jørgensen, Tel. +45 76224417, e-mail: [jmj@energinet.dk](mailto:jmj@energinet.dk)

#### NCBR Poland, [www.ncbr.gov.pl](http://www.ncbr.gov.pl)

- Ms Jolanta Drożdż, Tel. +48 22 39 07 106, e-mail: [jolanta.drozd@ncbr.gov.pl](mailto:jolanta.drozd@ncbr.gov.pl)

#### Turkey, [www.tubitak.gov.tr](http://www.tubitak.gov.tr)

- 1001 – The Support Program for Scientific and Technological Research Projects
  - Mrs. İlkay Tanrikulu Erden, Tel. +90 (312) 468 5300 (Ext: 1511), e-mail: [smartgridseranet@tubitak.gov.tr](mailto:smartgridseranet@tubitak.gov.tr)
- 1509 – International Industry R&D Projects Support Programme
  - Mr. Burak Şişman, Tel. +90 (312) 468 5300 (Ext: 1547), e-mail: [smartgridseranet@tubitak.gov.tr](mailto:smartgridseranet@tubitak.gov.tr)
- Ms. Ilknur Yilmaz, Tel. +90 (312) 468 5300 (Ext: 3926), e-mail: [smartgridseranet@tubitak.gov.tr](mailto:smartgridseranet@tubitak.gov.tr)



**The Swedish Energy Agency, [www.energimyndigheten.se](http://www.energimyndigheten.se)**

- Ms Sara Bargi, Tel. +46 (0) 16 544 21 70, e-mail: [sara.bargi@energimyndigheten.se](mailto:sara.bargi@energimyndigheten.se)
- Ms Gunilla Andrée, Tel. +46 (0) 16 542 06 15, e-mail: [gunilla.andree@energimyndigheten.se](mailto:gunilla.andree@energimyndigheten.se)

**The Environmental protection and energy efficiency Fund in Croatia, [www.fzoeu.hr](http://www.fzoeu.hr)**

- Prof. Davor Škrlec, Tel. +358 1 612 99 21, e-mail: [davor.skrlec@fer.hr](mailto:davor.skrlec@fer.hr)

**For overall call management: Nordic Energy Research, [www.nordicenergy.org](http://www.nordicenergy.org)**

- Ms Lise Jørstad, Tel. +47 92 43 58 88, e-mail: [lj@nordicenergy.org](mailto:lj@nordicenergy.org)
- Mr Filip Ehrle Elveling, Tel. +47 97 73 44 83, e-mail: [fe@nordicenergy.org](mailto:fe@nordicenergy.org)

## Appendix I

The categories in Table 2 are taken from the "European Electricity Grid Initiative Research and Innovation Roadmap 2013-2022"<sup>4</sup>. The prioritised areas presented in Table 2 below are not meant as exclusive topics per country. Table 2 is only presented to provide researchers with a better understanding of possible focus areas per country as well as possible areas for research cooperation.

**T= TSO level**

**D = Distribution level**

**TD= Combined TSO & Distribution level**

				Croatia	Turkey	Poland	Sweden	Norway	Denmark
C1	Integration of smart customers	D1	Active demand for increased flexibility	X	X	X	X	X	X
		D2	Energy Efficiency from integration with Smart Homes	X	X		X	X	X
C2	Integration of DER and new uses	D3	System integration of medium DER	X	X	X	X	X	X
		D4	Integration of storage in network management	X	X		X	X	X
		D5	Infrastructure to host EV/PHEV	X	X		X	X	X
		D6	Monitoring and control of LV Network	X			X	X	X
C3	Network operations	D7	Monitoring and control of LV network	X			X	X	X
		D8	Automation and control of MV network	X		X	X	X	X
		D9	Network Management tools	X			X	X	X
		D10	Smart metering Data processing	X	X		X	X	X

<sup>4</sup> [http://www.gridplus.eu/Documents/20130228\\_EEGI%20Roadmap%202013-2022\\_to%20print.pdf](http://www.gridplus.eu/Documents/20130228_EEGI%20Roadmap%202013-2022_to%20print.pdf)

C4	Network planning and asset management	D11	New planning approached for distribution networks		X		X	X	X
		D12	Asset management		X	X	X	X	X
C5	Market design	D13	Novel approach for market design analysis				X	X	X
	Increased observability of the distribution system for transmission network management and control	TD1			X		X	X	X
	The integration of demand side management at DSO level into TSO operations	TD2		X	X		X	X	X
	Ancillary services provided through DSOs	TD3		X	X	X	X	X	X
	Improved defence and restoration plan	TD4					X	X	X
	Methodologies for scaling-up and replicating	TD5					X	X	X
				Croatia	Turkey	Poland	Sweden	Norway	Denmark
C1	Grid architecture	T1	Definition of scenarios for pan-European network expansion				X		
		T2	Planning methodology for future pan-European transmission system				X		
		T14	Towards increasing			X			

			public acceptance of transmission infrastructure						
C2	Power technologies	T3	Demonstration of power technology to increase network flexibility and operation means		X		X	X	
		T4	Demonstration of novel network architectures				X	X	
		T5	Interfaces for large-scale demonstration of renewable integration		X		X	X	
C3	Network operation	T6	Innovative tools and methods to observe and control the pan-European network					X	
		T7	Innovative tools and methods for coordinated operation with stability margin evaluation						
		T8	Improved training tools and methods to ensure better coordination at the regional and pan-European levels						
		T9	Innovative tools and approaches for pan-European network reliability assessment						
C4	Market designs	T10	Advanced pan-European market tools				X		

			for ancillary services and balancing, including active demand management						
		T11	Advanced tools for capacity allocation and congestion management				X		
		T12	Tools and market mechanisms for ensuring system adequacy and efficiency in electric systems integrating very large amounts of RES generation				X	X	
C5	Asset management	T15	Developing approaches to determine and to maximize the lifetime of critical power components for existing and future networks				X	X	
		T16	Development and validation of tools which optimize asset maintenance at the system level, based on quantitative cost/benefit analysis				X	X	
		T17	Demonstrations of new asset management approaches at EU level				X		

## Appendix II

### Outcome of the 1<sup>st</sup> call

The 1<sup>st</sup> SmartGrids ERA-Net call was published 15 January 2010 as a collaboration between the following countries/regions: Austria, Basque country, Belgium, Denmark, Estonia, France, Latvia, Norway and Switzerland.

10 pre-proposals were submitted, 6 were invited to go to the second stage and submit full proposals. After an international peer review, four projects were selected for funding. These projects and their participations are shown in the tables below.

<b>1. The Impact of Prosumers in Smart Grid based Energy Market</b>	
The project idea focuses on prosumer (combined producer and consumer) roles and behaviour in a market model for integration in power grids.	
Denmark	Aarhus School of Business/ Jan Thøgersen
	SEAS-NVE/ Jan Rasmussen
	NOE Net AS/ Flemming Paulsen
	GridManager AS/ Morgens Birkeland
Norway	Inkubator Halden AS/ Bernt Bremdal (project leader)
	Inkubator Halden AS/ Dieter Hirdes
Switzerland	University of St. Gallen/ Moritz Look
	Bacher Energy Ltd./ Rainer Bacher

<b>2. Efficient identification of opportunities for distributed generation based on smart grid technology</b>	
The project is developing a planning tool for finding optimal connection points for renewable distributed generation.	
Denmark	Balslav/ Helena Segerberg
Norway	Sweco Norge AS/ Kåre Borgund (project leader)
Latvia	Institute for Physical Energetics/ Anna Mutule
Switzerland	Bacher Energy Ltd./ Rainer Bacher

<b>3. Quality and Safety</b>	
The project idea focuses on power quality, protection of equipment and safety requirements for people working with smart grid technology.	
Austria	Graz University of Technology/ Lothar Fickert
Estonia	Tallin Univ. of Technology/ Tõnu Lehtla (project leader)
Latvia	Riga Technical University/ Leonids Ribickis

#### 4. Optimizing green energy and grid load by geographical steering of energy consumption

The project studies the technological challenges and potential benefits of exploiting geographical load shifting in addition to time shifted energy consumption.

Austria	Austrian Institute of Technology/ Matthias Stifter
	Vienna University of Technology/ Friederich Kupzog
Basque country	Fundacion Labein/ Inaki Laresgoiti
	Semantics System, S.L/ Mikel Renteria
Belgium	IBBT/ Peit Demeester
	Vito/ Raf Ponnette (project leader)
Switzerland	Università della Svizzera Italiana/ Umberto Bondi

#### Outcome of the 2<sup>nd</sup> call

The 2<sup>nd</sup> SmartGrids ERA-Net call was published 15 January 2011 as a collaboration between the following countries/regions: Basque country, Denmark, Norway, Switzerland and Turkey.

The first stage of the Joint Call received 7 pre-proposals. After the first evaluation, 5 applicants were invited to present a full proposal. After an international peer review, three projects were selected for funding. These projects and their participations are shown in the tables below.

#### 1. BPES - Optimal sizing and control of balancing power in the future European system considering transmission system constraints

The project is...

Switzerland	ETH Zuerich/Göran Andersson (project leader)
Denmark	DTU
Norway	NTNU
Switzerland	Swissgrid

#### 2. IHSMAG- Integrating households in the smart grids

The project is...

Denmark	Danish Building Research Institute/ Dr. Kirsten Gram-Hansen (project leader)
Norway	NTNU
Basque Country	ZIV Metering Solutions

### **3. PRO-NET - Protection of power electronically interfaced LV distributed generation networks**

The project is...	
Turkey	TÜBİTAK/ Dr. Bülent Dag (project leader)
Denmark	Aalborg University
Norway	Simula Research Laboratory