

EU-funded project „CALLIA“ launched. Transnational integration of Renewable Energies into the European electricity grid.

Constance, July 1st, 2016 – Europe’s ambitious climate protection goals require a safe and comprehensive integration of Renewable Energies on all voltage levels of the electricity grid. Currently, cross-border transmission of electricity is limited to the high voltage grid. Within CALLIA, the partners will investigate how direct energy transfer between distribution grids in two different countries is able to foster the integration of Renewable Energies. The important goals of the project include: more efficient integration of decentralized generation units and stabilization of the European electricity grid. Therefore, grid operators, research institutes and industrial partners from Austria, Belgium, Germany and Turkey will join forces in a multilateral project consortium coordinated by ISC Konstanz.

Topics of this press release:

- Europe’s climate protection goals in mind
- Bringing together what belongs together
- Kick-Off for CALLIA
- The project consortium introduces itself

Europe’s climate protection goals in mind

“Open electricity markets with direct interaction between distribution grids for integration of Renewable Energies” – this is the official title of CALLIA. CALLIA’s research focus is derived from the guidelines of the European “Energy 2020 strategy: towards a low carbon economy”, aiming at the full integration of Renewables into the European grid. To reach these goals, cross-border cooperation between distribution service operators (DSOs), in particular, has to be strengthened.

Bringing together what belongs together

Within CALLIA, project partners will investigate how cooperation between distribution service operators can be put into practice. The necessary architecture as well as an

interface for trading between distribution service operators (so-called “multi-agent system”) will be developed.

Local exchange of Renewable Energies at the distribution grid level will reduce the curtailment of RE systems, reduce the load at the transfer points between distribution and transmission grid and simplify balancing between local distribution grids and the transmission grid.

Furthermore, energy losses will be reduced as local generation and consumption in border regions will be balanced more easily without the need to cross all voltage levels in an “up-across-down” trajectory (up from low-voltage to high voltage grid – across to the neighboring high voltage grid and down to the receiver’s low voltage grid).

In addition, the project will lead to a more efficient integration of decentralized generation into Europe’s electricity grids accompanied by an increase in stability. Project results will be validated through both, simulations and through a pilot of the trading interface for grid operators. Based on the knowledge obtained, recommendations for a regulatory framework for electricity exchange between distribution grids on the European level will be given.

Kick-Off for CALLIA

On July 1st, 2016 CALLIA was officially launched. Within the next 33 months, the multinational consortium will investigate the potential of the transnational integration of Renewable Energies into the European electricity grid for reaching the Union’s energy goals. CALLIA is part of the European research program “ERA-Net Smart Grids Plus” with a total project volume of €4.9 million.

The project consortium introduces itself

Blue.Sky Energy / Austria

BlueSky Energy is a provider and integrator of electrical energy storage systems. The product portfolio includes Redox Flow-, Lithium (LiFePo)- and AHI battery technology.

BlueSky Energy analyses, calculates, plans and installs electrical energy storage systems starting at 5 kWh up to multiple MWh`s. BlueSky Energy is the only battery provider which offers all reliable electrical energy storage systems worldwide.

Bogazici Elektrik Dagitim / Turkey

BEDAŞ (Bogazici Electricity Distribution Inc.) is the biggest distribution company in Turkey, placed in Istanbul European Side with more than 4.6M customers, 24.5 TWh distributed energy, 4.7 GW peak demand and 16 GW installed power. The R&D department hosts multi-disciplinary expertise related to both cutting edge smart grid technologies and electricity market, regulation. BEDAŞ focuses on the technical effects of the RES integrations to the grid and multi-actor business cases of energy trade especially with the coordination of TSO-DSO.

devolo AG / Germany

devolo AG provides solutions for the intelligent electricity grid. Being a Powerline pioneer, devolo is an accounted expert for data communication via power supply line. Furthermore, devolo develops a control box for the European market for controlling decentralized generation units and intelligent electricity consumers. Also, a research focus is placed on an intelligent electricity meter with integrated G3-PLC technology.

ISC Konstanz / Germany (coordinator)

As project coordinator, ISC Konstanz aims at bringing together complementary project results obtained at the national level at the European level. This comprehensive aspect of Smart Grids as “System of Systems” imposes new challenges. It will be investigated, which ICT control and trading rules are required to enable cooperation of the involved players across European borders. ISC Konstanz is supported by the consultancy firm Dr. Langniß – Energie & Analyse.

Pavotek / Turkey

PAVO is an industrial electronic (and mechanic) design and manufacturing company on Energy, Defence, Telecom, Automotive, and Avionic Sectors. For more than 13 years, now with 70 engineers and 125 employees in total, we develop innovative, value added, standardised, breakthrough, cost effective electronic OEM, and ODM products & systems by using FPGAs, Micro Controllers (32 to 64 bit), DSPs, and SOCs. Pavo’s role is to design Hardware and BSP (Board Support Package), Embedded algorithm software, communication software (GSM, fiber, IEC61850 protocol), and security features.

REstore / Belgium

REstore is a leading energy technology company, focused on automated Demand Response. The company offers Automated Demand Response programs to Commercial & Industrial consumers and delivers cloud-based Demand Side Management software to Utilities. REstore, Europe's leading DR aggregator, will leverage its patented Industrie 4.0 platform Flexpond™ in this project to develop innovative "local" demand response services, enabling better management of grid power flows for TSOs and DSOs through the usage of battery and other flexible resources.

Salzburg Research / Austria

Salzburg Research is an independent research institute with a focus on applying information and communication technologies as well as innovation strategies to rapidly changing domains such as energy, manufacturing, mobility, and healthcare. Salzburg Research contributes to the overall project goals by developing essential ICT components for communication, energy trading and DSO-RES control and by coordinating the Austrian activities.

Stadtwerke Heidelberg / Germany

In its role as distribution system operator, Stadtwerke Heidelberg Netze, together with the other partners, will identify barriers in the German and European regulatory framework and develop suggestions for improvements. Additionally, Stadtwerke Heidelberg Netze will implement and supervise a pilot field test in its distribution grid.

Technische Universität Wien / Austria

TU Wien (Vienna University of Technology) is one of the most successful technical universities in Europe and, with over 27,000 students and around 3,000 scientists, it is Austria's largest scientific-technical research and teaching institution. As one of Europe's leading research universities, fundamental research has priority at the TU Wien but in the same time, services are offered as high-quality problem solving and examination expertise for industry and economy. In this project, the research group "Operations Research and Control Systems" focuses on multi-agent smart grid business modelling with particular emphasis on inter-DSO business and storage.

TransnetBW / Germany

TransnetBW is the transmission service system operator in South West Germany and therefore plays an integral role in today's energy system both at the European but also at the national level. TransnetBW connects the energy sources of the future and is responsible for a secure, reliable and stable electricity supply. Under its overall system responsibility, Transnet BW is the key element that connects all roles in the energy system and carries out tasks both in the area of system service operation load management (voltage and maintenance, frequency control, restoration of supply re-establishment of the power generation parameters and network operations management) and of electricity markets (access to markets, Renewable Energy Act and levy transactions, balancing group accounting, etc.).

Universität Stuttgart / Germany

The Institute of Power Transmission and High Voltage Technology (IEH) at the University of Stuttgart addresses questions around optimal grid planning and operation at distribution and transmission levels with high penetration of decentralized and renewable generation taking modern technologies and equipment into account. Within CALLIA, University of Stuttgart will investigate and evaluate the developed operating concepts through its Hardware-in-the-Loop simulation environment.

VITO / Belgium

VITO is Belgium's largest independent R&D organization on sustainable technology covering material management, chemistry, health, land use and energy. The Sustainable Energy department hosts multi-disciplinary expertise related to both electricity and heat networks including storage and conversion technologies. It focuses on flexibility identification and modelling, advanced nomination and multi-agent control strategies, multi-actor business case modelling and market design.