

# Smart Grids on the Distribution Level – Hype or Vision?

Report - CIRED Working Group on Smart Grids

Wolfgang Hribernik

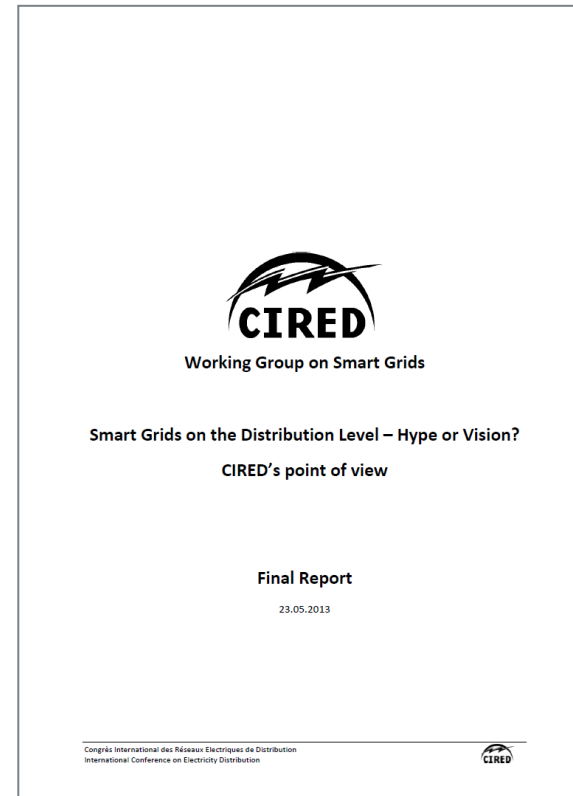
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## Objectives - Working Group Smart Grids

- Main objective of the Working Group in the 2 years project was to answer the question “Smart Grids on Distribution Level – are they Hype or Vision?”
- Focus on distribution network level
- Duration of Work 2 years
- Report published 23<sup>rd</sup> of May 2013



## Members - Working Group Smart Grids

### **Convener :**

Zdrallek Markus, Bergische Universität Wuppertal, Germany

### **Members :**

Brunner Helfried, AIT, Austria

Calone Roberto, Enel Distribuzione, Italy

Chollot Yves, Schneider Electric, France

Englert Heiko, Siemens AG, Germany

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Mota Pinto Carlos, EDP Distribuição - Energia, S.A., Portugal

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Openshaw Dave, EDF Energy, United Kingdom

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Pilo Fabrizio, University of Cagliari, Italy

# Report Structure

- Introduction
- Main drivers/Need for Smart Grid application
- Use Cases and Functionalities of a Smart Grid
- Technical Solutions / State of the Art Technologies
- International/European Standards /State of the Art in Standardisation

## Report Conclusions 1/3

- Smart Grids on distribution level are **not just a Hype** and they are much more than a Vision.
- They have already become reality in many current, **practical installations in the distribution grids all over the world** and they will be an absolute mandatory instrument to pave Europe's and maybe one day the world's way into a low carbon and renewable energy future.
- Moreover they will help to **reduce the transformation costs of the distribution grids** and therefore of the whole energy supply system into the renewable future.

## Report Conclusions 2/3

- Nearly all projects are driven by the **integration of more and more renewable and decentralized generation units** into the system, accompanied by the integration of electric vehicles and storage units, while maintaining or even improving the quality and reliability of supply.
- Functionalities and use cases following the drivers are much more **automation** on the medium and even low voltage level, the utilization of **advanced metering infrastructure, demand response, generation management** including virtual power plants and storage units as well as the operation of microgrids.
- To realize the functionalities, a large number of widespread technical solutions in the field of more and more decentralized **control systems, protection, communication, new grid components and planning criteria** have been developed. In particular, the right **communication techniques** are mandatory for the success of Smart Grids

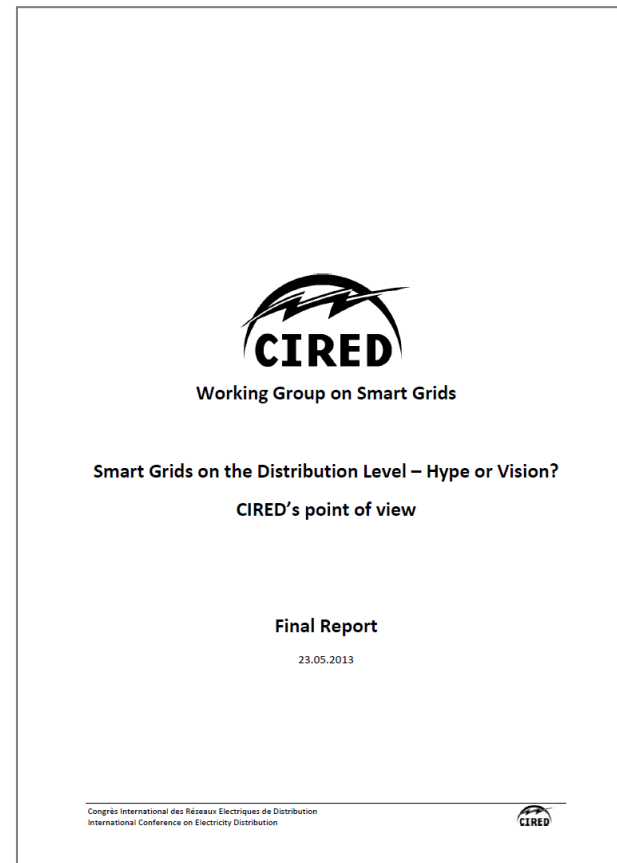
## Report Conclusions 3/3

- **most of the technical solutions and devices are still in pilot project status.** Much further **research and development is needed** to establish them as standard tools for grid operation
- Many projects all over Europe and the world are working more or less on the same challenges and opportunities. This emphasises the need for organizations like CIREN to **bring together all the experts on distribution grids**, enable them to share their knowledge and expertise and therefore help them to move forward into a smart distribution grid future.

# Source

- CIRED Website

<http://www.cired.net/working-groups/smart-grids-on-the-distribution-level-hype-or-vision>





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