FLEXe Future Energy System

Wireless Communication as an Enabler for Electricity Network Management and Flexibility

Communication is an integral part of future electricity networks. Our goal was to integrate ICT functionalities with flexible energy systems to improve service quality, reliability, security and big data analysis.

Reliable HQ Measurements, Protection and Control

Substation Automation

Communication enables complex and multitude measurements of the electricity network



- Centralized substation automation
- Accurate, traceable substation measurements on µV and ns level accuracy
- Monitoring and calibration

Good and low-latency wireless infrastructure enables extending automation, remote control and monitoring in the secondary substation level.



- Fault resolution and localization
- Accurate fault indications (short circuits, earth faults)
- Voltage and current measurement

Secure Cyber Infrastructure

Hardware-in-the-loop testing of distributed Fault Location Isolation and Supply Restoration (FLISR) solution based on GOOSE communication over LTE network



- Real-time digital simulator (RTDS) to model power system and to realize faults and switch actions
- Prototype IEDs including FLISR
- Communication using products
- Performance and interaction of FLISR and

Big Data

Data mining from existing and new data sources together with ICT system enables Big Data. Big Data concept for an LVDC µGrid is proposed.



- LVDC µGrids become scalable power loads and sources
- Customers as active parts of flexible energy system
- Requires combining and processing on-line data locally and remotely from many sources → produce new data
- Interconnects reliable measurements, cyber security and substation automation

communication





Solution Architect for Global Bioeconomy & Cleantech Opportunities

