FINESCE WP5

Innovation Day Terni 17.10.2013

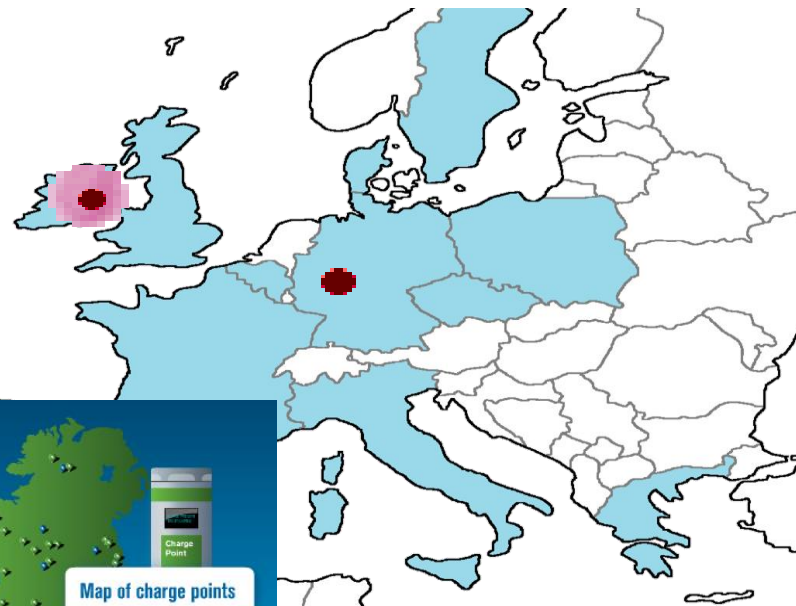**Future Internet : Electricity in Action**

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Objectives:

- eCar batteries as interruptible loads to balance the power grid
- Substation communication for power management

E.ON Energy Research Center

ESB

Map of charge points

trial site
partner location

# WP5: Trial I – Electric Vehicle Integration

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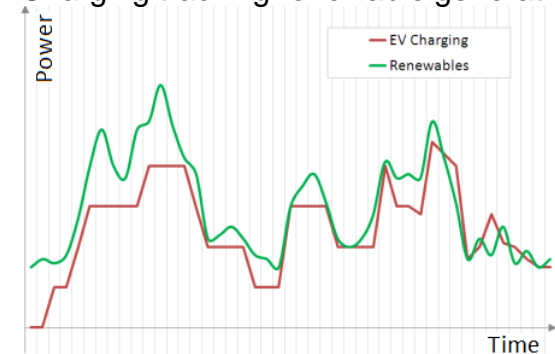SMART
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Objectives

- Integrate Electric Vehicles (EVs) into electrical grid with the aim of tracking renewable energy generation

- Develop and test EV charging management systems using
  - ❖ WiMAX and LTE solutions
  - ❖ Future Internet (FI) technologies

- Measure system response time

- Determine best communications technology to use and the economic impact

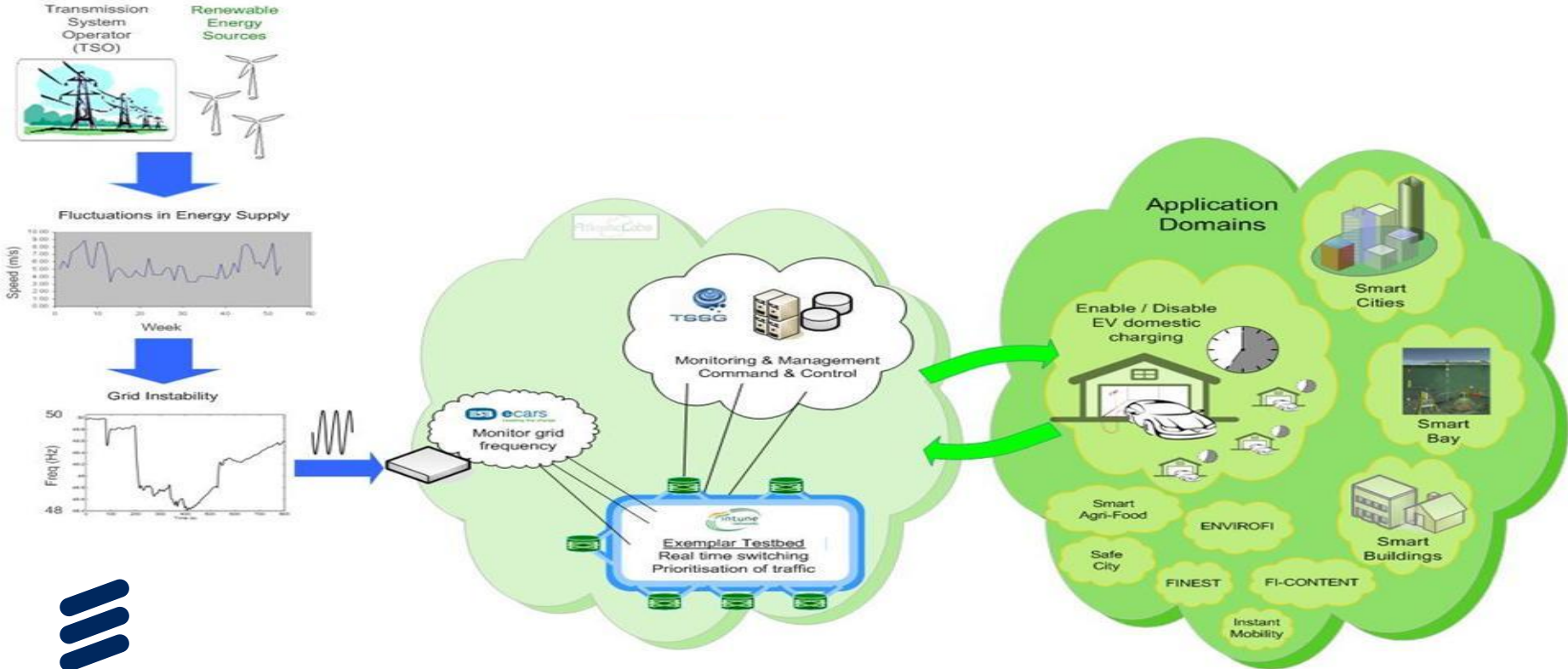EV charging independent of renewable generation
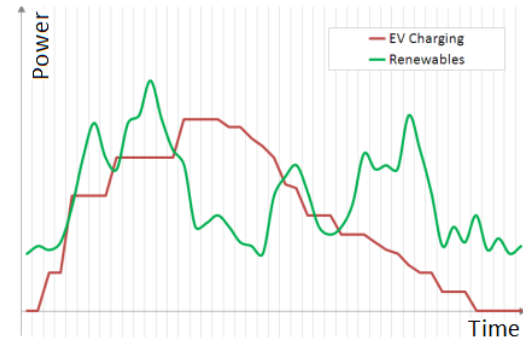
EV Charging tracking renewable generation

Trial site Ireland - Demand Control

WP5: Trial II – Smart Grid Communication

- Objectives
  - ❖ Develop a highly advanced IP-based smart grid communication network based on Optical Packet Switch and Transport (OPST) architecture
  - ❖ Implement and gain knowledge of FI-Ware Security Generic Enabler
  - ❖ Enhance knowledge of utilities' smart grid communication requirements as well as gap analysis in this area

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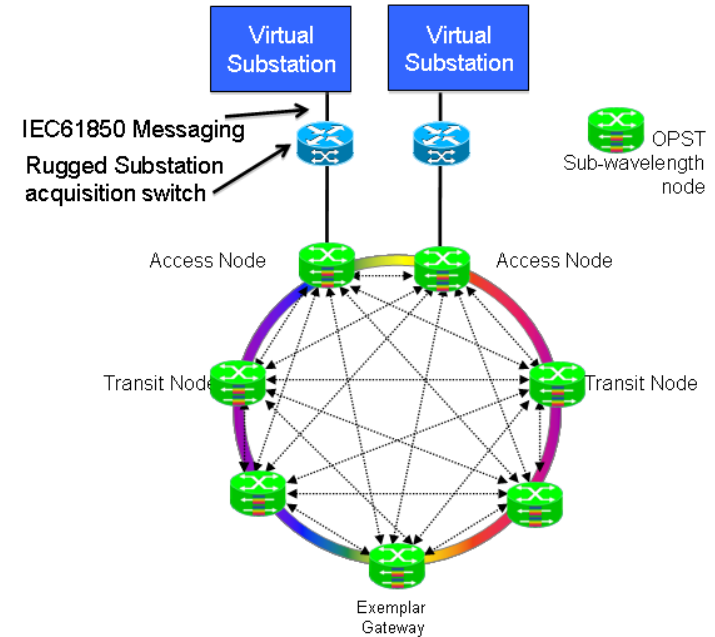
Smart Grid Communications using OPST

Simulation Support at RWTH

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- The Institute for Automation of Complex Power Systems at RWTH is equipped with a unique infrastructure for simulation of power systems and interaction with communication infrastructure

- The simulation facility will be used both as proof of concept and as as test for scalability

Real-Time Digital Simulator
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Open Call issue

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To develop a management system for the energy distribution network used in the FINESCE field trial in Ireland, which will interact with an Electric Vehicle (EV) charge-point management system.