

/SMART/REGION

September 2015

Jan Sobotka
Mayor of Vrchlabi town



Martin Machek
Project Manager, ČEZ



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CZECH REPUBLIC

VRCHLABÍ TOWN

Basic facts



Czech Republic

- European Union member at the heart of Europe
- Population 10,5 millions
- GDP 200 bln. USD (2014)
- Developing industrial country



Vrchlabí



Vrchlabí town

- Gate to the Krkonose Mountains
- Population 13 000
- Tourist resort
- Industrial tradition



VRCHLABI TOWN

ENVIRONMENTALLY RESPONSIBLE REGION



- Town in the roots of the Krkonose Mountains – so called **Gate to Krkonose Mountains**
- Historical center with castle and buildings
- Important tourist resort
- Traditional role of industry

- Vrchlaby town as **environmentally responsible region**
- Vrchlaby as a heart of **Krkonose - Union of Towns and Boroughs**
- Perspective town both for **inhabitants and investors**

- Vrchlaby as modern **Smart City** in Smart Region project



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VRCHLABI TOWN

KRKONOŠE – UNION OF TOWNS AND BOROUGHS



- 40 member towns and boroughs in the tourist region
- Universally support the prerequisites for the Krkonose's residents **to lead a full life**
- Focused on the:
 - **Regional development**
 - **Building of infrastructure**
 - **Industrial development**
 - **New investors opportunities**
- Development of tourism as one of the pillars of **local economic stability**
- Its **foreign partner** is the **neighboring Polish association**

VRCHLABI TOWN

INDUSTRIAL INVESTORS IN VRCHLABI



ŠKODA



- Top-class production of **car gearboxes**
- New production plant
- 30 mil USD investment in 2012/2013



SIEMENS

- **LV switching equipment**



nkt cables

- Front-line supplier of **power cables**

VRCHLABI TOWN

SMART ENERGY TOWN



- **Central heating system**
 - Smart delivery of heat / el. energy from Central Heat & Power Units



- **Smart Lighting**
 - Pilot project of distributed system of lightning
 - Up to 40 % savings of el. energy



- **Smart Region**
 - Smart Grid pilot project
 - Complex project focused on Smart Energy



VRCHLABI TOWN

ACKNOWLEDGEMENT



Taipei Smart City Summit & Expo 2015 participation



- **Presentation of Vrchlabi town** (as both environmentally responsible and industrial town)
- **Smart Grid activities in Smart Region project, Grid4EU project** generally
- **Panel discussion about Smart Cities in Mayor's Summit**

Thank you!

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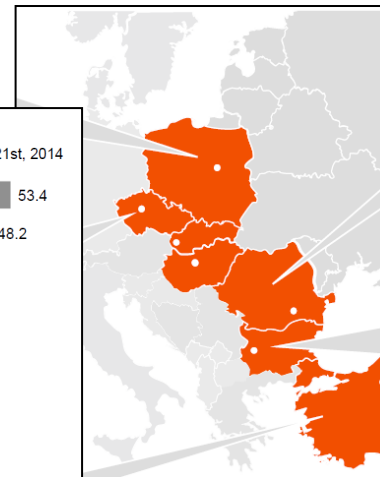


CEZ GROUP

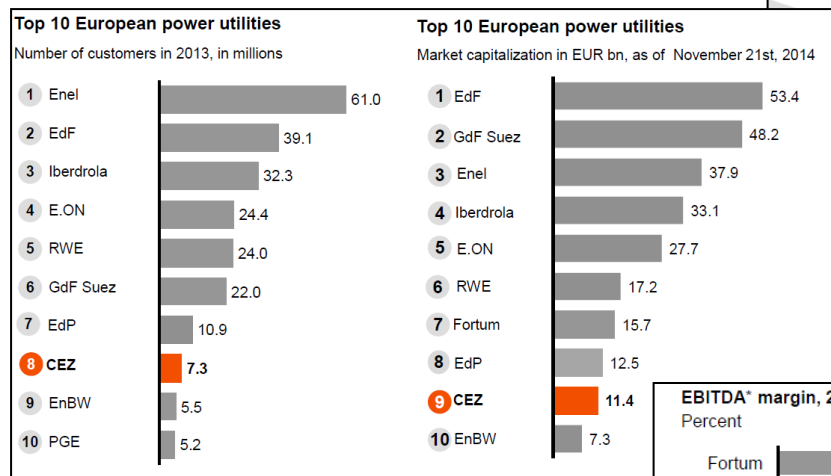
INTRODUCTION



- CEZ Group is the **leader in power markets of CEE region Europe**

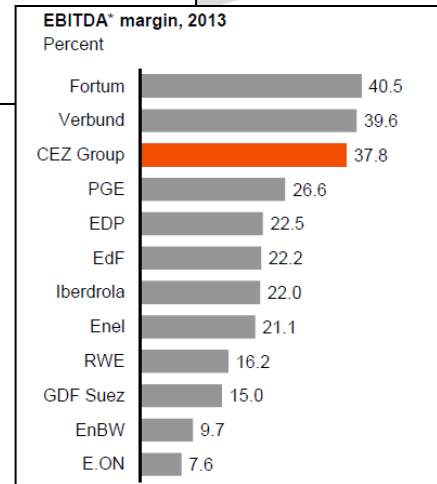


- CEZ Group ranks among **the top 10 largest utility companies in Europe**
- CEZ Group is **one of the most profitable European utilities**



- CEZ Group Strategy - Offer customers a wide range of **products and services addressing their energy needs**

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SMART REGION PROJECT

DESCRIPTION / KEY FIGURES



Motivations

Based on analysis of future trends, challenges and opportunities ČEZ aims to:

- Get ready for **Distributed Energy Resources**
- Test **new technologies** in distribution grid
- Test new technologies and customer acceptance of **Smart Metering**
- Reduce **grid losses**
- Deploy and evaluate **new concepts of protection, communication, control**
- Test of **electrical vehicles and charging stations**

Key figures

Location	CZ, Vrchlabí
Duration	2010-2015
No. of secondary substations MV/LV	29
Voltage level (MV)	10/35 kV
Length of MV cables	12 km
Voltage level (LV)	0,4 kV
Length of LV cables	66 km
No. of end users:	4 600
Power generation units:	CHPs – 4 MW
No. of EV charging station	5

SMART REGION PROJECT

LV AUTOMATION



- Description
 - Automation of failures isolation between two DTS
- Implementation
 - Remote controlled LV grid equipment enabling measuring, information transfer and remote and autonomous control
- ICT Technology: **WiMAX**



SMART REGION PROJECT

MV AUTOMATION



- **Description**
 - **Automation of failures isolation on municipal MV network**
- **Implementation**
 - **Fault localization of failure between the MV/LV substations**
- **ICT Technology: Fiber optic, WiMAX, GPRS**

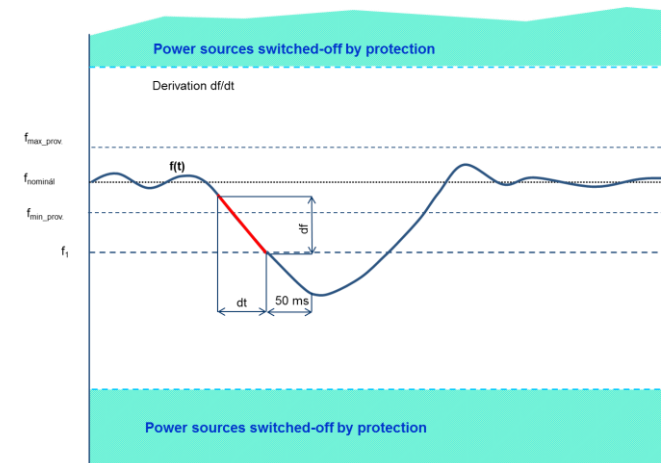


SMART REGION PROJECT

MICROGRID (ISLAND) OPERATION

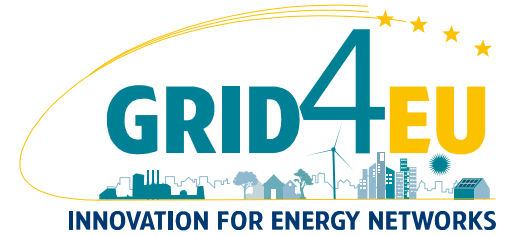


- Description: fully **autonomous microgrid with island operation** of the MV distribution network
- Implementation
 - **Adaptation of CHP** to the island operation mode
 - **Management of island operation** – instantaneous power supply, black start
 - **Return from island operation mode** – synchronization of frequency, voltage, phases
- Tasks
 - **Disconnect the predefined microgrid (island) area**
 - **Balance the production and the consumption** during the island operation
 - **Re-connect the islanding area** to the standard MV grid



SMART REGION PROJECT INSTALLATION PHOTOS



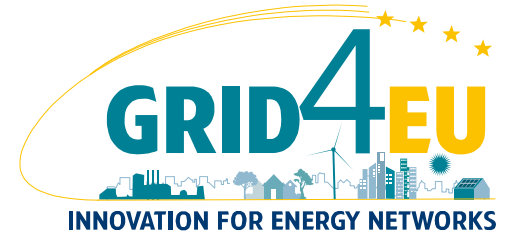


« Grid4EU » project

Large-Scale Demonstration
of Advanced Smart GRID Solutions with wide Replication
and Scalability Potential for EUROPE

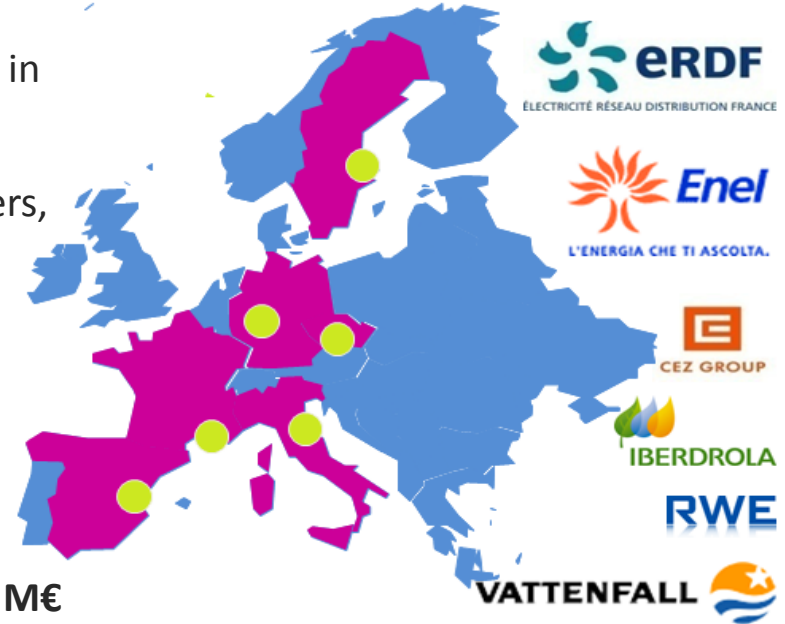
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A European Project



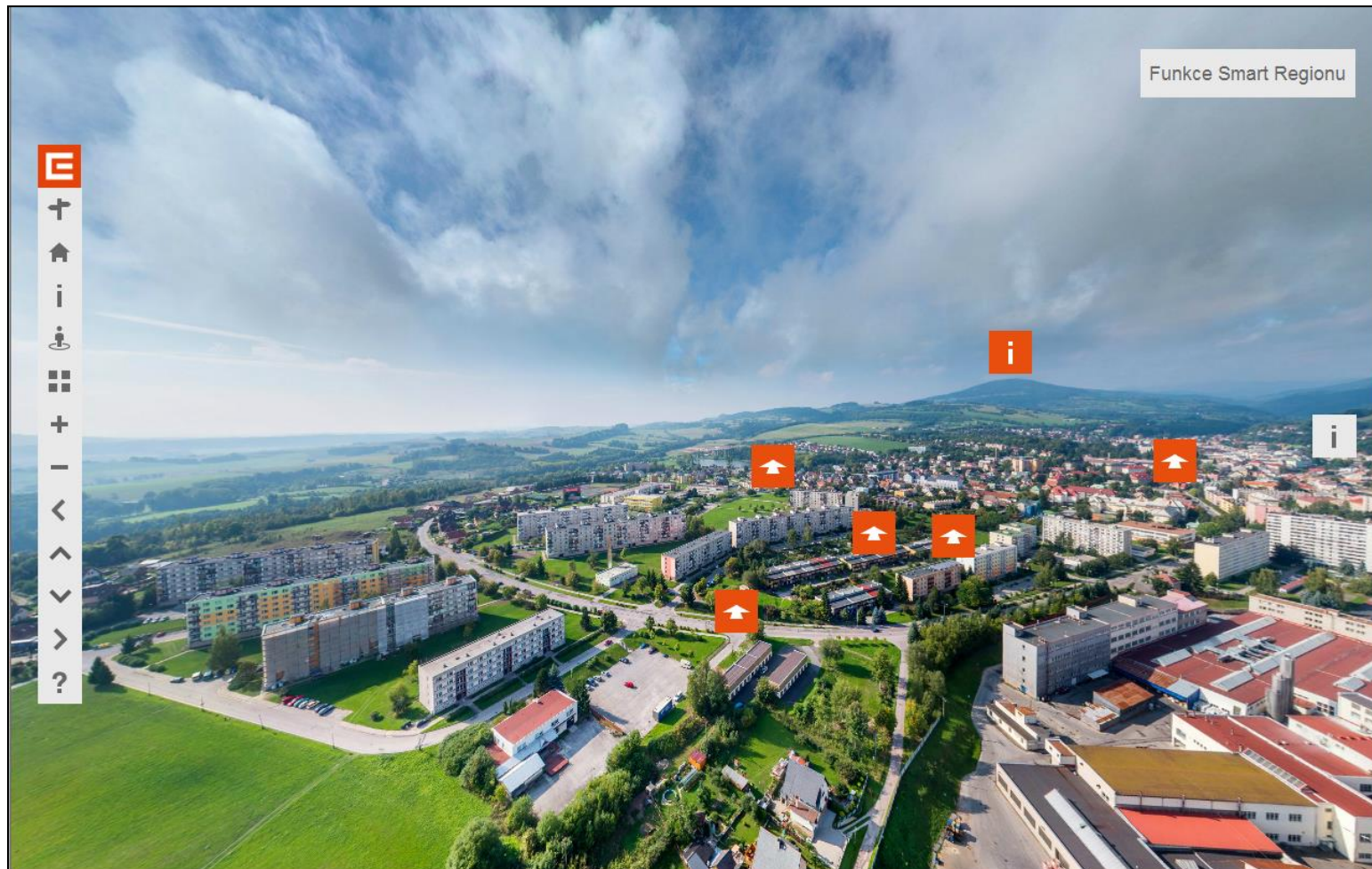
The biggest European Smart Grids Project

- Lead by 6 electricity distributors (covering more than 50% of the metered electricity customers in Europe)
- 27 partners (Utilities, Energy Suppliers, Manufacturers, Research Institutes)
- Duration: 4 years (November 2011 - January 2016)
- Project Coordination: ERDF
- Technical Director: ENEL
- Chairman of General Assembly: IBERDROLA
- Total eligible costs: **54 M€**, Requested EC grant: **25.5 M€**
- Submitted to FP7 call **FP7-ENERGY-2010-2**



VIRTUAL TOUR OF SMART REGION

[HTTP://VIRTUALNIPROHLIDKY.CEZ.CZ/CEZ-VRCHLABI-AJ](http://virtualniprohlidky.cez.cz/cez-vrchlabi-aj)



SMART REGION

THANK YOU FOR YOUR ATTENTION!

Jan Sobotka
Mayor of Vrchlabi Town



www.muvrchlabi.cz

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www.cez.cz
www.grid4eu.eu