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INCREASING SYNERGIES AMONG HYBRID ENERGY GRIDS IN SMART CITIES – ORPHEUS PROJECT

European Project Space Session
Smart Cities and Green ICT Systems
Lisbon, Portugal, 21st May 2015

ORPHEUS PROJECT

- Aim: Increasing synergies among hybrid energy grids in smart cities
- Project duration: September 2013 – September 2016
- Co-financed by the European Commission (FP7 – Smart Cities)
- Coordinator: WIP – Renewable Energies

Technische Universitaet Wien (TUW-EEG)
www.tuwien.ac.at

Austrian Institute of Technology GmbH (AIT)
www.ait.ac.at

Deutsches Zentrum für Luft- und Raumfahrt eV
www.dlr.de

Hochschule Ulm (HS Ulm)
www.hs-ulm.de

NEC Europe Ltd
www.neclab.eu

Lulea Tekniska Universitet (LTU)
www.ltu.se

Skelleftea Kraft AB (SKR)
www.skekraft.se

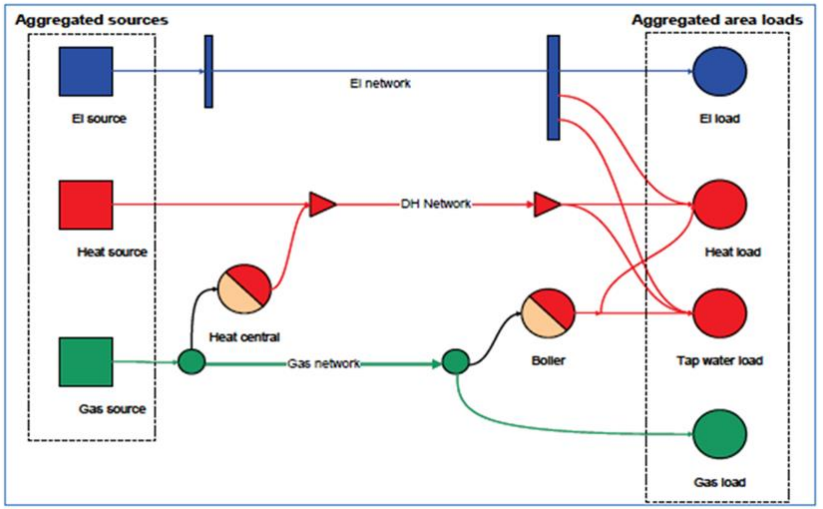
SWU Netze GmbH
www.swu-netze.de

THE CONCEPT BEHIND ORPHEUS

Why should we optimize the synergies among hybrid energy grids?

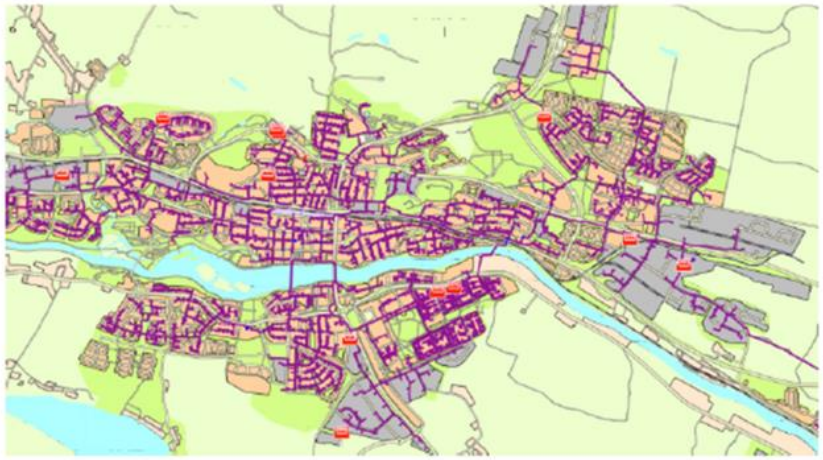
- Optimization of synergies among energy grids leads to efficient grid operation and therefore to CO_2 reduction
- At the present, different energy distribution grids still mainly operate independently and do not make use of synergies among them
- Although interaction and synergies are increasingly apparent, they neither have been comprehensively analyzed nor implemented in practice

Coupling points - Hybrid energy grids:
Physical element which connects two different energy domains and identifies an hybrid energy grid



ORPHEUS DEMO SITES

City of Ulm, Germany, and City of Skellefteå, Sweden



Skellefteå area in Sweden
(Note: District area network (purple), CHP and pellets/oil burner plants in (red)

Test Area in Ulm, Germany
(Overlaid of the roof solar potential analysis and the position of the PV systems and transformer station)

ORPHEUS APPROACH

How to increasing synergies among hybrid energy grids in smart cities?

- Novel cooperative control strategies for hybrid energy grids in smart cities (Anett Schuelke, NEC Laboratories Europe, United Kingdom)
- Economic models for hybrid energy grids in smart cities (Daniel Schwabeneder, Energy Economics Group - Vienna University of Technology, Austria)
- Simulating hybrid energy grids in smart cities (Edmund Widl, Austrian Institute of Technology, Austria)
- Decision tool for energy producers and system grid operators in smart cities (Christer Åhlund, Luleå University of Technology, Sweden)

CONTACT

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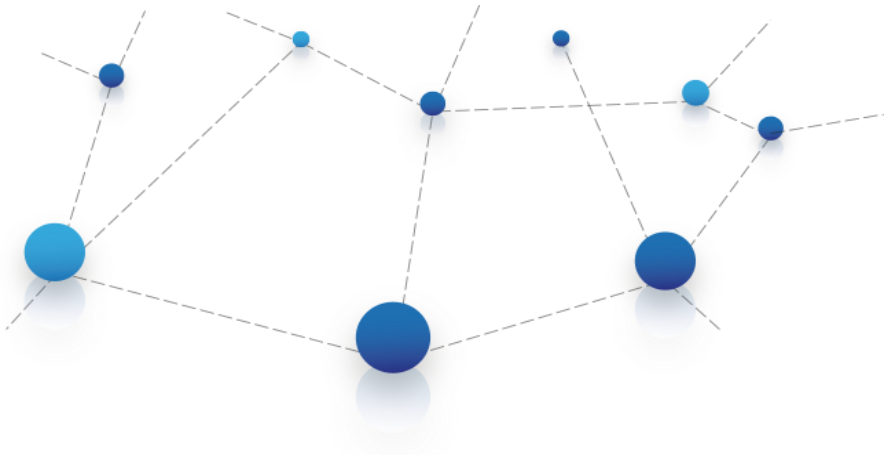

Thank you.

The OrPHEuS project is co-funded by the European Commission within the 7th Framework Programme 'Smart Cities' 2013. The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Commission. The European commission is not responsible for any use that may be made of the information contained therein.