

**Venue**

ETH Zurich, LEE E 308, Leonhardstrasse 21, 8092 Zurich

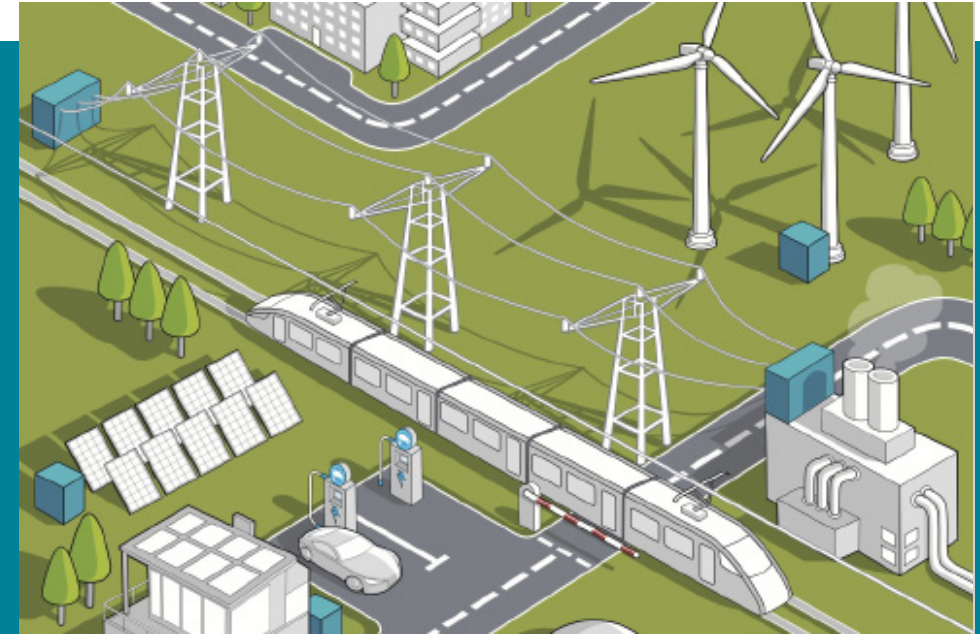
**Organiser**

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Image source: D-ITET, ETH Zurich



# Workshop on Distributed Generation and Smart Grids

December 1<sup>st</sup> 2015  
10.00 - 16.15

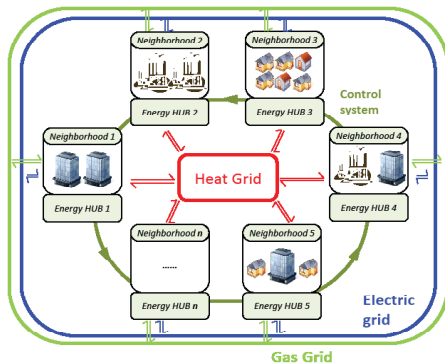
ETH Zurich  
Building LEE E 308

## Workshop on Distributed Generation and Smart Grids

Most of the developed countries worldwide are undergoing an important reorganization of the energy sector, often prompted by new regulatory frameworks and strategies (e.g. Energy Strategy 2050 in Switzerland), but also due to market developments. E.g. in Germany and Switzerland, the long-term vision includes the phase-out of nuclear power plants along with a reduction in the greenhouse gas emissions. In order to fulfill these ambitious goals, multiple actions are needed, like the reduction in the energy consumptions, an increase in the electricity production from renewable sources, and adaptation of market rules. These developments will lead to multiple challenges, including the coupling of the transient loads and generation while maintaining the system stability, integrating decentralized production in a centralized-designed grid, providing enough storage capacity to couple the daily/seasonal load imbalances, and maintaining the cost competitiveness and the security of supply. In this context, decentralized energy systems together with smart grids represent a promising solution: distributed power technologies are widely available, are more efficient and less expensive than a few years ago, and share the capability of overcoming the constraints that typically hinder large projects. Consequently, decentralized energy systems may play an important role during the transformation of the energy sector.

The challenges could be categorized as follows:

- Technical challenges,
- Urban challenges
- Economic challenges.



By bringing together several experts both from academia and industry, this workshop aims at triggering the discussion on these topics, understanding the status and the research results in the field.

The workshop is by invitation only.

## Agenda

- 10.00 Registration and coffee**
- 10.15 Introduction on ESC activities and projects**  
Prof. Marco Mazzotti, Dr. Christian Schaffner, *ETH Zurich*
- 10.30 Energy = Electricity + Heat + Fuels**  
**Taking a broader perspective on the energy transition**  
Dr. Gianfranco Guidati, *General Electric*
- 11.00 Experiences in laboratory testing of ICE, Stirling and fuel cell micro-CHP units**  
Prof. Stefano Campanari, *Politecnico di Milano*
- 11.30 Future Energy Grids for Districts**  
Prof. Adrian Altenburger, *Hochschule Luzern*
- 12.00 Energy supply for a 2000-watt-society: drivers, challenges, approaches**  
Martina Blum, *Stadt Zürich*
- 12.20 Lunch**
- 13.20 GridBox: Recent Results for Region-Optimal Prosumer Control in two Low-Voltage Pilot Grids**  
Alain Brenzikofer, *Supercomputing Systems*
- 13.40 An economic and policy perspective**  
Prof. Tobias Schmidt, *ETH Zurich*
- 14:00 An economic perspective**  
Laura Villani, *The Boston Consulting Group*
- 14.30 Challenges and Opportunities of Distributed Technologies from the Perspective of the Grid**  
Prof. Gabriela Hug, *ETH Zurich*
- 15.00 Coffee break**
- 15.15 Panel discussion**  
Dr. Gianfranco Guidati, *General Electric*  
Prof. Alexander Wokaun, *Paul Scherrer Institut*  
Prof. Gian-Luca Bona, *Empa*  
Prof. Gabriela Hug, *ETH Zurich*  
Moderator: Dr. Christian Schaffner, *ETH Zurich*
- 16.00 Conclusion and Apéro**