Partners

- Alstom Power
- Amstein+Walthert
- Zurich City
- EWZ
- VSG

Swiss energy strategy 2050

Needs to implement the "Energy Strategy 2050":
- Stabilization of electricity demand thanks to improved efficiency and reduced energy consumptions, particularly in buildings
- Increase of the renewable-based electricity production

Integration of renewables in decentralized systems in Switzerland at neighborhood scale

Subprojects

IMES BP
Building: Demand, renewable potential and technology integration
- Team leader + deputy: K. Orehounig, J. Carmeliet

IMES TEC
Technology: Technical assessment and performance prediction
- Team leader + deputy: M. Mazzotti, R. Abhari

IMES SC
Grid: Integration and system control
- Team leader + deputy: T. Demitray, B. Smith

IMES ECO
Economy: Economic and market evaluation
- Team leader + deputy: R. Hoffman, R. Grid

IMES SE
Social: Acceptability and social issues
- Team leader + deputy: H. Said, P. Krutli

Preliminary test cases
- Zurich Altstetten
- Zernez
- Solothurn
- Zurich Uniquarter
- Zurich Empa

Energy Turnaround

- IMES will set up a unique research collaborative project: all main issues tackled at the same time; renewables, micro-cogeneration and power-to-gas will be investigated in detail with a holistic tool.
- IMES will clearly determine the role of distributed energy generation in forthcoming years for energy production in Switzerland.
- IMES will actively involve important industrial players facilitating the deployment of decentralized power production in Switzerland.
- Decision and policy makers will be helped in finding solutions for market designs and support schemes for RES while maintaining a limited energy cost and a high grid reliability.
- Swiss community will know the costs and the social issues linked to decentralized power production.
- IMES will serve as a seed project for further research initiatives.

Project goal

The project will provide a comprehensive simulation approach for decentralized power production which tackles at the same time technical, economic and social issues. An optimization methodology will be developed and guidelines for deployment of DPP provided.

Synergies

- Tight collaboration with NRP70 AFEM project
- IMES results as guidelines for ReMaP ETHZ flagship project
- SCCER: efficiency, energy storage and electricity supply

Contact

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Energy Supply

Overview

Sustainable decentralized power generation
Integration of sustainable Multi-Energy-hub Systems at neighborhood scale -IMES-

Daily electricity from renewables

Challenges:
- Transient nature of both loads and renewable energy generation
- System stability and daily/seasonal load balance
- Electricity price competitiveness

Electricity price competitiveness

Swiss community will know the costs and the social issues linked to decentralized power production.

IMES will serve as a seed project for further research initiatives.