

Development of a Modelica Microgrid Simulation Model

Project expectations

- To review microgrid modeling approaches in literature
- To build an electric dynamic model of a laboratory test microgrid in Dymola software and OpenIPSL Library.
- To read and understand technical documentation of the existing laboratory equipment.
- To identify appropriate models for each component of the laboratory microgrid. To use already developed model where appropriate or to develop new models if necessary.
- To run experiments in the microgrid lab with the aim to validate and assess accuracy of the adopted Modelica models.
- Comparison of the simulated results against the laboratory experiments or reference simulation models.
- To publish a paper at an international conference.

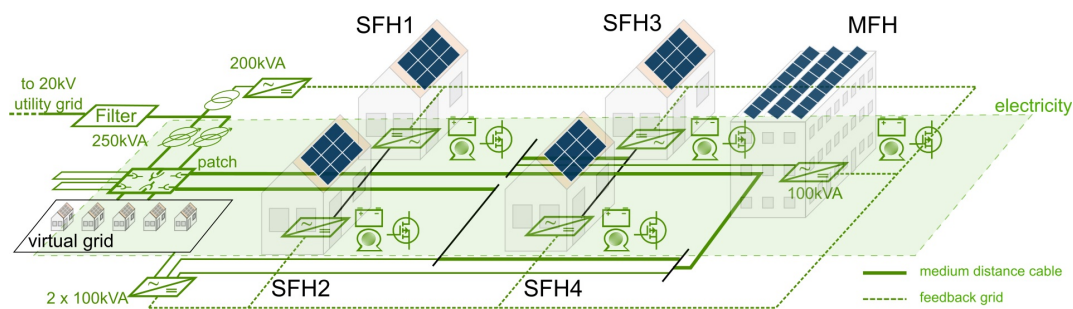


Figure 1: Electric model of the laboratory microgrid

Requirements

- Electrical engineering background with knowledge of dynamic modeling of electric grid.
- A good understanding of differential equations and numerical integration methods.
- Previous experience with Modelica is preferable.
- Affinity to programming and structural thinking.
- Good team-player and an attitude to learn and explore new approaches.

References

- Peter A. Fritzson, "Principles of Object-Oriented Modeling and Simulation with Modelica 3.3: A Cyber-Physical Approach"
- Hassan Bevrani Bruno Francois Toshifumi Ise, "Microgrid Dynamics and Control"

Contact

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