Energiewende
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News

Joint Project
"Software-based real-time grid control"
Prof. Jean-Yves Le Boudec

Publications

Y.-K. Tran, D. Dujic and P. Barrade. Multiport Resonant DC-DC Converter. The 41st Annual Conference of the IEEE Industrial Electronics Society - IECON2015, Yokohama, Japan, 2015.

L. E. Reyes Chamorro, M. Paolone, A. Bernstein and J.-Y. Le Boudec. A SuperCapacitor Agent for Providing Real-Time Power Services to the Grid. IEEE PES Conference on Innovative SMART GRID Technologies (ISGT-LA 2015), Montevideo, Uruguay, 2015.

J.-Y. Le Boudec and M. Paolone. Pilotage automatique des réseaux de distribution en temps réel, in Bulletin SEV/VSE, vol. 2015, num. 10, p. 37-40, 2015.

L. Fabietti and C. Jones. Stochastic MPC for Controlling the Average Constraint Violation of Periodic Linear Systems with Additive Disturbances, 2015.

A. Bernstein, L. E. Reyes Chamorro, J.-Y. Le Boudec and M. Paolone. Real-Time Control of Microgrids with Explicit Power Setpoints: Unintentional Islanding. 2015 IEEE PES Power-Tech, Eindhoven, Netherlands, 2015.

Prototype

As of November 2015, the project has a working demo of Commelec. It consists of:
- Commelec Grid Agent
- a fully-controllable battery
- an uncontrollable PV system
- a fully-controllable load that mimics eight 1kW electrical on-off heaters
- a microgrid (about 1 km of cables)

The project team has defined two demo-experiments:
1. Tracking a sinusoidal power request at the slack bus (the point of common connection to the upper-level grid)
2. Providing a primary frequency-control service to the main grid.