

**Session Title: Digital Technology for Distributed Energy Resources**

**Name: Mattia Marinelli**

**Position: Associate Professor in distributed energy resources at the Center for Electric Power and Energy, Department of Electrical Engineering, Technical University of Denmark (DTU)**

**Abstract title: Controlling the electrical system with distributed energy resources: the role of electric vehicles**

The displacement of conventional plants in favor of renewables poses challenges to system operators that need to balance the electrical system. Distributed energy resources can play a pivotal role to provide the necessary flexibility to restore the balance. One must keep in mind though that most of these resources are not designed for supporting the electrical system. For example, electric vehicles main purpose is to drive, not to provide flexibility to the grid. The talk presents experimental results and theoretical investigations on grid integration of electric vehicles, taking the electrical system of the Danish island of Bornholm as test case.