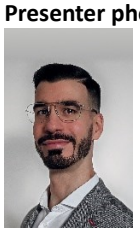
Presenter name: Marco Lauricella
Presenter affiliation: ABB AG Corporate Research Center Germany
Presenter photo:



Presenter short bio:
Marco Lauricella is a Senior Scientist in the Optimization and Control group at ABB Corporate Research, Germany. He received the BSc and MSc degrees in Automation and Control Engineering in 2013 and 2015, respectively, from Politecnico di Milano. He further obtained his PhD in Information Technology cum Laude in 2020 from Politecnico di Milano, under the supervision of Prof. Lorenzo Fagiano, with a dissertation titled "Set Membership identification and filtering of linear systems with guaranteed accuracy". From 2016 to 2017 he held the position of Process and Automation Engineer at Development Engineering Automation srl, Milano, and in 2018 he was visiting researcher at ETH Zurich, Switzerland. His research interests include optimization, process automation, and energy management.

Paper ID: 210
Paper title: Energy supply optimization and demand-side flexibility of a paper drying plant
Paper abstract:
An energy management system (EMS) with demand-side flexibility is presented, to support renewable energy integration and emissions reduction in industrial sites, and to enable industrial loads participation to ancillary services programs. We propose a hierarchical EMS, with a model simulating a paper drying plant at its core. A day-ahead energy cost optimizer schedules the use of fossil fuel-based and electricity-based heat generation sources to minimize the cost of energy and greenhouse gas emissions. The upper layer estimates the available demand-side flexibility of the energy sources use and outputs optimal bids for the ancillary service market. The proposed hierarchical EMS allows energy intensive industries to support the power grid while creating revenues and reducing emissions.