

Joint webinar organised by
CIGRE NGN Italy and NGN Denmark

Planning and Good Use of Green Electricity: How to effectively accelerate the green transition?

Wednesday, 29 June 2022



CIGRE Next Generation Network

The **Next Generation Network (NGN)** seeks to facilitate a successful transition into the power systems industry for **early-career professionals and students** by providing technical resources and networking opportunities for personal and technical development.

CIGRE NGN Italy and **CIGRE NGN Denmark** would like to invite you to a webinar where two top speakers will present current research activities regarding the planning and good use of green electricity.

Date and Time: 29 June 2022, 17:00 – 18:30 (CEST)

Platform: Microsoft Teams



Agenda: 17:00 – 17:10 Introduction of CIGRE NGN Italy & Denmark

17:10 – 17:40 Speech I by Mattia Marinelli: Chronicles of a Prosumer – Living by the Sun

17:40 – 18:10 Speech II by Filippo Spertino: Joint Growth of Photovoltaic Generators, Wind Turbines and Storage Systems for the Modern Electric Grids

18:10 – 18:30 Round table discussion

Registration: [link](#)



Join Us

NGN Italy Signup: <https://www.cigre-italy.org/giovani-soci-ngn/>

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NGN Denmark Signup: <https://cigre.dk/new-generation-network/>

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Speech I: Chronicles of a Prosumer – Living by the Sun

Solar energy and electro-mobility are often advocated as one of the best possible combinations toward a sustainable, carbon-free and decentralized energy future. But is it always the case? How far can users cope with the whims of the weather? This talk discusses the hands-on experience of Mattia with electric vehicles, and demand response in general, in his quest to live by solar energy. The set-up in the house, where Mattia and his family test and experience first-hand energy technologies, is analysed together with lessons learned from projects dealing with the management of distributed energy resources, including smart charging of electric vehicles and battery degradation. Economic implications on energy metering, self-consumption of locally produced energy and comparison between vehicle-to-grid strategies and storage are included along with various technical perspectives.

Mattia Marinelli



Mattia Marinelli holds an M.Sc. degree in Electrical Engineering (2007) and a Ph.D. degree in power systems (2011) from the University of Genoa, Italy. Since 2012, he has been working at the Technical University of Denmark, where he is an Associate Professor in distributed energy resources. His research interests include power system integration studies, wind and solar data analysis, demand-side and electric vehicles management, and distributed energy resources modelling. Mattia teaches two courses at Master level on wind integration and distributed energy technologies and is involved in three research projects: H2020 Insulae (responsible for the demonstration activities on the island of Bornholm on technologies for energy decarbonization); Danish-funded Topcharge and ACDC, Mattia is leading a group of 24 researchers focusing on e-mobility and prosumers integration.

Speech II: Joint Growth of Photovoltaic Generators, Wind Turbines and Storage Systems for the modern Electric Grids

The presentation discusses a methodology for the optimal sizing of photovoltaic (PV) generators, wind turbines and electrochemical batteries to produce electricity characterized by lower intermittency with respect to the application of the single technologies. The main goal is the definition of the best capacities (power and energy) of PV generators, wind turbines and batteries to reach the highest self-sufficiency in terms of load satisfaction or cost-effectiveness in terms of economic investment. Regarding the optimal sizing procedure, a possible limitation in the interaction with the grid is considered. In fact, limits in the injection in the grid affect the energy flows, the economic effectiveness of the investments, and thus the sizing results. After the explanation of the procedure, of the sizing criteria, and of the technical and financial constraints, case studies are presented, and a parametric analysis of the effect of possible injection limits is shown.

Filippo Spertino



Filippo Spertino received his M.Sc. and Ph.D. degrees in Electrical Engineering in 1995 and 2000, respectively, from Politecnico di Torino, Italy. Currently, he is an Associate Professor of Photovoltaic and Wind power systems. His research activities include design, simulation, experimental testing on photovoltaic, wind, storage power systems and calibration of electronic instrumentation. He was the principal investigator of some research and industrial projects, regarding innovative photovoltaic applications with storage systems, funded by various companies. He participated in several European projects: PERSIL, SINGULAR, e-HIGHWAY 2050, OSMOSE, and is the scientific responsible for the Erasmus+ projects EUMONG and THREE Lanka. He is IEEE senior member (2018) and a member of CEI (Italian Electrotechnical Committee since 2007) and IEC (International Electrotechnical Commission), in technical committees on Photovoltaic Energy Systems and Wind Energy Systems.