

Joint webinar organised by
CIGRE NGN Italy and NGN Cyprus

Synergies among infrastructures: a path for the sustainability?

Thursday, 12 October 2023



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 Cyprus** 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: 12 October 2023, 14:30 – 16:00 (CEST)

Platform: Microsoft Teams

Agenda: 14:30 – 14:40 Introduction of CIGRE NGN Italy & Cyprus

14:40 – 15:10 Speech by Mathaios Panteli, University of Cyprus

Integrated Water-Energy Resource System Design and Planning for Enhancing the Penetration of Renewable Energies in Africa

15:10 – 15:40 Speech by Francesco Sanniti

High voltage power lines and railway-highway structures: the synergy of the future to save the environmental impact of electrical corridors

15:40 – 16:00 Round table discussion

[Registration](#)



Join Us

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

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NGN Cyprus Signup: <https://cigre-cyprus.org/>

For Inquiries: Mathaios Panteli, panteli.mathaios@ucy.ac.cy



Integrated Water-Energy Resource System Design and Planning for Enhancing the Penetration of Renewable Energies in Africa

Hydropower is currently the leading source of renewable energy storage and power system flexibility worldwide, including Africa. To play though a significant and sustainable future role in the low-carbon energy transition of Africa, integrating river basins into strategic multi-sector energy systems planning is required, which also should engage broad stakeholder coalitions and be driven by new nexus policy and regulatory incentives. In this context, this presentation will share relevant experiences and studies on African river basins by the recently completed UKRI-funded FutureDAMS project, ranging from novel AI-based algorithms to perform water-energy trade-off-informed design and planning for enhancing the penetration of variable wind and solar power in African electricity systems, to water-energy nexus policy and regulatory opportunities and barriers in Africa.

Mathaios Panteli



Mathaios Panteli holds an Assistant Professor position within the Department of Electrical and Computer Engineering, University of Cyprus (UCY), since January 2021 and an Honorary Lecturer position in Department of Electrical and Electronic Engineering, Imperial College London, UK, since September 2022. Prior to joining UCY, he was a Lecturer at the Power and Energy Division of The University of Manchester, serving as the Deputy Lead of the Sustainable Energy Systems research cluster. He is an IEEE Senior Member, an IET Chartered Engineer (CEng), the Chair of the CIGRE WG C4.47 "Power System Resilience", a topic lead of the IEEE Task Force on Water-Power Systems, and a Fellow of the Higher Education Academy (UK). He also serves as an Associate Editor in IEEE Transactions on Sustainable Energy and IET Renewable Power Generation, and he is the recipient of the prestigious 2018 Newton Prize.

High voltage power lines and railway-highway structures: the synergy of the future to save the environmental impact of electrical corridors

The rationalization of the territorial resources leads to consider carefully the possibilities of using highway and railway infrastructures (existing or planned ones) for cable line installation within them. The full compatibility of such synergy "transport – electrical power transmission" involves different branches of engineering. The presentation provides an overview of the research undertaken for a fully reliable use of this combination. The webinar aims at highlighting a procedural approach that should be followed in order to analyze all the key elements which are involved in the safety operation of power transmission lines hosted in transport infrastructures. Firstly, the geometrical compatibility between different types of power transmission technologies, (i.e. Gas insulated lines and high voltage direct/alternating current insulated cable lines), and transport infrastructures (i.e. motorway galleries, railway galleries and railway prospectation tunnels) have been analysed. Subsequently, the impact of the magnetic field generated by the different power transmission technologies inside the transport infrastructures is discussed. Moreover, the risks and the effects of a short circuit fault that could occur inside the hosting facility are presented. Finally, an analysis of the reliability of the synergy between power transmission systems and transport infrastructures is discussed.

Francesco Sanniti



Francesco Sanniti was born in Feltre, Italy, in 1994. He received the M.Sc. Degree in electrical engineering from the University of Padova, Italy, in 2019. He received the Ph.D. title in electrical engineering in 2023 from the same University. Currently, he is a research fellow for the LTEE laboratory at the University of Padova. His main fields of research are dynamic stability and control of power system restoration processes and of low-inertia systems. Other recent activities regard the implementation of new algorithms for the fault distance detection in single-ended travelling wave devices and the implementation of multi-period optimal power flow for transmission planning purposes. He is co-author of 22 scientific papers, and he is member of IEEE, CIGRE and AEIT (Italian Electrotechnical Association).