

Press Release



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New Project Launched “Modernising the distribution grid for enabling high penetration of photovoltaic electricity through advanced data analytic operational observability and management”



The FOSS Research Centre for Sustainable Energy of the University of Cyprus announces the commencement of the project “**Modernising the distribution grid for enabling high penetration of photovoltaic electricity through advanced data analytic operational observability and management**” (acronym: **ELECTRA**), which is co-

financed by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation, under the programme “Integrated Projects”. The project has a total budget of €1,168,600 and is coordinated by the University of Cyprus (Coordinator: Dr. George Makrides - Research Fellow at the FOSS Research Centre for Sustainable Energy).

The main objective of the integrated project is to fuse together extensive interdisciplinary scientific research in the field of grid integration of renewable energy sources (RES) and to target the major challenges and barriers to boost the integration of RES, by covering the whole research and innovation (R&I) wide spectrum of enabling dynamic, automated and cost-effective management of smart distribution grids.

Essentially, the aim of the ELECTRA project is to pave the way for increased penetration of distributed generation (DG) systems (predominantly solar photovoltaic systems), to be integrated and optimally managed at the distribution grid. This can be achieved by modernising the distribution grid for real-time predictive observability and automated control with the use of advanced data analytics that leverage machine learning principles.

The scientific breakthrough of this project lies, primarily, in the holistic approach to address critical challenges that prevent high integration levels of photovoltaics in power system networks by implementing smart distribution system management tools that increase the visibility of RES and distributed energy resources. Such innovative tools further encompass operation-state estimation models of grid assets and facilitate novel RES control functionalities with the use of cost-effective programmable automation controllers.

For the successful implementation of the project and establishment of the new integrated centre for photovoltaic electricity-to-grid integration, the project will be executed by a transnational consortium comprising of the University of Cyprus (UCY-Cyprus), Austrian Institute of Technology (AIT-Austria), Technical University of Denmark (DTU-Denmark), Electricity Authority of Cyprus (EAC-Cyprus), GESOLAR Ltd

(GESOLAR-Cyprus), Deloitte (DT-Cyprus), Cyprus Energy Agency (CEA-Cyprus), Ministry of Energy, Commerce and Industry (MECIT-Cyprus), Cyprus Energy Regulatory Authority (CERA-Cyprus) and Cyprus Certification Company (CCC-Cyprus). The Project Coordinator is Dr. George Makrides, a Research Fellow at the FOSS Research Centre for Sustainable Energy, who has extended expertise in the area of RES performance and modelling, renewable grid integration issues and smart energy landscapes.

Finally, it should be noted that the development of new infrastructure, intelligent grid pilots, smart grid emulators and subsequent local research capacity in this timely domain has strategic importance for the FOSS Research Centre and the Engineering School of the University of Cyprus towards developing a competitive edge in research of RES grid integration and grid modernization to enable high RES shares at local, regional, and international level. Moreover, the links that will be created between the research institutions are expected to yield long-term academic and research benefits including sharing of research infrastructures, joint projects and exchange of researchers.



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Dr George Makrides is the Head of Renewables, Grid integration and Smart Grids group of FOSS. He is involved in research topics related to RES systems (focal point solar photovoltaic technologies), grid integration of variable renewable sources and smart grids. He has published over 100 papers in international journals and conference proceedings, and coordinated and participated successfully in various National and European research funded projects.