



Planning tools for rural electrification

Petros C. Aristidou

Sustainable Power Systems Lab
Department of Electrical Engineering, Computer Engineering and Informatics
School of Engineering and Technology
Cyprus University of Technology

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Abstract: It is not an exaggeration to say that electricity is one of the pillars supporting modern societies. Access to electricity -- often taken as granted in western countries -- promotes economic growth, healthcare, education, and overall enhances the quality of life. However, even today there are still more than 800 million people worldwide without any access to electricity. The majority of these people live in rural areas in Africa and Asia. How can we plan for the electrification of these rural areas to ensure access to affordable, reliable, sustainable and modern energy for all? In this seminar we will see how we can formulate the problem of designing a new Microgrid to electrify a rural area as a mathematical optimization problem. We'll investigate the challenges posed by such complex optimal optimization problems and we'll introduce PyEPLAN -- an open-source tool developed to support rural electrification projects.

Biography: Petros Aristidou got his Diploma from the Department of Electrical & Computer Engineering at the National Technical University of Athens (Greece) in 2010 and his PhD at the University of Liege (Belgium) in 2015. During his PhD, he worked on domain decomposition methods for real-time dynamic security assessment of transmission systems. He took a position as a Postdoctoral Researcher at the Power Systems Laboratory at ETH Zurich (Switzerland) for one year, working on the development of new control algorithms for future, low-inertia, power systems. Between 2016-2019 he was a Lecturer at the University of Leeds (UK), where he was leading the Smart Grids Lab. Since January 2020, he is a Lecturer in Sustainable Power Systems at the Cyprus University of Technology. His expertise is on power system dynamics, planning, and control and he has participated in several working groups looking into the challenges of low-inertia systems. Recent projects and publications can be found at <https://sps.cut.ac.cy>.