



Department of Electrical and Computer Engineering

Title: «Indices for Assessing the R.E.S Penetration in Transmission Networks of Isolated Systems»

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Room KENTP. ΠΤΕΡ. - E113, Old Campus
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Abstract:

The continuous increase on the penetration levels of Renewable Energy Sources (RES) in power systems has led to radical changes on the design, operation and control of the electrical network. Since the issue of the Directive 2009/28/EC of the European Parliament, each country-member of the European Union, has set specific targets to achieve in accordance to the Directive. Consequently, with renewable energy sources' integration increasing at a fast rate, the shape of the grid is continuously changing, thus revealing the dynamic nature of the subject. This work investigates the influence of these changes on the operation of a transmission network by developing a set of indices, spanning from power losses to G.H.G emissions reduction. These indices are attempting to quantify any impacts therefore providing a tool for assessing the RES penetration in transmission networks, mainly for isolated systems. These individual indices are assigned an analogous weight and are mingled to provide a single multi-objective index that performs a final evaluation. These indices are used to evaluate the impact of the integration of RES into the classic WSCC 3-machine, 9-bus transmission network.

Biography:

Alexandros Nikolaidis was born in Ptolemaida, Greece in 1986. He received his Diploma in Electrical & Computer Engineering from the Democritus University of Thrace, Greece, in November, 2010 and his MSc degree from the University of Cyprus in May, 2012. Since September, 2012 he is pursuing his PhD degree at the Department of Electrical and Computer Engineering of the University of Cyprus. His main research interests include Power System Analysis, Power System Operation, Renewable Energy Sources integration and Power System Planning.