
Electrical & Computer Engineering
S E M I N A R
Louisiana State University

**Operational Equilibria of Electric and Natural Gas
Systems with Limited Information Interchange**

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Abstract—Electric power and natural gas systems are typically operated independently. However, their operations are interrelated due to the proliferation of natural gas-fired generating units. We analyze the independent but interrelated day-ahead operation of the two systems. We use a direct approach to identify operational equilibria involving these two systems, in which the optimality conditions of both electric power and natural gas operational models are gathered and solved jointly. We characterize the equilibria that are obtained under different levels of temporal and spatial granularity in conveying information between the two system operators. Numerical results from the Belgian system are used to examine the impacts of different levels of information interchange on prices and operational cost and decisions in the two systems.

Bio—Antonio J. Conejo, professor at The Ohio State University, OH, US, received the B.S from Univ. P. Comillas, Spain, the M.S. from MIT, US and the Ph.D. from the Royal Institute of Technology, Sweden. He has published over 165 papers in SCI journals and is the author or co-author of books published by Springer, John Wiley, McGraw-Hill and CRC. He has been the principal investigator of many research projects financed by public agencies and the power industry and has supervised 19 PhD theses. He is an IEEE Fellow.

When: Monday, 11 February 2019, 11:30 - 12:30

Where: Room 1202 Patrick F. Taylor Hall

Info: <https://www.lsu.edu/eng/ece/seminar>

