



Ben-Gurion University of the Negev
Blaustein Institutes for Desert Research
The Swiss Institute for Dryland Environmental and Energy Research
Alexandre Yersin Department of Solar Energy and Environmental Physics

Title:

Challenges in Modeling, Optimization and Control of Energy Networks (Transmission and Distribution of Power and Natural Gas)

Speaker:

Dr. Michael Chertkov
Theoretical Division
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Abstract:

Challenges in simulation, optimization and control of natural gas transmission systems and their coupling to power transmission systems are reviewed in this presentation describing research on the subject by the Grid Science Team at LANL.

In this presentation I will describe opportunities but also challenges emerging in view of new dependencies between power and natural gas regional, national, and international systems.

The availability of natural gas and the need for cleaner electric power have prompted widespread installation of gas-fired power plants and caused electric power systems to depend heavily on reliable gas supplies. The use of gas generators for base load and reserve generation causes high intra-day variability in withdrawals from high pressure gas transmission systems, which leads to gas price fluctuations and supply disruptions that affect electric generator dispatch and threaten the security of power and gas systems. The new situation sets up new problems for optimization dispatch schedule and gas compressor protocols which need to be compared with the status quo solutions. Some early work on this emerging subject will be discussed.

Tuesday, December 27, 2016, 11:00
Lecture room, Physics Building (ground floor)