Power Systems Engineering Research Center

The Effects of Greenhouse Gas Limits on Electric Power System Dispatch and Operations

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Public Tele-Seminar
Tuesday, September 2
2:00-3:00 Eastern Daylight Time

Description: The electric power industry is and will continue to be a primary focus of existing and future greenhouse gas (GHG) emission regulations. Different from other air pollutant regulations such as for SO_2 and NOx, GHG regulations have the potential to significantly affect electric power system dispatch and operations over a relatively short period, so the implications are significant enough to warrant an in-depth study. This presentation first discusses several power system features that will impact CO_2 emissions. Then the formulation of a CO_2 emission-constrained AC optimal power flow (OPF) is presented. The effects of the proposed approach on power system dispatch and operations were investigated using the standard IEEE 24-bus reliability test system through several case studies. For each case study, a wide range of CO_2 prices were modeled.

Biography: Miaolei Shao received his Bachelors' degree and M.S. in Electrical Engineering from Harbin Engineering University, Harbin, China, in 1999 and 2002 respectively. Currently, he is pursuing his Ph.D. at Wichita State University where he is a Graduate Research Assistant. He has worked on several projects, including distribution reliability and testing of underfrequency relays in response to the August 2003 North American blackout. His Ph.D. dissertation is on the effects of greenhouse gas regulations on the interconnected electric power system.

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Shmuel welcomes feedback on the tele-seminars and suggestions for future ones.