

Edgar C Portante

Senior Energy Systems Engineer

Senior Energy Systems Engineer with focus on modeling, simulation, and performance assessment of electric and natural gas systems in the context of threats from natural and made-made hazards. Expertise includes analysis of inter-dependent electric and natural gas systems, assessment of power system performance under seismic and climate change stress, resolution of energy system operational problems, identification of system vulnerabilities, and development of resiliency enhancement options. Consistently serves as a lead engineer in numerous resiliency assessment projects conducted for industry and federal agencies (e.g., DHS, DOE, USAID, and FEMA). Managed program for the development of the early version of *NGfast* (for natural gas network simulation) and the current version of *EPfast* (for electric system simulation) models for impact assessment studies. Has a unique combination of computer and people skills. Prolific writer and publisher of scientific research papers.



Skills

- Computer modeling, simulation, and analysis of energy systems (electric and natural gas)
- Assessment of energy systems performance including validation and verification.
- Natural gas-electric interdependency contingency analysis
- Assessment of power system performance under seismic and climate change stress
- Generation and transmission capacity expansion planning
- Cascading failure analysis, unserved energy determination, and power outage estimation
- Research, data analysis, information synthesis, and report writing
- Project management

Selected Publications

Portante, E.C., Kavicky, J.A., Craig, B.A., Talaber, L, and Folga, S.M. (2017), *Modeling Electric Power and Natural Gas System Interdependencies*, Journal of Infrastructure Systems, American Society of Civil Engineers, Dec 2017, Volume 23, Issue 4, 04017035-1 to 04017035-18.

Portante, E.C., Kavicky, J.A, Craig, B.A., Talaber, L., and Folga, S.M. (2017), *Simulation of the January 2014 Polar Vortex and its Impacts on Interdependent Electric-Natural Gas Infrastructure*, Proceedings of 2017 Winter Simulation Conference, Las Vegas, NV, Dec 3, 2017, Electronic ISSN: **1558-4305**.

Portante, E.C., Craig, B.A., Talaber, L, Kavicky, J.A., and Folga, S.M. (2011), *EPfast: A Model for Simulating Uncontrolled Islanding in Power Systems*, Proc. 2011 Winter Simulation Conf., S. Jain, R.R. Creasey, J. Himmelspach, K.P. White, and M. Fu, eds, Proceedings of the 2011 Winter Simulation Conference S. Jain, R.R. Creasey, J. Himmelspach, K.P. White, and M. Fu, eds. IEEE Piscataway, NJ, 2867-2878.

Portante, E.C., Folga, S.F., Wulfkuhle, G., Craig, B.A., and Talaber, L.E. (2009), *New Madrid and Wabash Valleys Seismic Study: Simulating the Impacts on Natural Gas Transmission Pipelines and Downstream Markets*, Proc. 2009 Winter Simulation Conf., M.D. Rossetti, R.R. Hill, B. Johansson, A. Dunkin, and R.G. Ingalls, eds., IEEE Piscataway, NJ, 2867-2878.

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Portante, E.C., Craig, B.A., and Folga, S.F. (2007), "*NGfast: A Simulation Model for Rapid Assessment of Impacts of Natural Gas Pipeline Breaks and Flow Reductions at U.S. State Borders and Import Points*", Proc. 2007 Winter Simulation Conference, S.G. Henderson, B. Biller, M.H. Hsieh, J. Shortile, J.D. Tew, R.R. Barton, Eds., IEEE Piscataway, NJ, 1118-1126.