Abouzar Samimi and Navid Rezaei, 2019, Robust optimal energy and reactive power management in smart distribution networks: An info-gap multi-objective approach, *Electrical Energy Systems,* DOI: 10.1002/2050-7038.12115.

Abstract Distributed energy resources (DERs) are main components for smart distribution networks (SDNs). Generally, energy and reactive power dispatch scheduling problems are managed separately in SDNs. In this paper, a robust simultaneous active/reactive scheduling framework is presented for SDNs. In order to handle the uncertainties of wind power generation, upstream grid prices, and load demand forecasting in a robust framework, information gap decision theory (IGDT) technique is proposed. The proposed robust model considers the minimization of the energy and reactive power cost, carbon taxes of CO2 emission of all distributed resources along with the cost of implementation of demand response program. Numerical results based on a 22-bus distribution system validate the effectiveness of the proposed method from determining boundaries of uncertainties viewpoint. The obtained results verify that through the proposed IGDT-based model, the distribution system operator (DSO) can effectively schedule the all DERs while considering the possibility of problem with a specific uncertainty budget.