Saeid Ahmadi; Hani Mavalizadeh; Ali Asghar Ghadimi; Mohammad Reza Miveh; Abdollah Ahmadi, 2020, Dynamic robust generation–transmission expansion planning in the presence of wind farms under long- and short-term uncertainties, *IET Generation, Transmission & Distribution,* 4 December 2020, vol. 14, issue 23: pp. 5418–5427.

Abstract The main goal of generation expansion planning (GEP) and transmission expansion planning (TEP) is to expand the power system to satisfy the increasing demand of electricity while maintaining efficient operation of the system. The major objective of this study is to propose a dynamic, robust GEP–TEP expansion planning in the presence of wind farms considering both long- and short-term uncertainties. The suggested model allows implementing information-gap decision theory on multi-year long-term uncertainties, such as demand growth and future increase in production capacity to decrease the risk in long-term decisions. Additionally, a scenario-based approach is employed for short-term uncertainties in demand and wind power production in a 1-year time horizon. The main advantage of the proposed model is to enhance the power system robustness against the uncertainties corresponding to forecast errors. To verify the robustness of the suggested expansion planning model, it is applied to the Garver 6-bus and IEEE 24-bus test systems.

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