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Abstract The access of uncertain wind power brings great challenges to the safe and economic operation of integrated energy system, so it is particularly important to analyze its robustness. However, due to the strong randomness and uncontrollability of wind power, the lack of the prerequisites for conventional robust analysis methods makes the robust analysis of integrated energy systems difficult. In this paper, the robustness of the system in four different scenarios, such as energy storage (ES) unit and combined heating and power (CHP), is analyzed by using the information gap decision theory. Simulation experiments show that the presence of ES units and CHP units in the system greatly enhances the ability to absorb uncertain wind power and effectively improve the robustness of the system.

Keywords uncertainty, wind power, integrated energy system, style, information gap decision theory.