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A Review on Control Strategies In Microgrid To Smart

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Abstract. The development of microgrids comes as a necessity for the integration of renewable energy sources into remote communities, and as an intermediate milestone towards the realization of the Smart Grid. This paper presented an overview of current developments on microgrid control, classifying different contributions according to a defined three-level hierarchical structure. ESS (Energy storage systems) is identified as a key technology for the integration of intermittent renewable energy sources. This, in turn, introduces major challenges to the control system for the appropriate management of this resource. Other challenges for the control of microgrids include low-inertia of power electronic-interfaced units, low ratio of low voltage grids, uncertainty of generation output and unbalanced system conditions. Some of these challenges have been addressed in the literature, proposing a variety of techniques; however, robustness and addictiveness remain an issue in most of them. In addition, effectiveness and reliability of many of the proposed control techniques is yet to be demonstrated in microgrid test systems, which is an important milestone before their implementation in real systems. The paper presents a review on microgrid and control with technical perceptions.

Keywords: Droop control, ESS, Microgrid, Real systems, Model predictive control, Multi-agent systems.