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TPRI Shulin Microgrid integration and application

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Abstract

As international trends and the development of renewable energy continue to evolve, the pursuit of integrating renewable energy sources, reducing grid costs, and carbon emissions is a crucial trend in the future development of the power system. Microgrid exhibit the characteristics mentioned above. A microgrid refers to an independent electrical system composed of small-scale power generation units, energy storage systems, user loads, and energy management control systems. It can be divided into two modes grid-connected mode and islanded mode. In grid-connected mode, a microgrid can operate in parallel with the utility grid, while in islanded mode, it can operate independently, providing power to local users. Therefore, Taiwan Power Company-Taiwan Power Research Institute, a research and testing unit within Taiwan electricity industry, located in our Shulin branch, conducting the design, planning, and related testing of a microgrid demonstration site based on IEEE 2030.7 and IEEE 2030.8 standards. This demonstration site will be completed in two phases. The first phase has already been completed, including grid-connected and islanded transition testing, as well as the adoption of the IEC 61850 communication standard. The second phase will focus on microgrid controllers and the establishment of a testing facility. This facility will become a leader in research and testing for microgrid in Taiwan.

note: This document will be opened to the participants on IERE website before the Forum and opened to the public afterward.