The 18th IERE General Meeting and Japan Forum
May 21-24, 2018, Kyoto, Japan

Application of Plug & Play Devices in Comprehensive Energy Service

Lv Zhipeng
Senior Engineer, Power Distribution Department,
China Electric Power Research Institute Beijing, China

Keywords: *comprehensive energy service; Plug & Play devices; distribution sources; virtual power plant; source-network-load*

Abstract

The State Grid Corp of China issued that the comprehensive energy services should be placed in a more prominent position. This means that comprehensive energy services will help consolidate the company's electricity market, expand business scope, enhance customer service capabilities, drive the development of related industries, foster new market formats and increase new benefits growth points. Comprehensive energy service is a new energy service to satisfy the terminal customers' diversified energy production and consumption. Its main feature is the close connection with the terminal users of the distribution network. The quality of the comprehensive energy service is directly affected by the advantages and disadvantages of the plug & play technology of the user side. This report describes the latest work on the user plug & play devices and technology direction of the research team, including modular distributed inverter device, storage bi-directional converter, intelligent load control terminal, stable DC voltage controller, AC/DC energy router and autonomous network operating mechanism. The advantages of series techniques are to weaken the role of communication, improve the state perception speed of power grid, reduce the overall investment, improve the reliability and robustness of system operation. Reliable underlying access equipment lays the foundation for comprehensive energy services..