Format 3

Abstract

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Solutions to Overcome Challenges for Microgrid

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Abstract

There are worldwide activities for the energy transition to meet the global carbon neutrality goals by 2050. Technologies or systems such as VPP (Virtual Power Plant) and DERMS (Distributed Energy Resources Management System) are key systems to manage and operate many types of renewable resources integrated into the grid. In addition, R&D studies and demonstrations are active such as microgrids and grid interconnection, to manage and operate diverse types and heavy penetration of renewables integrated into the grid.

A Microgrid type of structure for the electricity supply model is expected to realize regional energy independence from the point of view of not only economic efficiency but also resiliency. However, there are no standard definitions of microgrids, and still, many experimental projects are being developed based on each local market requirement. Furthermore, to enhance functionality and availability, microgrid is expected to collaborate with the bulk power system.

Since 2003, Mitsubishi Electric Group (MELCO) has been developing packages/services to support the transition of the power market, called “BLEnDer (**B**id **L**iaison and **En**ergy **D**ispatch**er**).” To align with global developments and changes in the power industry, MELCO has been offering a series of software/service products partnering with global leaders. In the presentation, the fundamental functions required to meet several standard types of microgrid operation and planning are discussed, and some insights into microgrid projects are now in commercial operation.

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