

**Question PS1.2**      **Are the specifications and requirements for new applications (e.g. BESS and Sync Comps) and their role in power systems adequately well understood?**

Typically, the BESS and other power electronic devices are installed in the specific location with certain functions to support the network. The users or the designers should clearly define the following roles of the devices to meet what system requires;

- Functions and applications
- Response time
- Control and monitoring system
- Economic analysis
- etc.

For example, BESS in microgrid may have the different function from the BESS used for Energy arbitrage. BESS need to regulate the voltage and the frequency of the microgrid when microgrid is islanded from main grid. Sometimes, BESS also requires to provide the fault current to the weak network for the protection system's operation. While BESS for energy arbitrage is mainly used for storing energy during cheap electricity cost and releasing the energy during high electricity cost.

However, the BESS and other power electronic devices are required to meet the national grid code. The basic requirement in the grid code is as follows;

- Voltage regulation
- Frequency regulation
- High Voltage Ride Through (HVRT)
- Low Voltage Ride Through (LVRT)
- etc.

For more details about BESS, TB 869 may be a guideline for the real implementation.

Contents:

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3. Substation design
4. Installation and commissioning
5. Maintenance
6. Conclusion and recommendation

Appendix

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- B. Links and references
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