Multi-timescale Transient Stability in Power-Electronized Power Systems

Chair:

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Scope of Panel

Owing to efficiently convert electrical energy and flexible controllability, power electronics has been widely displacing traditional electromagnetic apparatuses in generation, transmission and consumption, such as, renewable generations, DC transmission, distributed energy resources, variable speed loads, etc. With their penetration increasing, the power system gradually tends to be power electronized.

Since the transient performances of power electronics apparatuses are more complex and variable, the transient behaviors and stability followed by grid faults of the power-electronized power systems experience diverse changes. Transient accidents caused by the connection of power electronics apparatuses have increasingly been reported. Thus, it is extremely urgent to explore how power electronics apparatuses affect power system transient stability.

Diversified modeling of apparatuses under various fault conditions, interaction among different timescales and multiple machines, and the transient stability in multiple timescales pose challenges to analyze transient stability of power-electronized power systems.

The panel is devoted to reveal technical barriers and disseminate the latest advances in multi-timescale transient stability of power-electronized power systems. The scope of this panel ranges from transient modeling, analysis and optimal control in power-electronized power systems.

Panelists:

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