International workshop on dynamic stability challenges of future electric power grids

Location:
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Abstract
The impact and penetration of fluctuating renewable energy sources (RES) are drastically increasing, driven by the falling costs and the proactive expansion in emerging economies and will be continuing in future as part of a sustainable society. Some reasons that motivate these changes are fighting climate changes, eliminate the risk of nuclear power, reduce energy imports, stimulate technology innovation, increment energy security and strength the local economies.

Implementing the transition to a cleaner energy production becomes extremely challenging particularly when green technologies production are highly stochastic, weather dependant, without rotating machines as the rest of the classical electric power plants, and indirectly require the use of energy storage technologies to reach its maximum potential. Some of the envisaged dynamic stability challenges of future power grids relate to the lack of rotating masses after nuclear decommissioning (lower inertia) making it increasingly difficult to maintain a constant frequency in the system and decreasing the damping of inter-area oscillations.

Most of the works developed or under investigation explore different aspects to massively integrate RES into the electric power grid; social and economic analysis, how to improve the energy efficiency, what is the role of energy storage systems and the new structures of the distribution grids, however not enough focus has been put on investigation of the stability and security implications at the transmission system level. This workshop will bring together a panel of experts from industry and academia in Europe to debate and present what they are doing to overcome the future energy challenges from a dynamic stability perspective. The contributions will address challenges in monitoring, protection and control of the future power grid.