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Electrical interaction between units prone to vortex pressure pulsations

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Abstract

The electrical interaction between generating Francis units prone to vortex pressure pulsations is studied for a six machines power plant in North America. The electromagnetic torque response of one generator in the frequency domain is identified as well as the response of the neighboring units in order to assess the level of interaction between the units with and without Power System Stabilizer (PSS). The results of the simulation worked out with the software SIMSEN are discussed and compared with results from a different model using the Dymola software. Some simulation cases are run using as input the torque oscillations which were previously computed from pressure pulsations. The results are presented in terms of power fluctuations at generator terminals and at the substation.