



IEEE Forced Oscillations TF

Meeting Minutes: Monthly TF Meeting

Version 1.0

10/18/2024

Location: Zoom (provided by Kai Sun)

Time: 1:00pm – 2:15pm (EST), 09/20/2024 (Wednesday)

Attendees:

- Kai Sun (co-chair, UTK)
- Bin Wang (secretary, ISO-NE)
- Denis Osipov (NYPA, presenter)
- Melanie Bennett (UTK, presenter)
- Yilu Liu (UTK)
- Slava Maslennikov (ISO-NE)
- Luke Dosiek (Union College)
- Francisco J Cifuentes (KU Leuven)
- Jimmy Zhang (ERCOT)
- Joy Zhao (UTK)
- Kaiyang Huang (UTK)
- Lakshmi
- Mahsa Sajjadi (UTK)
- Prasad Wadduwage (Univ. of Moratuwa)
- Xiaozhe Wang (McGill)
- Yan Wen (UTK)
- Yaojie
- Hanchao Liu (GE Vernova)

Some notes from discussions:

- **On oscillation frequencies:** Typically, IBRs are reported to cause 8 Hz (or above) sub-synchronous oscillations while they can cause wide band oscillations from 0,1 Hz to 30 Hz because of their wide-ranging time constants and control parameters. For instance, there was a solar plant causing 0.15 Hz oscillation in ISO-NE system.
- **On data sampling rates:** Oscillations below 5 Hz are easier to design filters and detect using phasor data. Oscillations above 10 Hz may need PMUs with higher sampling rates or point-on-wave data. PMUs are not sufficient for sub-synchronous oscillations. For instance, EPRI's test results show that PMUs (30 samples/sec) are only good for oscillations up to 3 Hz, above which would give significant distortions. Digital fault recorders (DFRs) can provide 5k samples/sec, but only give 1-2 sec post-fault recordings.



- **On power plant oscillations:** To judge whether a power plant oscillation is caused by the governor or exciter, the active and reactive powers of the plant can be checked. PSS is designed to compensate for the phase lag caused by the exciter, addressing natural oscillations in a targeted frequency range. For non-exciter-induced forced oscillations, PSS may not be as effective as it is for natural oscillations.