

# Paris Session 2022



## Management of system strength constraints using WAMPAC

### C4 Power System Technical Performance

PS3 – Q15: What system studies, success criteria, coordination and considerations shall be accounted for when designing special protection schemes or other critical system level protection for managing system stability as the power system and generation mix are changing rapidly?

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Group Discussion Meeting

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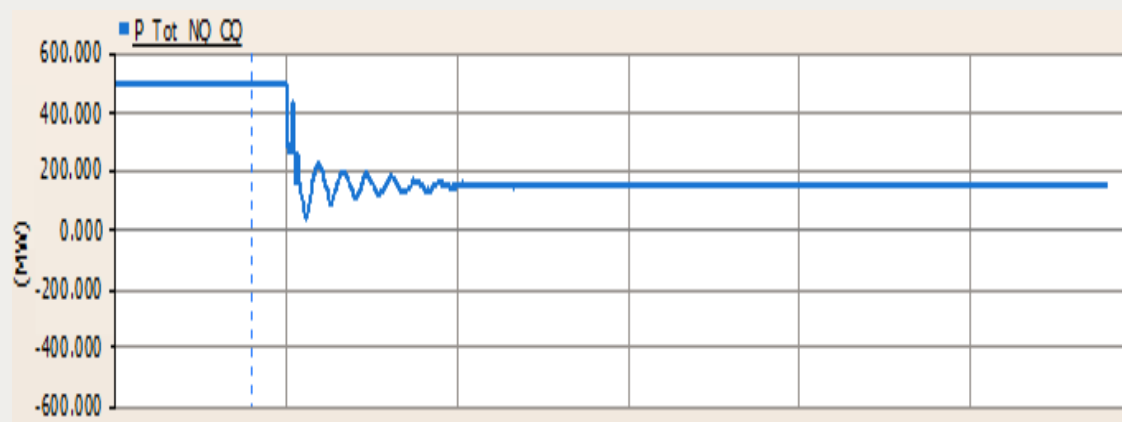
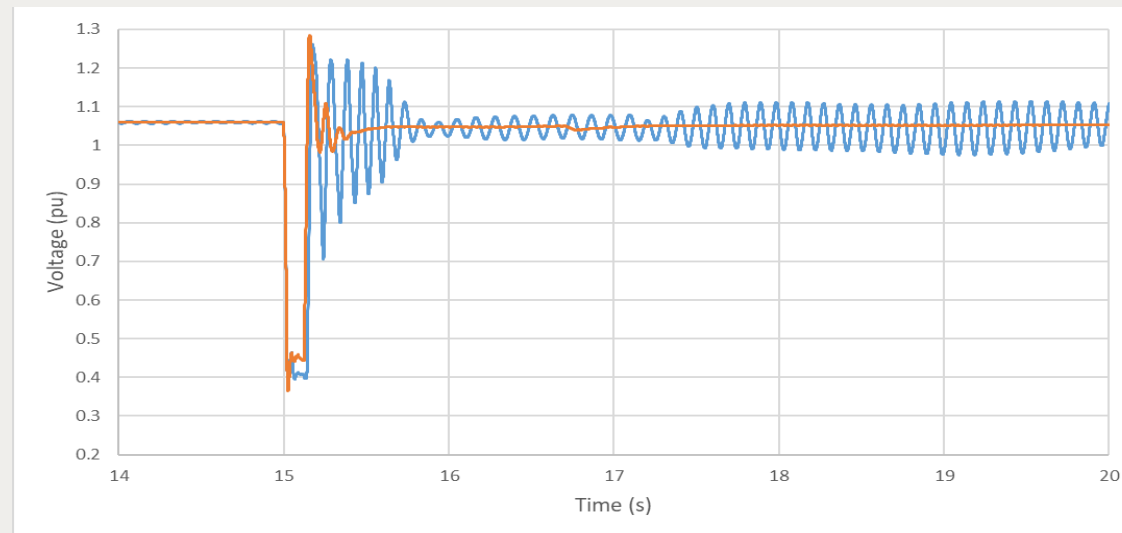
# Impact of outages on IBR operation



- Reduction in system strength and severe constraints to IBR plants during multiple transmission line outages
- IBR would be operating at lower output depending on the outage combination
- Limitations in taking planned outages due to IBR constraints

# Transmission outage management using WAMPAC

- Monitoring critical transmission feeders using WAMPAC scheme
- Tripping of pre-selected IBR plants post-contingent upon disconnection of a monitored feeder
- Series of EMT studies required to identify critical feeders that require monitoring using WAMPAC and IBR plants that are required to be tripped post contingent
- Multiple transmission elements can be taken out of service as a planned outage
- No requirement to trip IBR plants for single pole auto-reclose events
- Higher IBR output can be maintained at pre-contingent stage



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# Challenges

- These SPSs can be complex to design, maintain and audit interactions and co-ordinations
- The benefits of such schemes need to be counter-balanced by risk brought by the schemes themselves (mal operation, unintended interaction of multiple schemes, inadequate maintenance or settings due to the changing power system)
- Need to minimise operating risks