

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Synchronized Measurement Working Group (SMWG) Update

## NASPI Working Group Meeting

April 4, 2023

Clifton Black, Vice-Chair SMWG

**RELIABILITY | ACCOUNTABILITY**



- Criteria and process for creating oscillation reports
  - Reporting Template:
    - <https://www.nerc.com/comm/RSTC/Pages/SMWG.aspx>
  - Proposed Reporting Criteria – A Check List
- Confidentiality guidelines
- Data gathering

## Parameters

1. **Oscillation Type:** Fundamental characteristic of oscillation.  
(Please choose one): Choose an item.  
*(Click or tap "Choose an item" to activate drop down box)*
2. **Duration:** The time-period for the reported oscillations.  
**Start:** Click or tap here to enter text.  
**Stop:** Click or tap here to enter text.  
**Duration (UTC Only):** Click or tap here to enter text.
3. **Repeated:** A one-time phenomenon or observed several times.  
Yes:  No:   
a. If Yes: How often? Choose an item.  
*(Click or tap "Choose an item" to activate drop down box)*  
b. If Conditional, please specify: Click or tap here to enter text.
4. **Oscillation Frequency:** List dominant fundamental and harmonic (if any) frequency component(s) in observable PMU waveforms during oscillation.  
List here
5. **Magnitude:** Overall maximum pk-pk amplitude in observable PMU active power, reactive power and voltage magnitude during oscillation.
6. **Oscillation frequency close to known mode(s):** Whether a fundamental or harmonic frequency is close to a known system mode to excite potential resonance conditions.  
Yes:  No:   
a. If Yes: Name the excited mode  
**Interconnection:** Choose an item. **Mode:** Choose an item.  
*(Click or tap "Choose an item" to activate drop down box)*  
b. If "Other" please list here (include interconnection): Click or tap here to enter text.
7. **Damping Ratio of Excited System Mode:** Click or tap here to enter text.

- Oscillation events should meet **at least 2** of the criteria below:
- Duration & Magnitude
  - ✓  $\geq$  5-minute minimum duration
  - ✓  $\geq$  20 MW or MVAR peak-to-peak on a single element
  - ✓ Large magnitude  $\geq$  50 MW or MVAR peak-to-peak on a single element
- System Impact
  - ✓ Transmission system impacts
    - Caused a load or generation loss or
    - Caused equipment damage or
    - Caused cascading outages
  - ✓ Caused a generation loss  $\geq$  50 MW
  - ✓ Large geographic/electrical spread
    - Affected a large area or
    - Excited an inter-area mode

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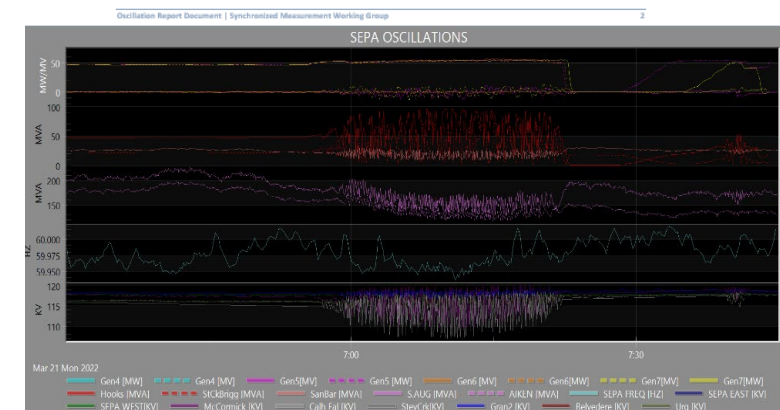
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- Goal of Report:
  - Provide information regarding the root cause of event
  - Identify key lessons learned
  - Provide recommendations
- Had discussions with the plant and RC.
  - Gathered facts regarding event
  - Developed understanding of perspectives regarding the report
- Performed analysis, report in final drafting stage.
- Developing template for the process
- Release Target: Early April 2023

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- Consolidating two SMWG oscillation guideline papers
  - Forced Oscillation Reliability Guideline
  - Oscillation Analysis Whitepaper
- Consolidation complete
- Going through final read-through
- Release target: early April 2023

- Addition of Oscillation as a category on RCIS (Initiated)
- Synchrophasor Data Accuracy Maintenance Manual
- New Focus on Use of PMU Data in Real-time Operations (Real Value, Real Impact, Real Business Cases)
  - Invite support and guidance from RTOS
  - Invite Operations Support Staff and Control Room Supervisors to twice-a-year meetings.
- Coordinate with NERC cyber security committees about CIP
  - Different RCs and operating entities have different practices
  - Need to consolidate opinions and have coherency
  - Currently one of the biggest obstacles in operationalizing PMU data
- Inter-RC Coordination
  - ESAMS

- **NASPI Coordination**
  - Leverage synergy with various task teams
- **Spring Hybrid SMWG meeting in conjunction with NASPI (4/6/23) | 8:30 am – 4:30 pm MST/PDT**
  - Salt River Project (SRP)
  - SRP Power Administration Building (PAB)
  - 1500 N. Mill Avenue, Tempe, AZ 85281