

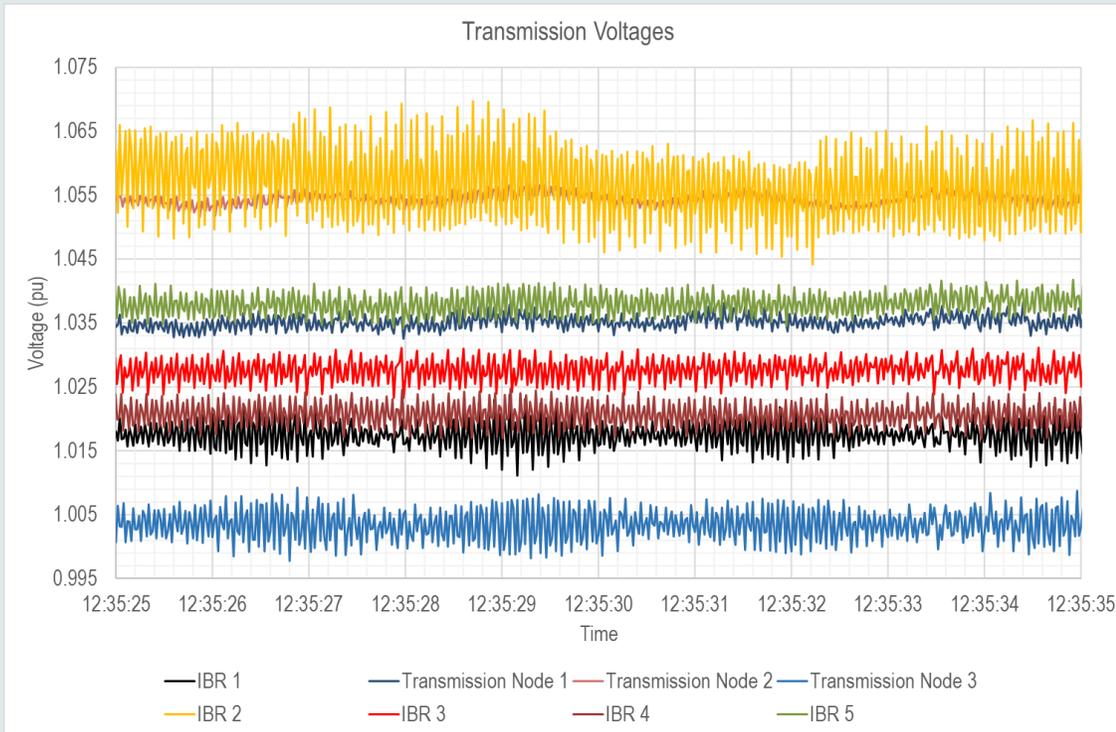
Sub-Synchronous Oscillations in the West Murray Area

Real-time observations

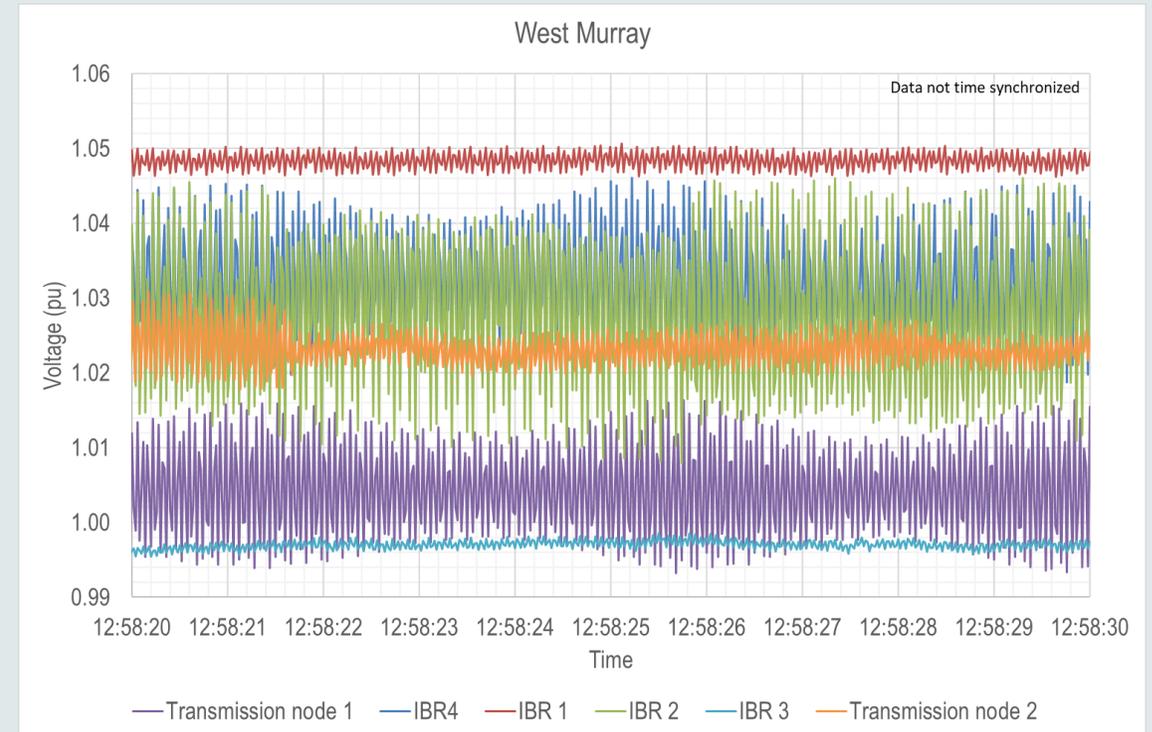
Background

- AEMO has observed sub-synchronous oscillations of 16 - 19 Hz in the West Murray area
- *Normally*
 - Characteristic: Intermittent and low magnitude (around 0.5% peak to peak voltage)
 - Duration: Few 10s of seconds to several minutes
- *Occasionally*
 - Characteristic: Intermittent and high magnitude (around 1% peak to peak voltage)
 - Duration: Few seconds to sometime over few minutes
- Initiation of oscillations
 - With and without network disturbance

Observed voltage oscillations

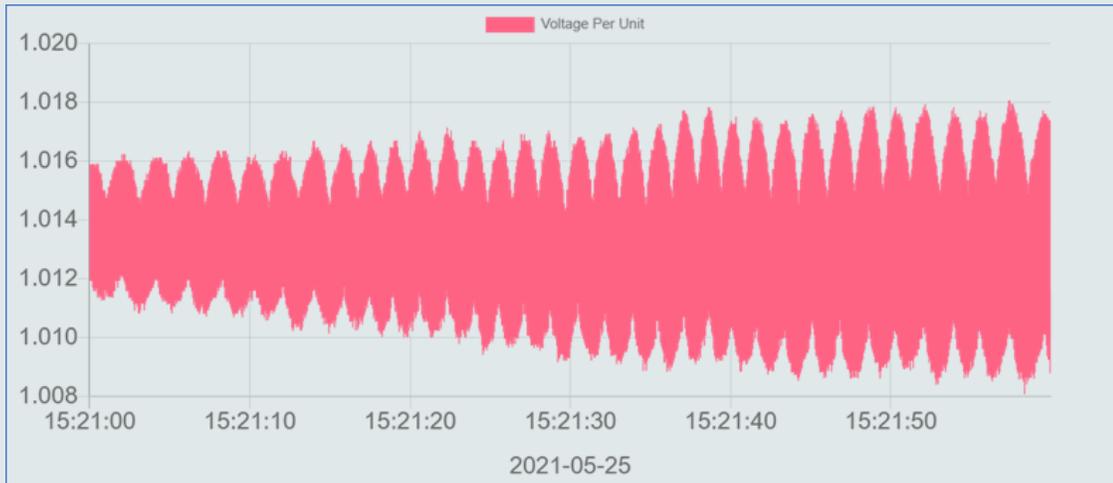


20 August 2020, 12:35:16 hrs to 12:35:56 hrs
7 sec after a transmission line trip



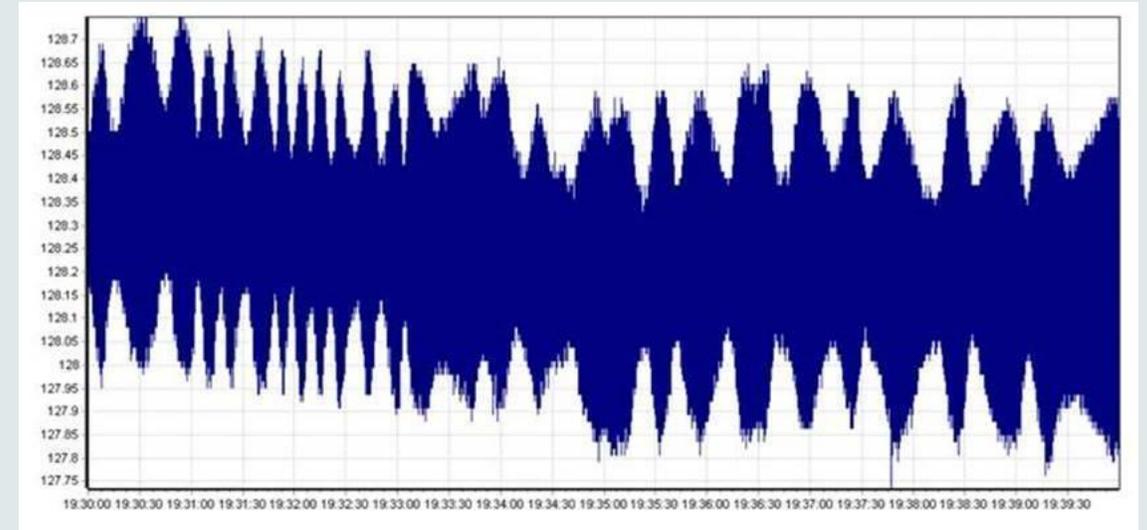
2 September 2020, 12:56:00 hrs to 12:59:04 hrs
No apparent disturbance

Observed voltage oscillations



Red Cliffs (25 May 2021, 15:19:30 hrs to 15:31:58 hrs)

During outage of Red Cliffs – Buronga line

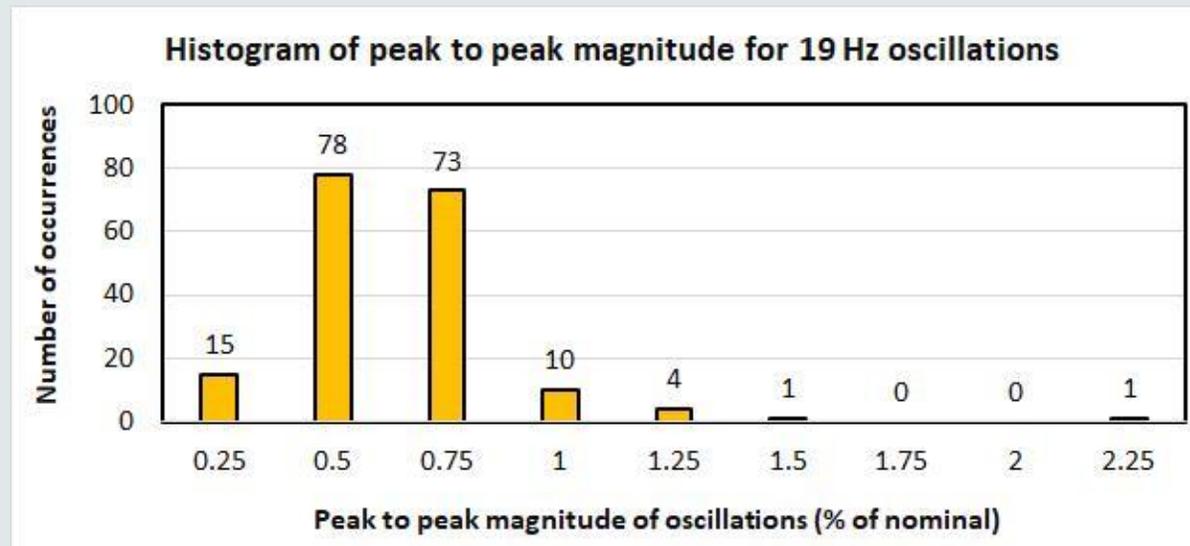


Red Cliffs (11 August 2021 19:02:01 hrs to 19:47:00 hrs)

During outage of Red Cliffs – Wemen – Kerang line

October 2020 – till date

- Voltage anomaly tool
 - Monitors Red Cliffs voltage
 - Record event when oscillations are $> 0.5\%$
- Number of one minute intervals (up to 10 August 2021)



Next steps

- AEMO is working with relevant network service providers to install appropriate monitoring equipment across the West Murray area
- AEMO is engaging with network service providers, participants and broader power system engineering community nationally and internationally to identify and where possible resolve issues



AEMO

AUSTRALIAN ENERGY MARKET OPERATOR