

SUMMER OVERVIEW

Presented to WA Electricity Consultative Forum
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19 February 2020

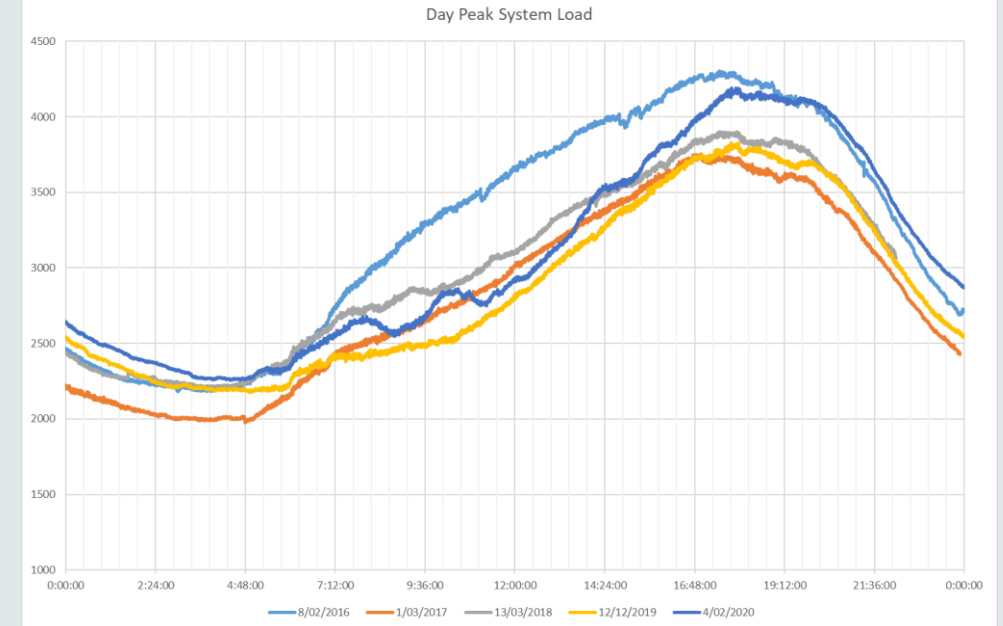


System peak demand

Highest peak demand since 2016

- Peak demand approx. 4,190MW recorded on 4/02/2020 at 5:47pm.
- Short of the record system peak demand by approx. 100MW
- This load was due to consecutive hot days - 35°C, 38°C then 43°C on the day
- Highest peak demand in December since 2016

Day peak system demand

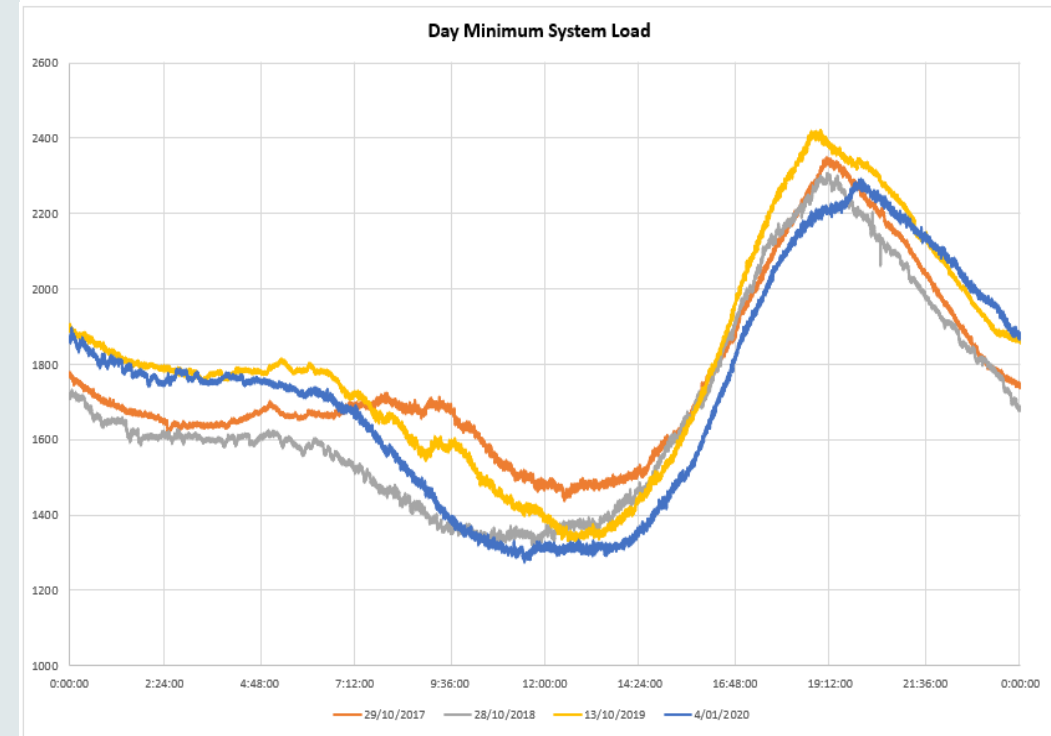


Minimum system demand

Lowest day minimum system demand

- Minimum demand was 1,276MW recorded on Saturday 04/01/2020 at 11:29AM
- The minimum demand was due to;
 - Being a weekend day close to a public holiday, cool temperatures (Max: 27.6°C, Min: 12.7°C)
 - Clear skies and high rooftop PV.
 - Reduction of block loads by 50MW compared to normal.
- Pre-2017 the annual minimums occurred during night time.

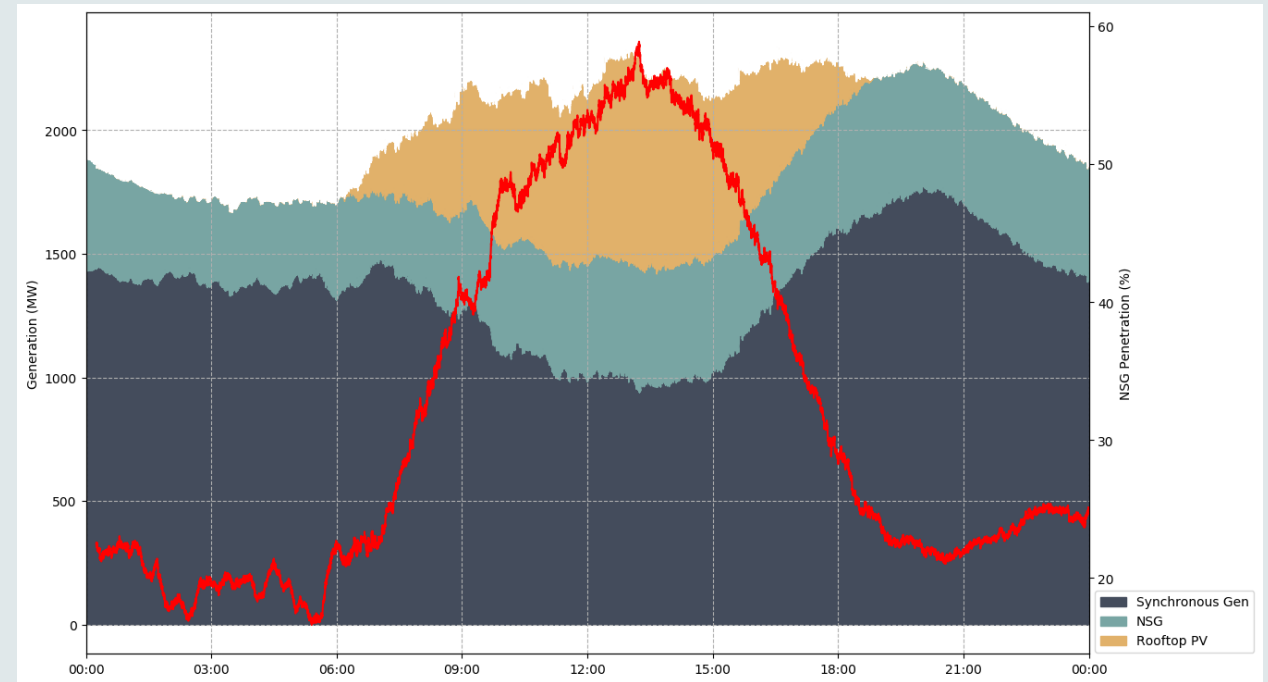
Day minimum system demand



Non-synchronous generation penetration

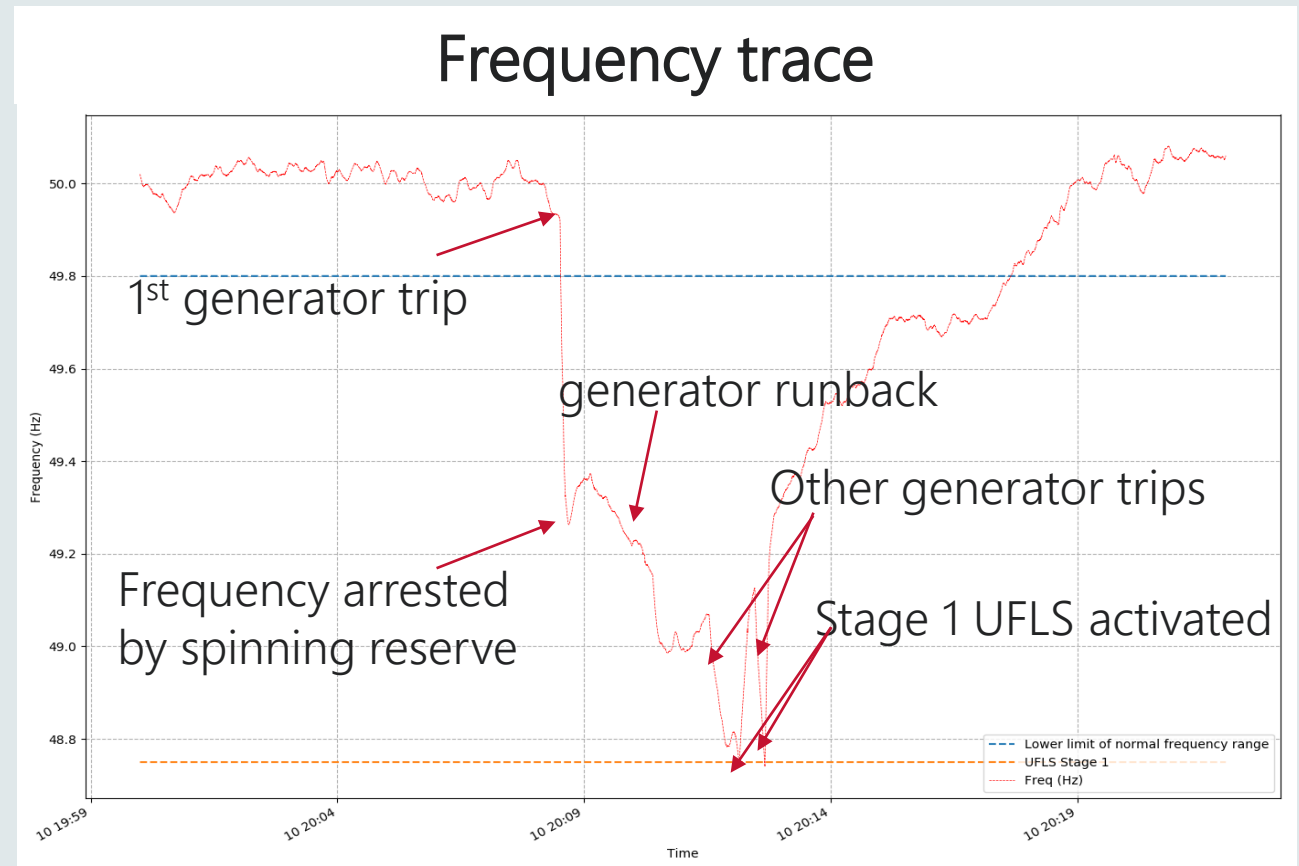
At 50.36% this is the Highest recorded non-synchronous generation penetration in summer

- The highest non-synchronous generation penetration to date was recorded on 30th November 2019. Including embedded generation, this value was 50.93%
- Unusual to occur in summer because generally the load is higher and thus there are more synchronous generators online.
- The high nonsynchronous generation penetration was due to low demand (1,430MW) on a mild weather day (22.1°C)



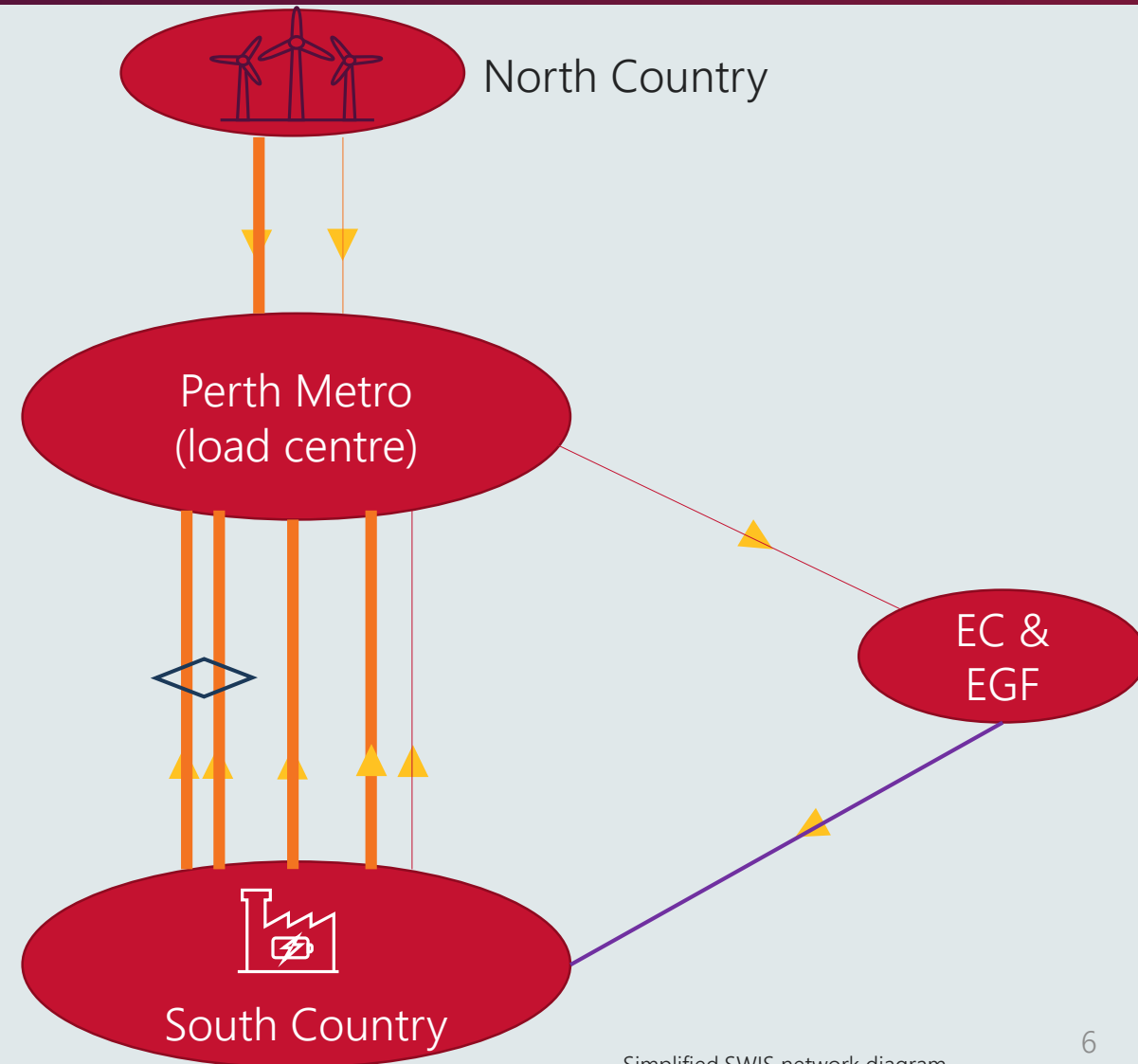
Underfrequency load shedding event

- On 10 January 2020 at about 8:08PM a generator tripped which was followed by other generator trips/run-backs resulting in a significant generation loss.
- Frequency returned to the normal operating band in about 9 mins
- AEMO had adequate contingency reserves to cover the loss of the largest generator at the time but not multiple contingencies.
- Since the total generation loss exceeded the contingency reserves, underfrequency load shedding occurred resulting in loss of load and a number of customers without power.
- Detailed investigations are underway and a report will be released in due course.



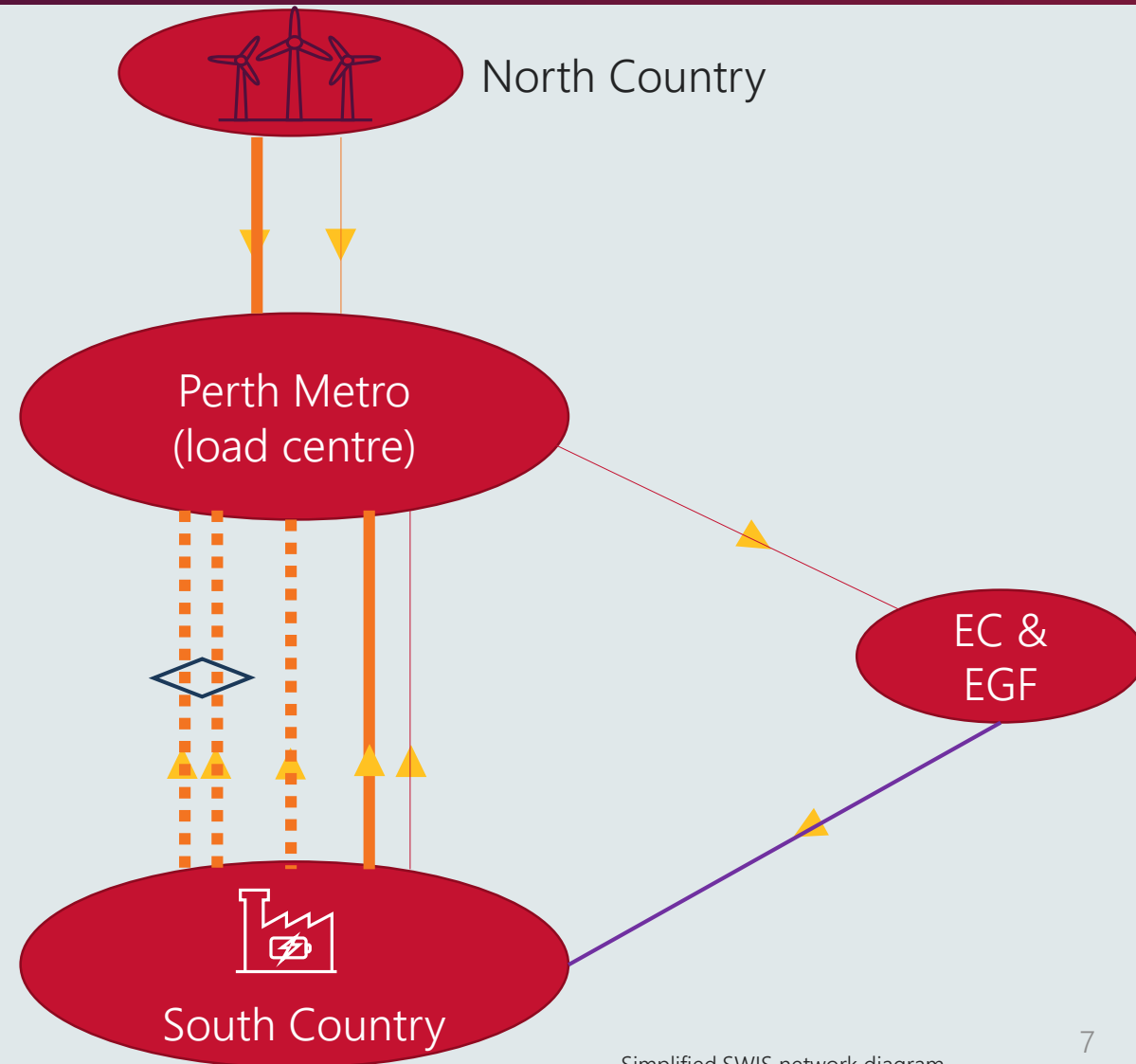
Transmission line trips

- On 9 January 2020 at 1:57PM a bushfire on the main transmission line corridors linking the generation in the south to the Metro caused trip of 3, 330kV lines in less than a minute.



Transmission line trips

- On 9 January 2020 at 1:57PM a bushfire on the main transmission line corridors linking the generation in the south to the Metro caused trip of 3, 330kV lines in less than a minute.
- The system was in a High Risk state. No out of merit generation occurred.
- The situation would have been worse if this happened at peak as it would have been difficult to transfer power from South Country to the load centre.
- There were 16 attempts to restore the lines.
- Two lines were successfully restored at about 4:00PM and the third at about 7:30PM.
- A windfarm tripped after its low voltage ride through capability was exceeded.
- This event identified limitations in the current Technical Rules.
- AEMO and Western Power in consultation with the industry are working together to make some improvements in the current technical rules.



What can be done to assist?

Network Service Provider

- Ensure on going generator compliance.
- Avoid network outages during summer and winter if possible.

Generators

- Ensure that generating units are properly maintained.
- Request for planned outages including opportunistic at the earliest opportunity.
- Changes to control settings should be approved by Western Power.

Market customers

- If possible informing AEMO about outage plans.
- If possible avoid outages during low load conditions

Questions and Feedback

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