WEM Procedure: Credible Contingency Events

Procedure update consultation: reclassification scenarios

Review

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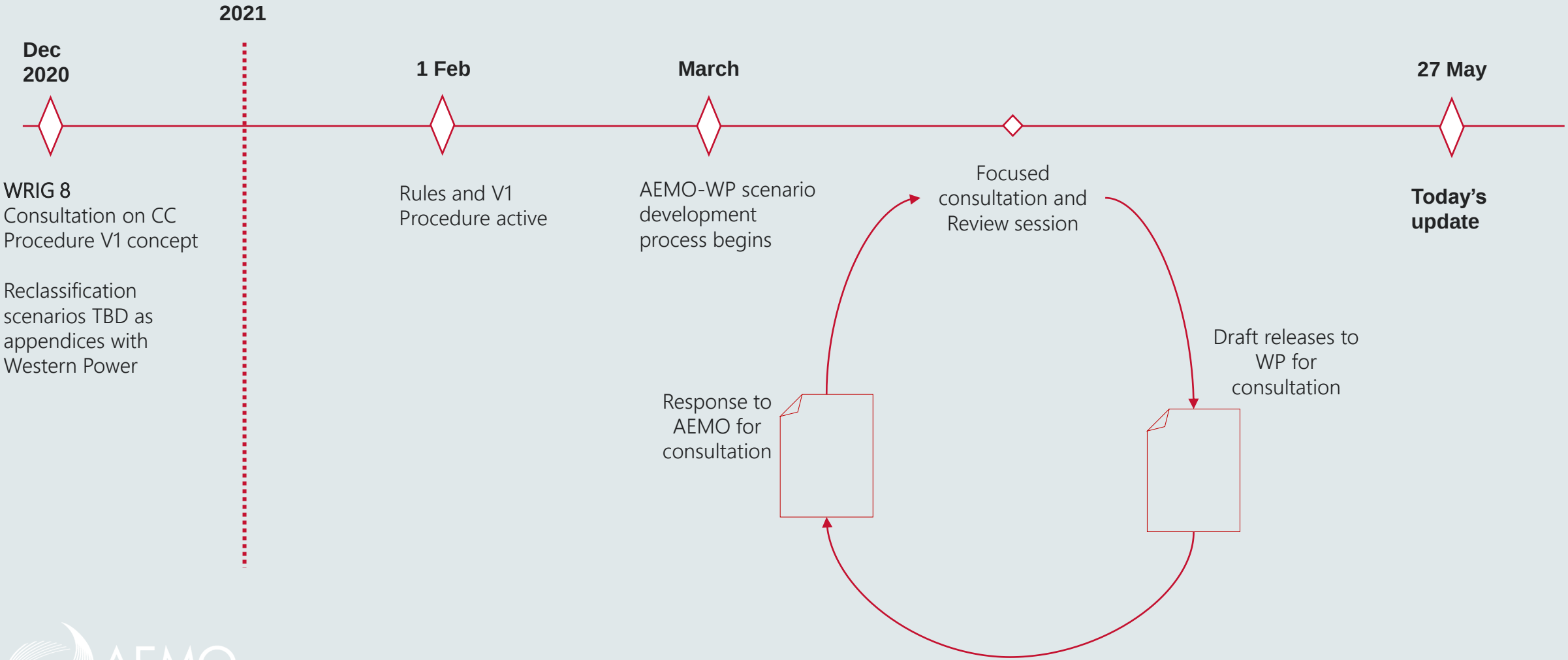
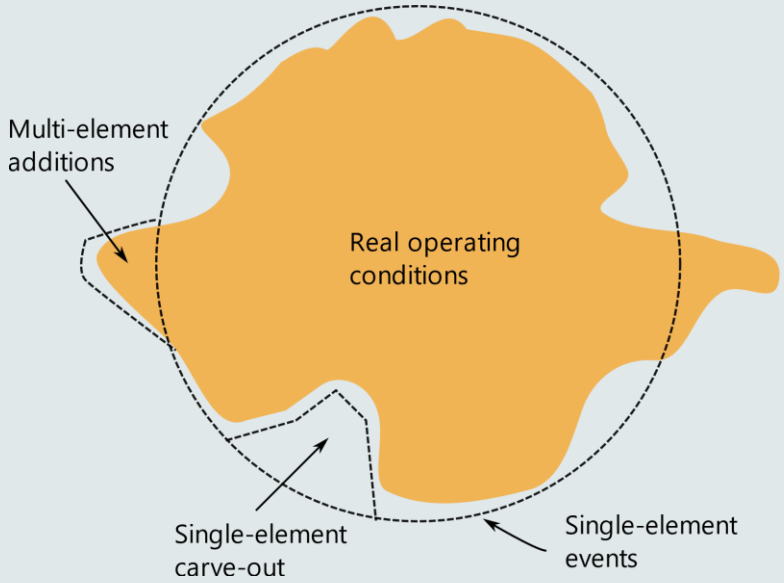
Review: development to date



Review: Classification framework

AEMO defines core set of Credible contingencies:

- All "single element" events Credible
- Can remove low probability events
  - E.g. all busbars considered normally Non-Credible
- Multi-element events where explicitly identified
  - E.g. MARNET scheme
- Published on AEMO website



Review: Reclassification framework

- Fast decision making
- More restricted, largely predefined scenarios. None developed in original publication, but planned:
  - Site works
  - Bushfires
  - Storms
- May also reclassify on:
  - Advice from asset owners
  - Previous experience of event

Procedure changes

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Procedure changes: Credible Events Framework

Classification Framework

- Explicit paragraph defaulting classification a Contingency Event to Non-Credible

Reclassification Framework:

- Reclassification events now explicitly cancelled
  - Same outcome, more intuitive logic
  - Requires paragraphs for:
    - "indefinite" reclassification until information is available
    - Obligation for AEMO to revert reclassification as soon as practicable

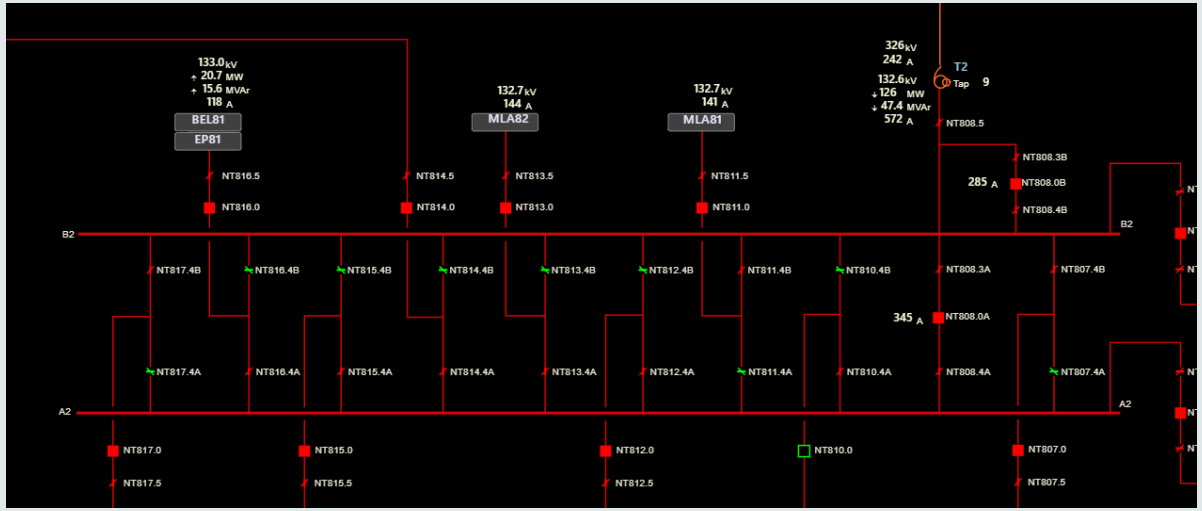
- RPs must make reasonable endeavours to provide relevant information to AEMO to assist with reclassification, e.g.:
  - Details or configuration of assets, protection, communications, or control schemes
  - Actions, status, plans and reports of field operations (e.g. restoration or containment efforts) and personnel
  - Any other information where the Rule Participant may have more up to date or accurate sources than AEMO

On-site work: busbar contingencies

- AEMO must classify busbar for any On-site Risk Activities:
  - Isolation, modification or testing of any bus zone protection scheme or inter-tripping scheme, including the connection of temporary earthing or bypass links that would result in a bus section fault if not removed prior to restoration of the normal operating state.
  - Any protection activities where human error could trigger any bus zone protection or inter-tripping scheme, such as works within a single cubicle with multiple protection circuits.
- Busbar trips credible for any On-site Risk Activities, unless Network Operator advises of appropriate risk assessment and control

On-site work
Example 1: Primary busbar works

- No On-site Risk Activities



254359 — NT 132; NT81-NEB — Nov-03 06:00 - Nov-04 16:00

EAP; STT — 5hrs recall — Off overnight

NT807.4A; NT811.4A; NT810.4A; NT814.4A; NT813.4A; NT808.4A; NT815.4A; NT806.4A1; NT812.4A; NT816.5; NT817.4A; NT816.4B

3 NOV (EAP) MAINTENANCE ON NT816.4A DISO
QT EARTH BAR DISLODGED BETWEEN NT808 AND NT810 CIRCUITS

4 NOV CANCEL EAP ISSUE STT
(STT) HV TESTING NT806.4A2 CT

AEMO Operational Zone
PTP and PTR required

Aligned with eNAR# 428452/MPI 254357 (EP-BEL/NT81) on 3rd Nov 2020 only.

Note for Program Writer: Please re-energise EP-BEL81 line after completion of EP-BEL/NT81 line. Keep NT leg of the line opened.

Date generated: Tue, 03-Nov-20 10:12:39 — *Page 4 of 17*

For system load at 3194MW/191MVAR with NT leg of EP-BEL/NT81 line opened (eNAR# 428452/MPI 254357), WT-CK81 line on planned outage (eNAR# 422254/MPI# 253859 & eNAR# 429271/MPI# 253858), BEL-EP81 in-service, MLA804.0 NOP, no network security issues identified for any first and second contingency.

Note: busbar contingency is not considered credible.
{JD} 12.10.2020

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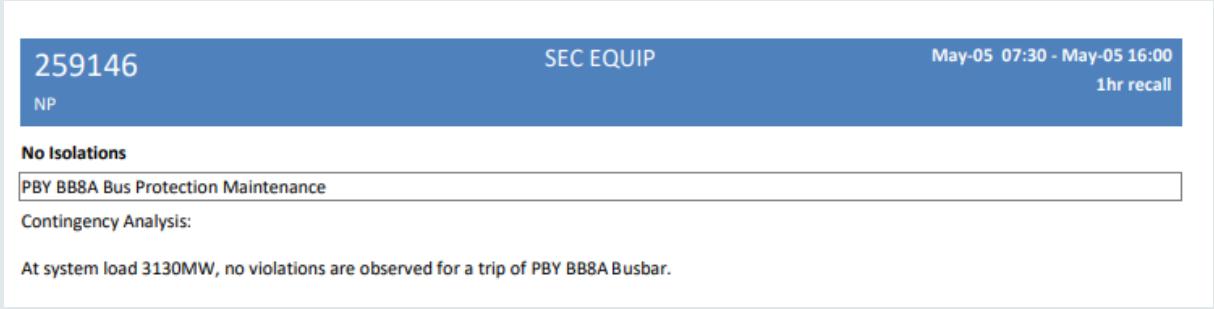
On-site work
Example 2:Secondary busbar works

- Option to:
  - Undertake works with event credible; OR
  - Implement and advise of On-site Risk Controls:

"The following risk control measures have been prepared for this outage:

- ....

Western Power has determined these controls are appropriate to treat the loss of PBY BB8A as a Non-Credible Contingency Event during the works"



259146 SEC EQUIP May-05 07:30 - May-05 16:00
NP 1hr recall

No Isolations

PBY BB8A Bus Protection Maintenance

Contingency Analysis:

At system load 3130MW, no violations are observed for a trip of PBY BB8A Busbar.

Lightning

Offline identification of “Vulnerable Paths”:

- 2x occurrence within 5 years
  - 2x trip within 30 minutes (not including auto-reclose)
  - No consideration of circuit characteristics
    - Only rely on empirical fault data
  - Relatively high bar for classification:
    - Allow simple RTO procedure

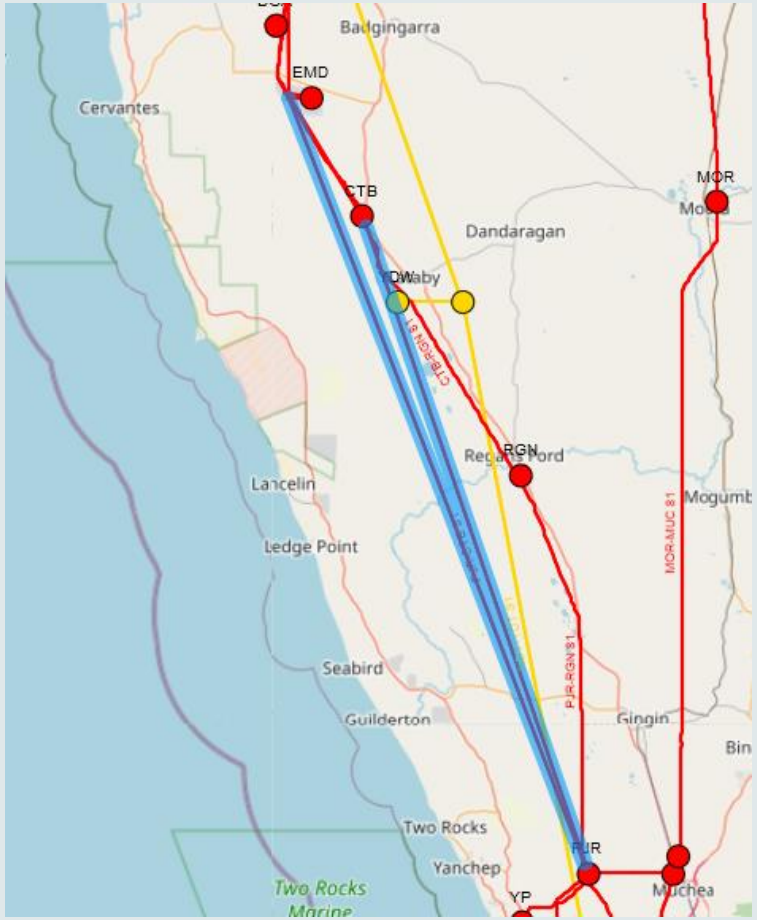
Real-time reclassification:

- Strike within 20km
- Strike within 40km, storm front heading toward path

Lightning

Only single double-circuit event credible:

- PJR-CTB 81,PJR-ENB-EMD 81
- 3x double circuit trips in last 5 years
- 280 “shared structures” / approx. 120 km



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Bushfire

Risk Factor	Weighting	Notes
Power System Event - No trip	0	
Fire Confirmation – From Network Operator	8	Network Operator will be AEMO's primary contact
Fire Direction and Speed – Insufficient data to assess	0	Refer to notes for various weightings
Circuit Characteristics – Adjacent single circuits	1	
Weather risk factor – Very High	0	
Terrain – Native bushland	2	
Operator action – Network Operator will manually reclose	1	
Other risk considerations - None	0	
Final Weighting	**12**	**<13 so AEMO will not reclassify event**