

# Update on RC\_2014\_03: Administrative Improvements to the Outage Process

MAC Meeting 2017-08  
13 December 2017

# Overview

- Update on status of proposal
- Updated straw man proposal for
  - Quantity of de-rating for Generators
  - Calculation of capacity-adjusted outage quantities for Scheduled Generators
  - Use of outage quantities
- Update on Consequential Outages
- Items from the MAC Market Issues List
- Next steps

# Current status

- Proposal discussed at 13 September 2017 MAC meeting
- Several questions raised - five responses received
- Preliminary meetings with AEMO on outage quantity reporting and Consequential Outages
- Work underway on call for further submissions
- Seeking legal advice on inclusion of additional MAC issues
- Workshop as soon as possible in 2018
  - Consequential Outages
  - RCOQ issues
  - Any other outstanding issues

# Quantity of de-rating for Generators – updated straw man

## General Principles

- “Sent Out Capacity” in Standing Data remains temperature-independent – rename Maximum Sent Out Capacity (MSOC)
- Outage quantities (OQs) for Generators reported as MW de-ratings from Maximum Sent Out Capacity
- Remaining Available Capacity (RAC) for a Trading Interval  
= Maximum Sent Out Capacity -  $\sum$ Outage quantities
- Generator commitment that Facility will be (or was) capable of providing the Remaining Available Capacity for dispatch over the outage period
- No temperature adjustments required, but temperature expectations may affect the outage quantity recorded

# Quantity of de-rating for Scheduled Generators – updated straw man

## Example for discussion – Scheduled Generator X

- Sent Out Capacity of
  - 97 MW at 45 degrees
  - 100 MW at 41 degrees
  - 102 MW at 25 degrees
  - **110 MW at 10 degrees (Maximum Sent Out Capacity)**
- Assigned 90 Capacity Credits
- If no Outages then Generator X
  - Required to provide 90 MW if  $\leq 41$  degrees
  - Required to provide  $90 * 97 / 100 = 87.3$  MW if  $> 41$  degrees

# Quantity of de-rating for Scheduled Generators – updated straw man

Example 1: Partial Planned Outage, still able to provide 60 MW *over the duration of the Outage* (no other Outages)

- Participant enters outage quantity
  - = MSOC – RAC
  - = 110 – 60 = 50 MW
- AEMO calculates capacity-adjusted outage quantity
  - =  $\max(0, OQ - \max(0, MSOC - \text{“RCOQ”}))$
  - =  $\max(0, 50 - \max(0, 110 - 90)) = 30 \text{ MW}$
- No temperature adjustment involved provided maximum daily site temperature does not exceed 41 degrees

# Quantity of de-rating for Scheduled Generators – updated straw man

Example 2: Forced Outage – Generator trips mid-Trading Interval, 25 degrees (no other Outages)

- Interval readings show sent out 30 MWh in the Trading Interval
- Participant determines Remaining Available Capacity based on actual average sent out MW over the Trading Interval  
$$= 30 \text{ MWh} * 2 = 60 \text{ MW}$$
- Participant logs Forced Outage quantity  
$$= \text{MSOC} - \text{RAC}$$
$$= 110 - 60 = 50 \text{ MW}$$
- AEMO calculates capacity-adjusted Forced Outage quantity  
$$= \max(0, \text{OQ} - \max(0, \text{MSOC} - \text{“RCOQ”}))$$
$$= \max(0, 50 - \max(0, 110 - 90)) = 30 \text{ MW}$$

# Quantity of de-rating for Scheduled Generators – updated straw man

Example 3: Forced Outage – Generator trips mid-Trading Interval, 43 degrees (no other Outages)

- Interval readings show sent out 30 MWh in the Trading Interval
- Participant reports the same Forced Outage quantity as for Example 2 (50 MW) as RAC is still 60 MW
- BUT the Facility's RCOQ is only 87.3 MW (>41 degrees), so
- AEMO calculates capacity-adjusted Forced Outage quantity  
=  $\max(0, \text{OQ} - \max(0, \text{MSOC} - \text{"RCOQ"}))$   
=  $\max(0, 50 - \max(0, 110 - 87.3)) = 27.3$  MW



# Quantity of de-rating for Scheduled Generators – updated straw man

## Conclusions

- Temperature adjustment should only apply to
  - capacity-adjusted outage quantity calculation
  - when maximum daily site temperature exceeds 41 degrees
- Capacity Credits and RCOQ not interchangeable for Scheduled Generators
- Need to review RCOQ concepts in Market Rules
  - Current dependence on clause 7.3.4 Outage schedule
  - Use in Balancing Market obligations (clause 4.12.1(c)) and outage calculations
  - No changes to actual obligations

# Non-Scheduled Generator Outages – updated straw man

- Market Participants to report outage quantities as MW de-ratings from Maximum Sent Out Capacity (same as for Scheduled Generators)
- No temperature adjustments required
- Unaffected by “fuel” (wind, sun) availability
- Materiality threshold for reporting NSG outages
  - $\min(0.2 * \text{Maximum Sent Out Capacity}, 6) \text{ MW}$

# Use of Outage quantities

- Unadjusted Generator outage quantities used for
  - Calculation of Available Capacity for TES (subtracted from Maximum Sent Out Capacity)
  - Non-Scheduled Generator Planned and Forced Outage rates
  - Market Web Site reporting (clauses 7.13.1E and 7.13.1G)
- Capacity-adjusted outage quantities used for
  - STEM obligations
  - RCM settlement (e.g. refunds)
  - Scheduled Generator Planned and Forced Outage rates
- Still assessing some uses

# Consequential Outages

- Preliminary workshop with AEMO on 22 November 2017
- Currently working on straw man for discussion at workshop
- General principles
  - Need ex-ante approval to achieve market benefits
  - Status of ex-ante Consequential Outage dependent on status of triggering outage
  - Market Participants need to be promptly informed of changes to a triggering outage
  - Market Participant deadline to return to market (if change to triggering outage) needs to account for reaction time, start-up times and gate closure times (what else?)

# Items from MAC Market Issues List

- Two issues identified for potential inclusion in RC\_2014\_03
  - Issue 17 (Bluewaters): ability to log Forced Outages after the 15 day deadline
    - Related AEMO action item
  - Issue 33 (ERM Power): ensure Forced Outage details can be amended after their initial entry in AEMO's systems
    - Will also need to apply for Consequential Outages
- Currently seeking legal advice on inclusion in RC\_2014\_03
- If cannot include in RC\_2014\_03 will add to Potential Rule Changes list

# Next steps

- Please provide any feedback and interest/availability for workshop in January 2018 by **5:00 pm on Wednesday, 20 December 2017**
- Send feedback to [rcp.secretariat@rcpwa.com.au](mailto:rcp.secretariat@rcpwa.com.au)
- Workshop with AEMO, Western Power and any other interested members in January 2018
- Proposal update at February 2018 MAC meeting
- Call for further submissions February/March 2018