# Real-Time Market Insights Forum

## 18 June 2024

Hosted by the WA Real-Time Market Monitoring Team

Please send questions, feedback and ideas to:
wa.rtm@aemo.com.au

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- Make independent and unilateral decisions about their commercial positions and approach in relation to the matters under discussion with AEMO
- Immediately and clearly raise an objection with AEMO or the Chair of the meeting if a matter is discussed that the participant is concerned may give rise to competition law risks or a breach of this Protocol.

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- The price or other terms at which Participants will supply
- Bids or tenders, including the nature of a bid that a Participant intends to make or whether the Participant will participate in the bid
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# Agenda


| # | Item | Speaker |
|---|---|---|
| 1 | "Stegosaurus Curve" – DPV fluctuation and/or KBESS withdrawals? Examples from 30th March and 9th April | Lise Rule |
| 3 | Review of outcomes of new DFCM. | Douglas Birse |
| 4 | Tight conditions over WC 14 June and outlook for winter. | Michael Dalton |
| 5 | WEMDE v2 APIs. | Hayden Collett |
| 6 | AEMO Intervention Events. | Leon Kwek & EPWA |
| 7 | FCESS Cost Review Update. | EPWA |

# Investigation:

## De-mystifying Operational Demand

### Examples from 30th March 2024 and 9th April 2024

### “Stegosaurus Curve”: DPV fluctuation and/or KBESS withdrawals?

| | |
|---|---|
| Presenter | Lise Rule |

# Operational Demand

- Operational Demand is the total injection (MW) from all Facilities that are injecting during a Dispatch Interval and includes:
  - Scheduled Facilities
  - Semi-scheduled Facilities and
  - Non-Scheduled Facilities

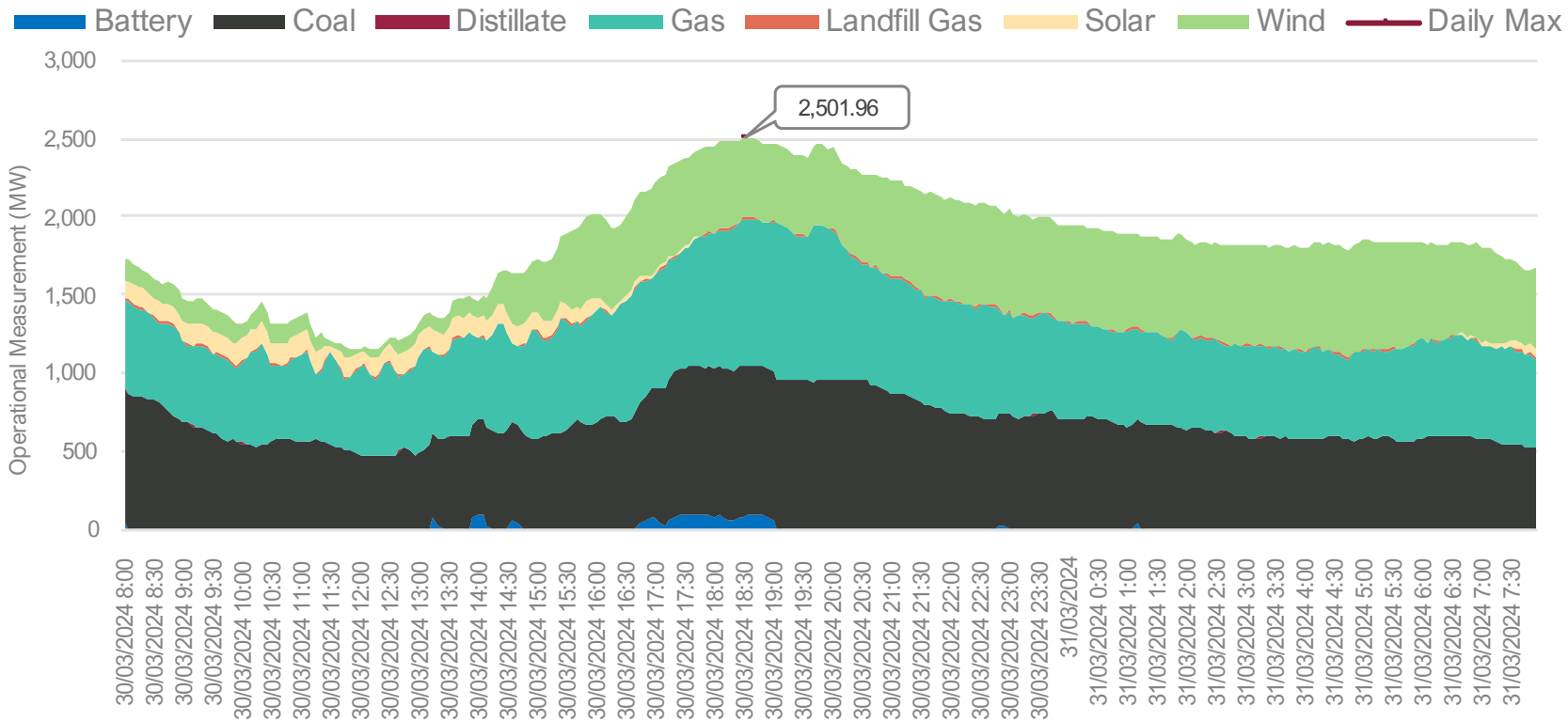
- Operational Demand comes in two forms:
  - Unscheduled and
  - Scheduled

# Operational Demand

- Scheduled Operational Demand includes all injection demand on the System **including** Battery withdrawals.
- Unscheduled Demand excludes Battery withdrawals.

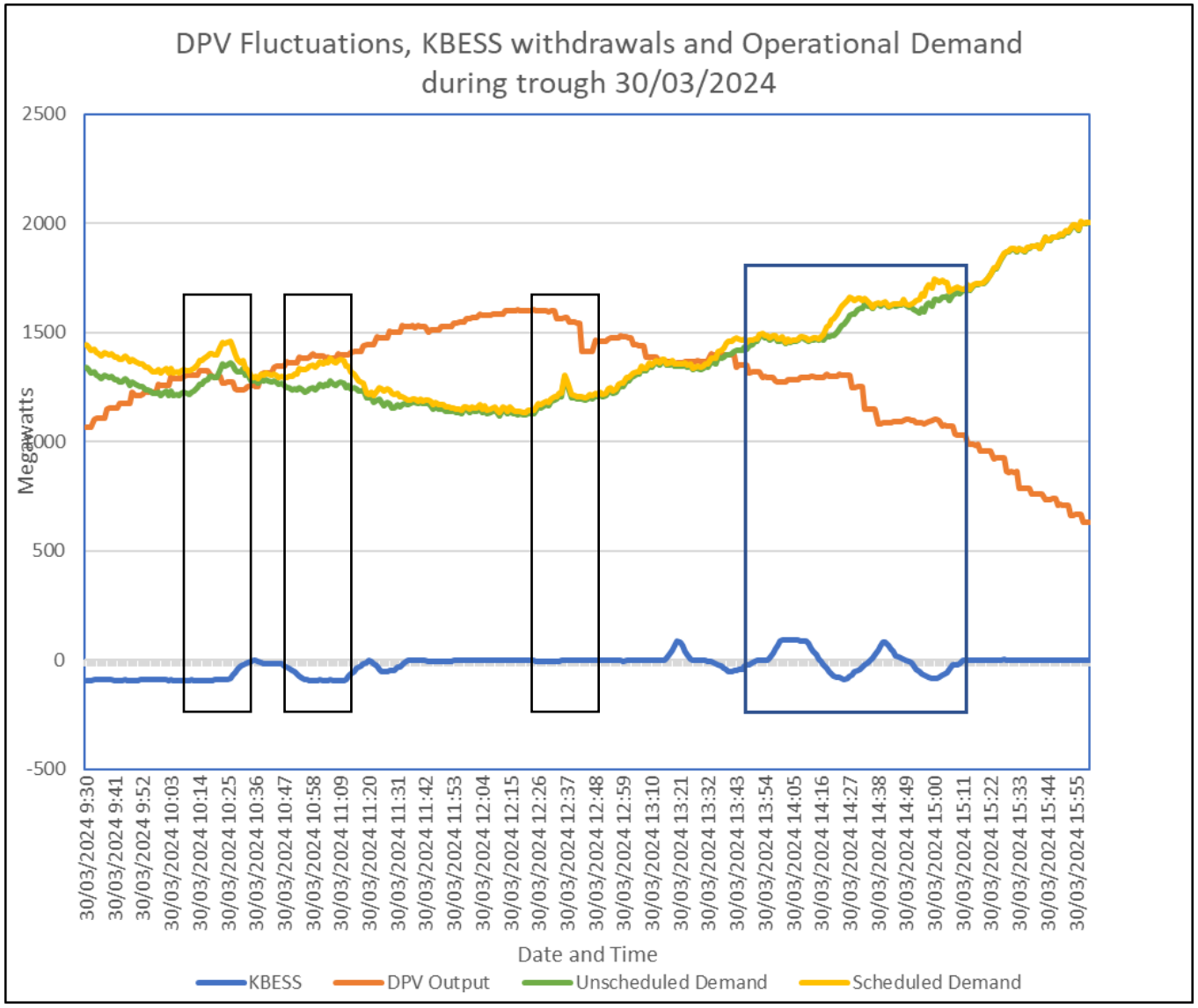
- AEMO uses **Unscheduled** Demand for the Energy Requirement forecasts.
- Historically we have considered all fluctuations in the Operational Demand to be driven by DPV or Load Variability, however, that is no longer the case.

# Observations from 30th March DPV Dinosaur & KBESS withdrawals:



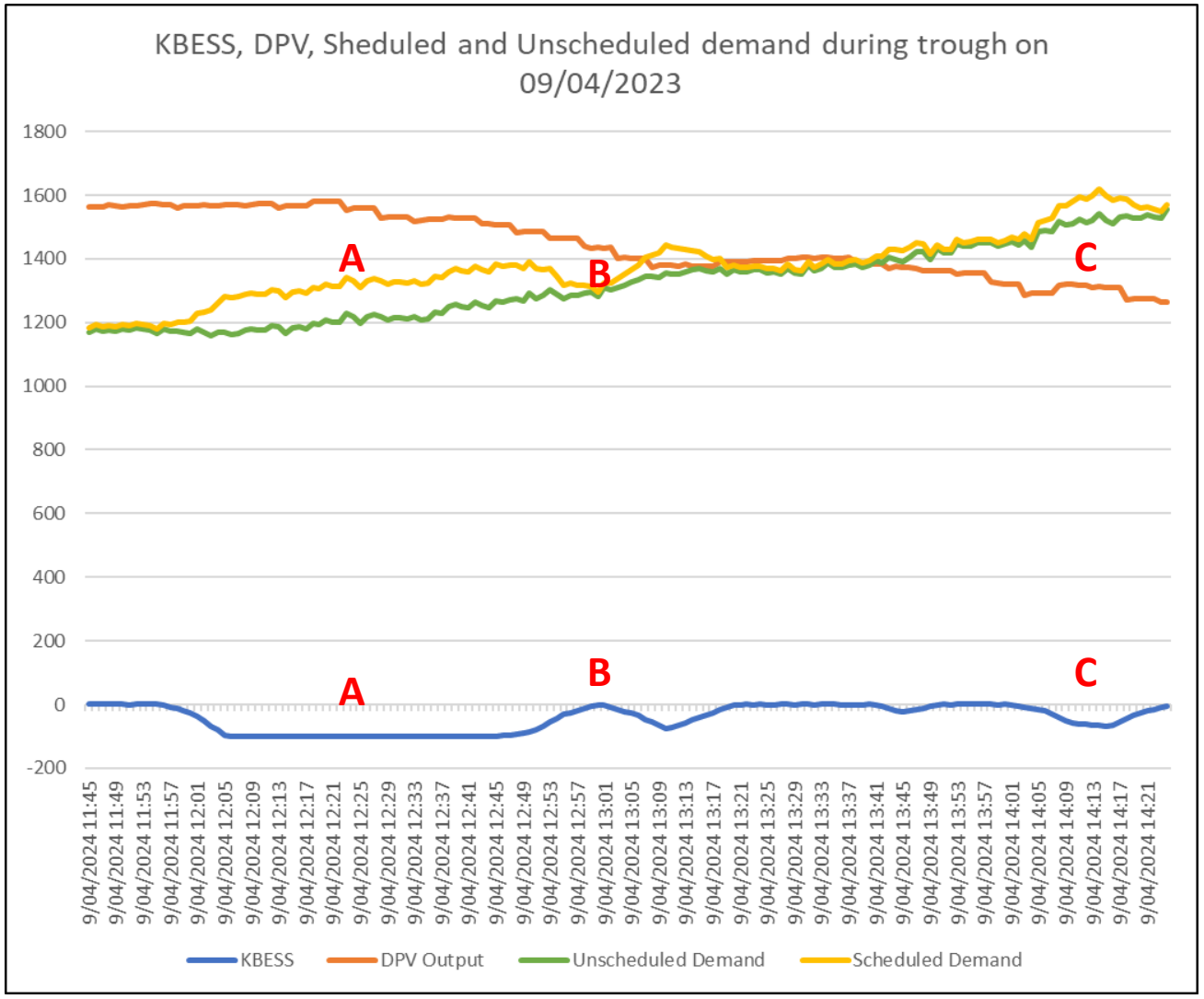

- Stegosaurus Scheduled Operational Demand curve noted during the trough and assumed that DPV fluctuations were the cause.
- KBESS withdrawals are included in Scheduled Operational Demand, therefore increasing Demand requirements.

# DPV Fluctuations, KBESS withdrawals and Operational Demand during trough on 30/03/2024



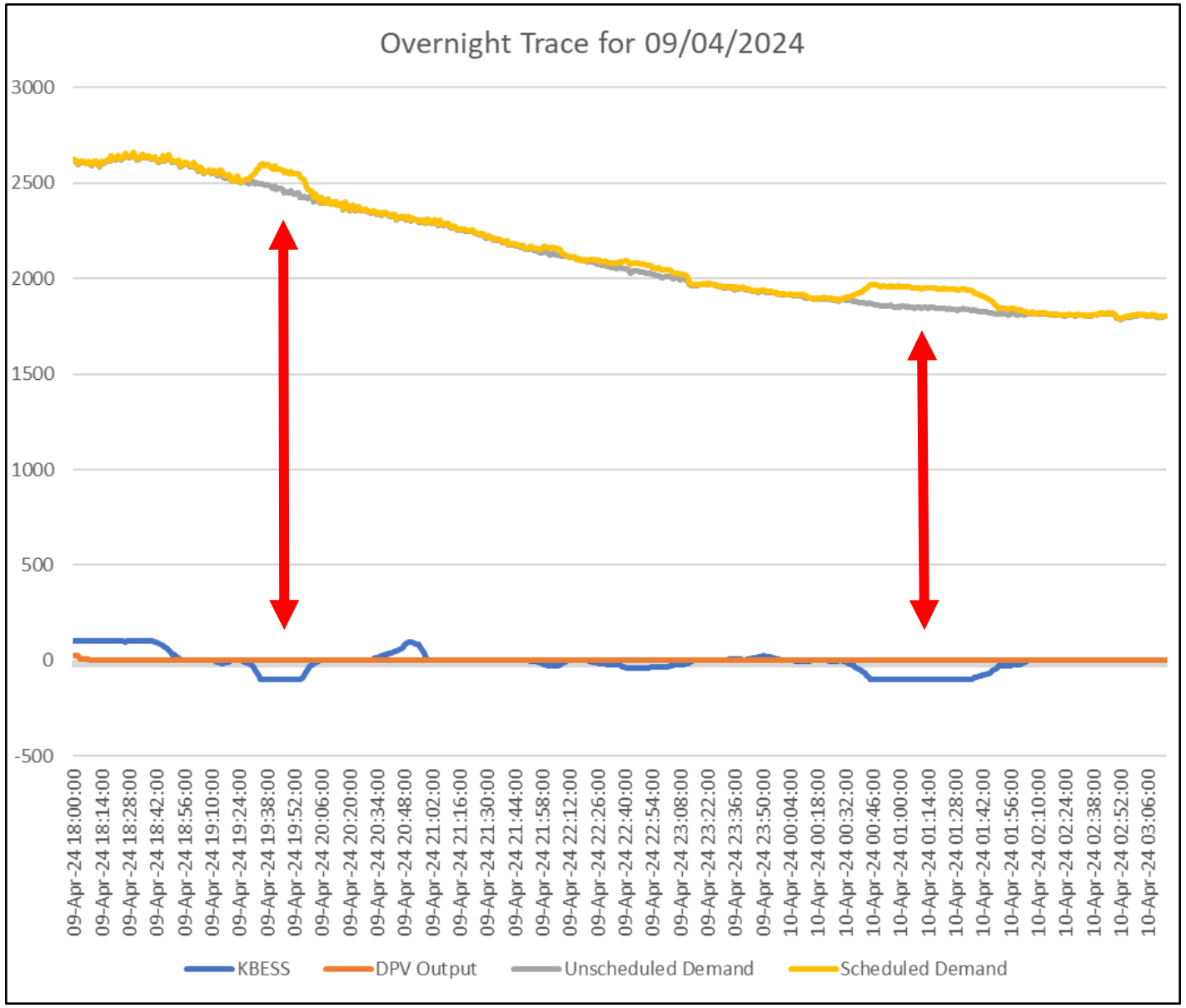

- Note: Unscheduled Demand (green) excludes battery Withdrawal.
- 10:26 DPV decreases, Both Unscheduled and Scheduled Demand increases.
- 10:50, battery withdraws increasing the difference between Scheduled and Unscheduled Demand; Unscheduled Operational demand stays relatively flat with minimum DPV variation.
- 12:40, sharp decrease in DPV generation resulting in an increase to both Scheduled and Unscheduled Demand
- From 14:16 DPV "flatlines". Following this there is a rapid decrease in DPV output. Due to the variation between injection and withdrawal of the battery during this period the Scheduled Operation Demand has even greater variations.

# Section of trough on 09/04/2024




A. Battery is withdrawing, Scheduled Operational Demand increases and Unscheduled Operational Demand shows no change.
B. Battery stops withdrawing, Scheduled Operational Demand decreases matching Unscheduled Operational Demand.
C. Battery withdraws temporarily, resulting in quick change in Scheduled Demand where Unscheduled remains steady

# Impact of overnight withdrawals of KBESS, 09/04/2024




Investigating battery withdrawals further, we can see there are some direct correlations between withdrawals and increase/decreased Scheduled Operational demand overnight when there is no supply from DPV.

# Investigation:

## Review of outcomes of new DFCM.

| | |
|---|---|
| Presenter | Douglas Birse |

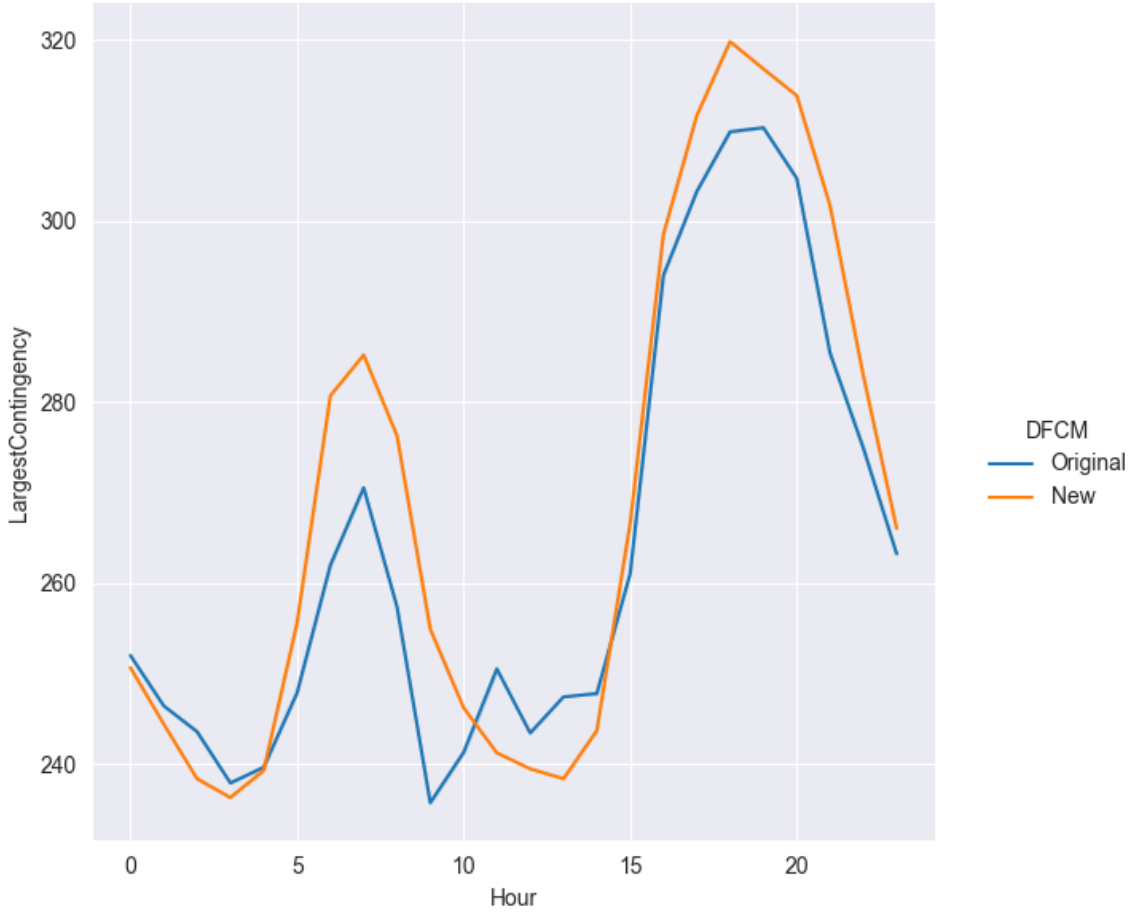
# Background

- WEMDE 3.0.0 included a change to include Distributed PV in the DFCM
- This was a significant improvement in aligning WEMDE with the physics of the power system
- Although it is challenging to state changes before and after the introduction of the new DFCM are correlated but the follow slides will show trends for approximately 4 weeks before and after the change-over at midday 15 May 2024

See RIF slides for 16 April 2024 and 7 May 2024 for additional information on this change
DFCM files can be downloaded from:
https://aemo.com.au/en/energy-systems/electricity/wholesale-electricity-market-wem/system-operations/essential-system-services/contingency-reserve-quantities

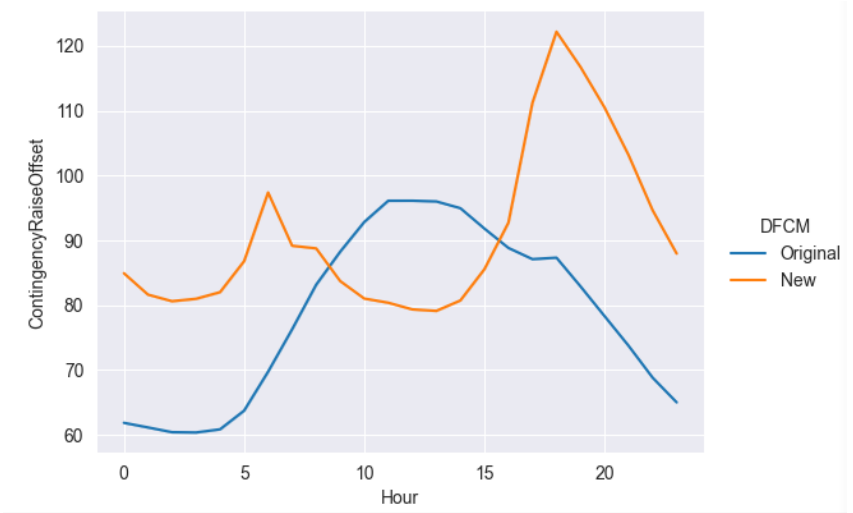
# Impact on Largest Contingency

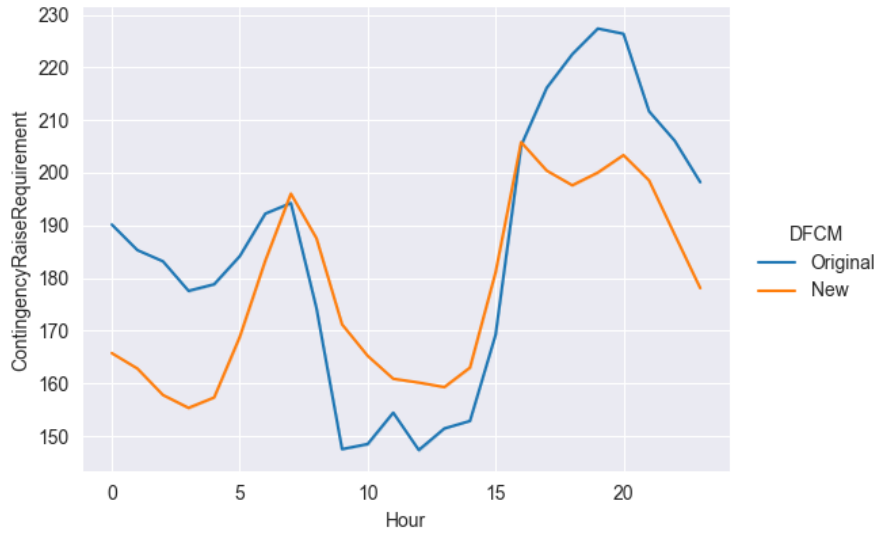
- The Largest Contingency has not materially decreased since the introduction of the new DFCM
- The dynamic of the daily variation in largest contingency is similar with noticeable increases aligned with the morning and evening peaks



# Impact on Offset and Requirement

- Due to the underlying modelling of the DFCM the offset had material changes based on the currently level of DPV on the system
- As predicted the offset has increased overnight and decreased in the middle of the day
- Once combined with the largest contingency this has resulted in a “flattening” of the Contingency Raise Requirement



# Impact on Cleared Contingency Raise

- There has been an overall increase in the Cleared Contingency Raise
- This indicates that there has been a decrease in the Performance Factors for the cleared facilities
- This may be due to:
  - Changes in the new DFCM
  - Different facilities being dispatched
  - Changes to the underlying system conditions (Inertia/Underlying Demand)

# Conclusions

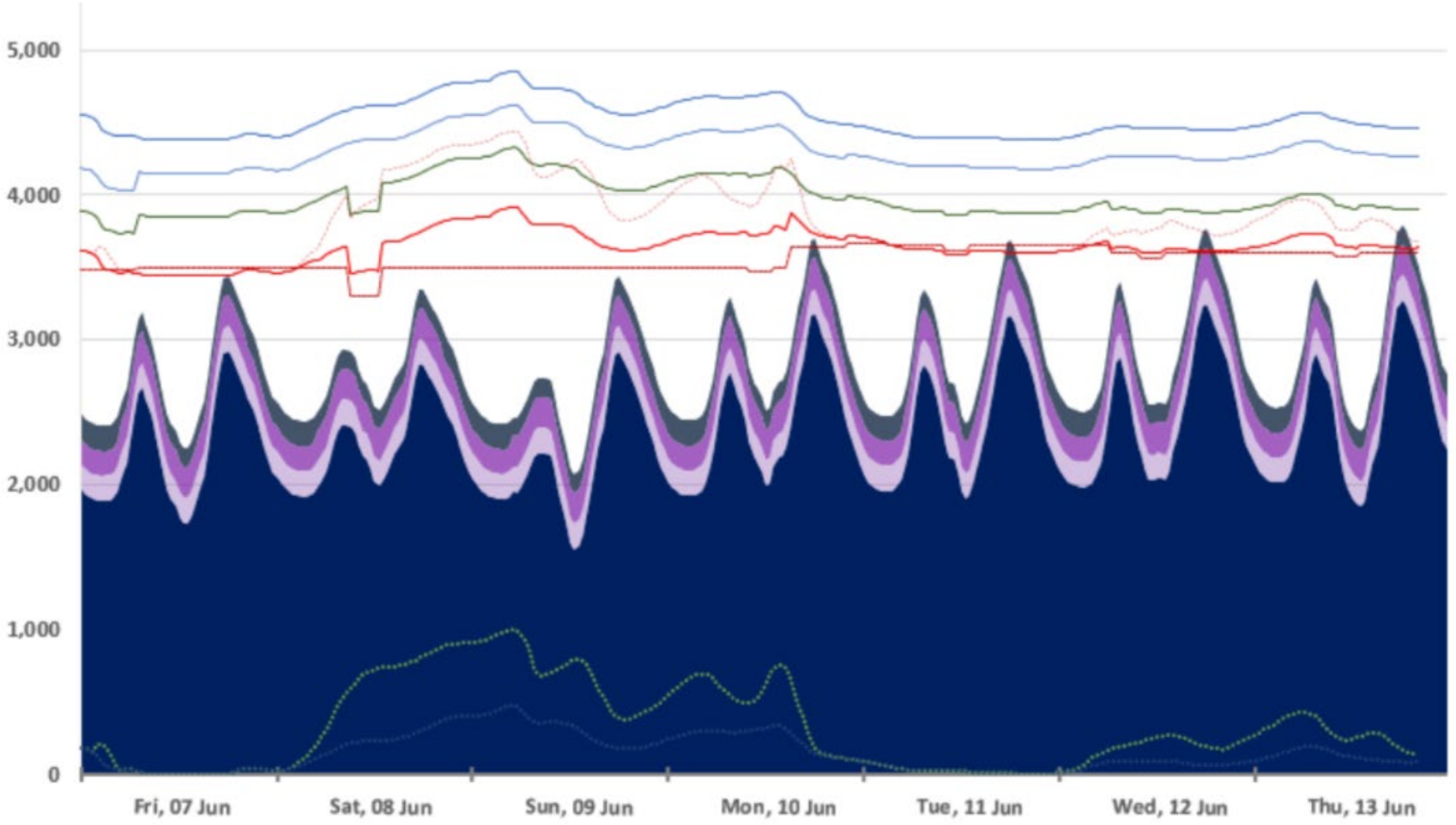
- The introduction of the New DFCM appears to have had a noticeable change in the dynamics of the Contingency Raise Market
- Most notably is the change in the Contingency Raise Offset as predicted
- Evidence shows that the market adapted quickly to the change

# Operational Update:

## Tight conditions over WC 14 June and outlook for winter.

| | |
|---|---|
| Presenter | Michael Dalton |

# Week-ahead outlook 7 – 13 June

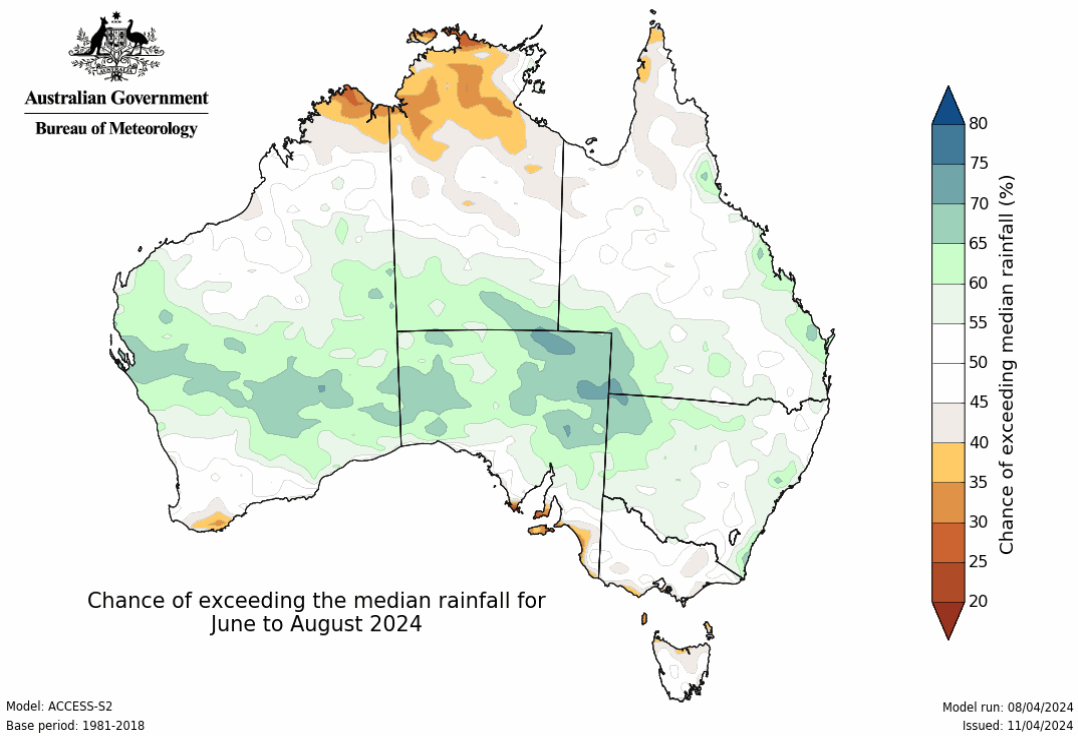


# Battery projects in the Collie region

# Weather and Climate

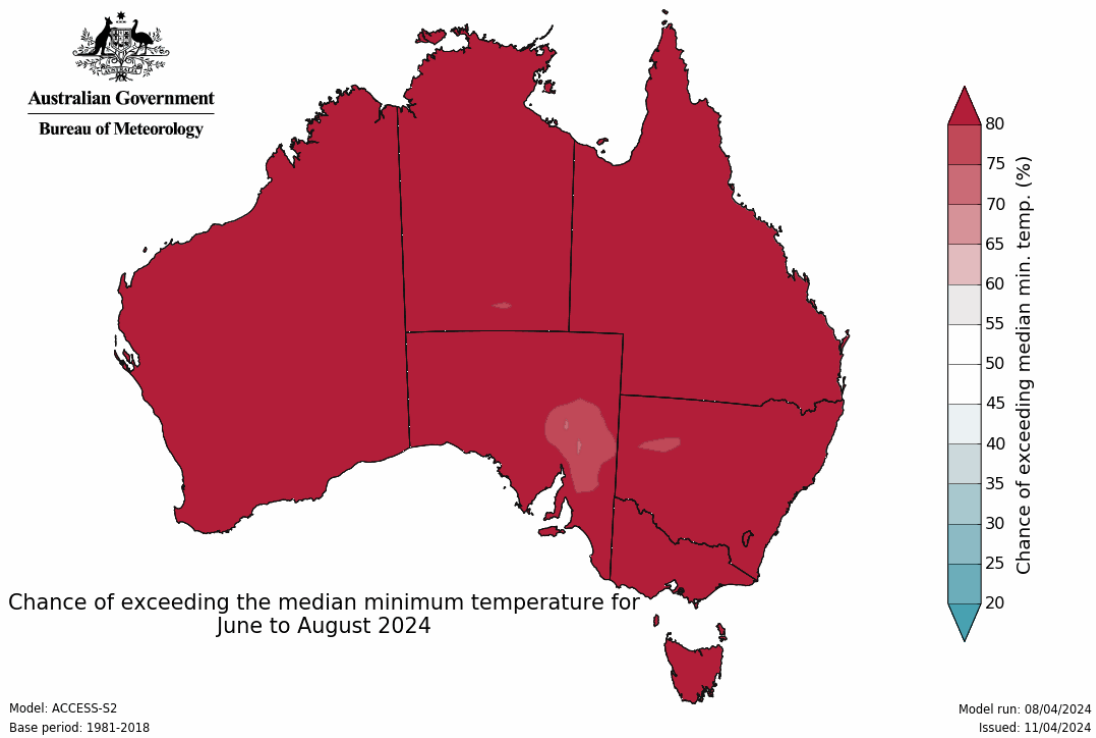
# June to August 2024:
## Climate Outlook

### Rainfall




Median or below-median rainfall for the majority of WA with above-median rainfall for coastal and inland parts Western Australia

### Minimum temperatures

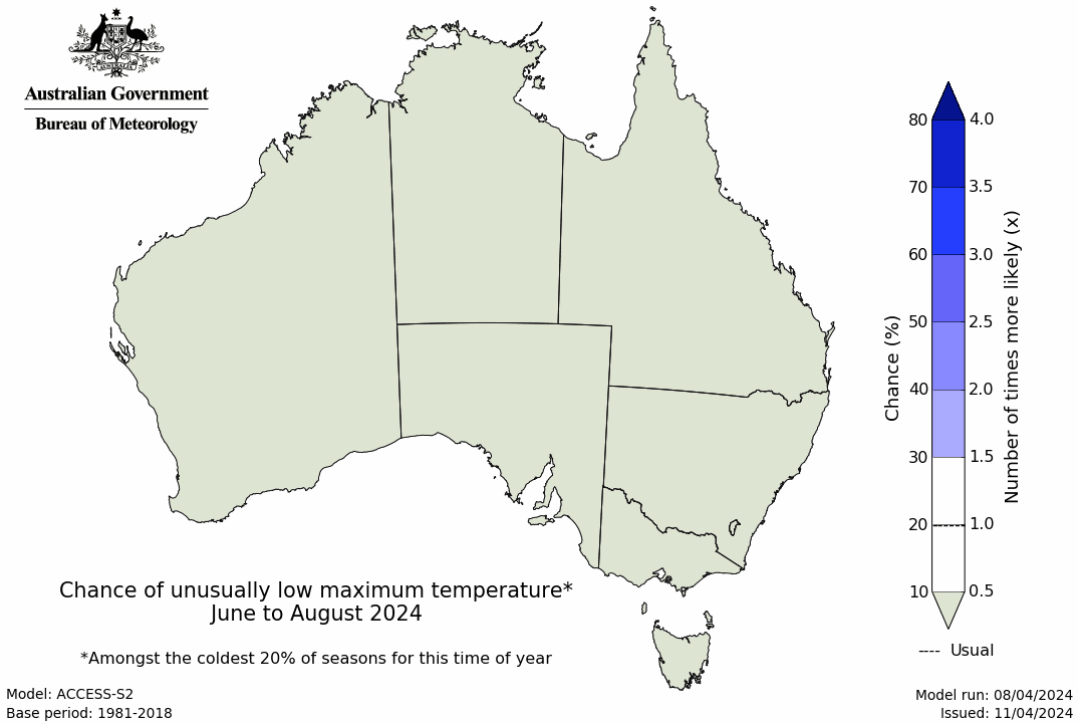



Minimum temperatures are generally likely to be warmer for majority of the country.

# June to August 2024:
## Climate Outlook

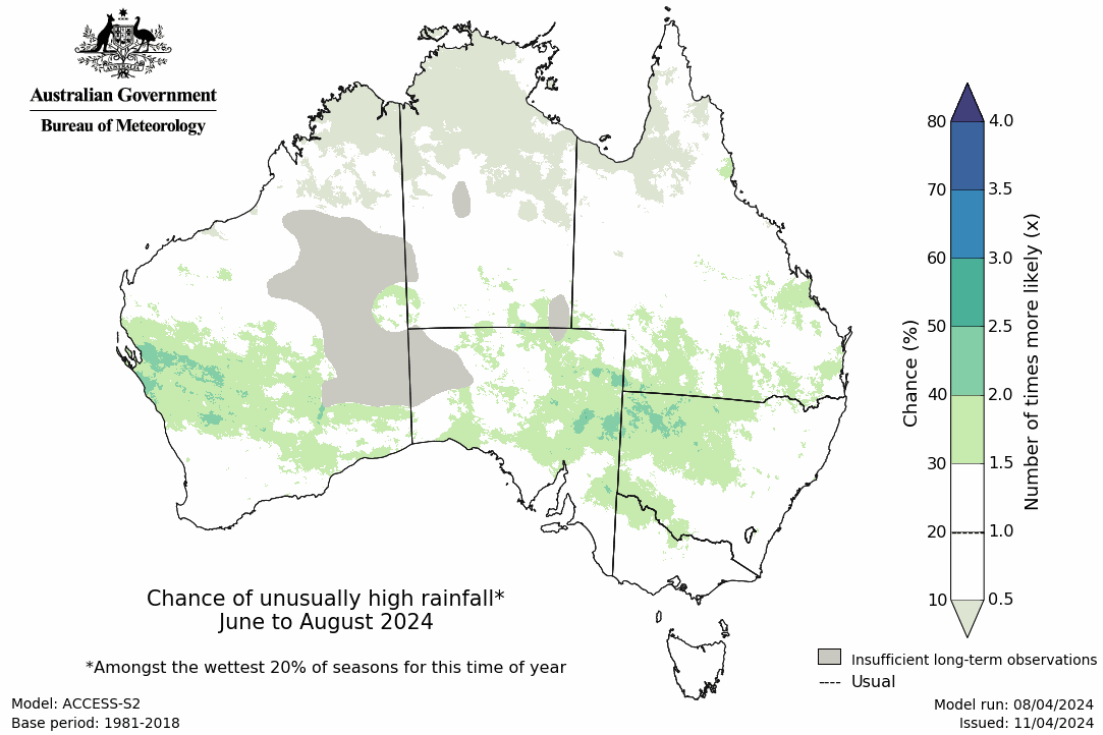
### Chance of unusually cold

11 April 2024



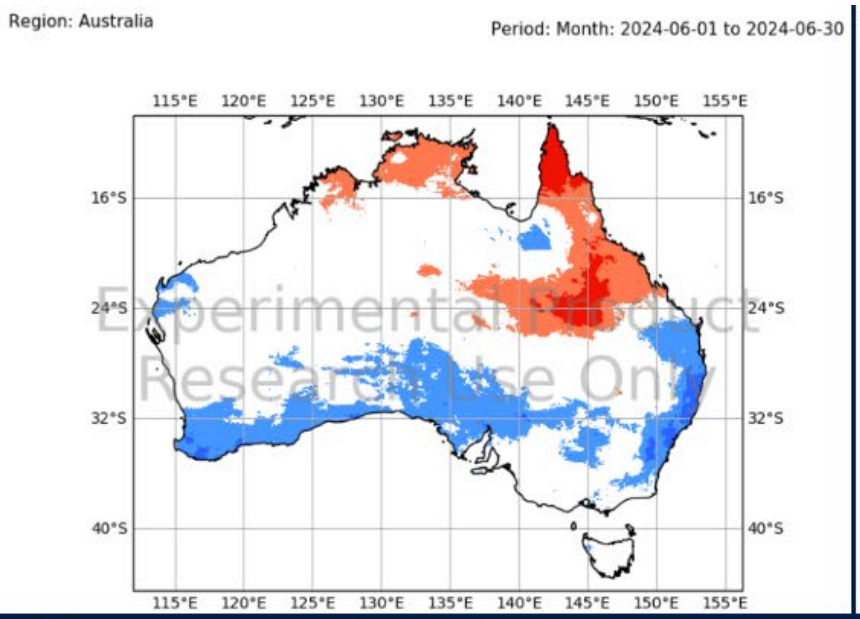

Low chance of unusually cold conditions across the country.

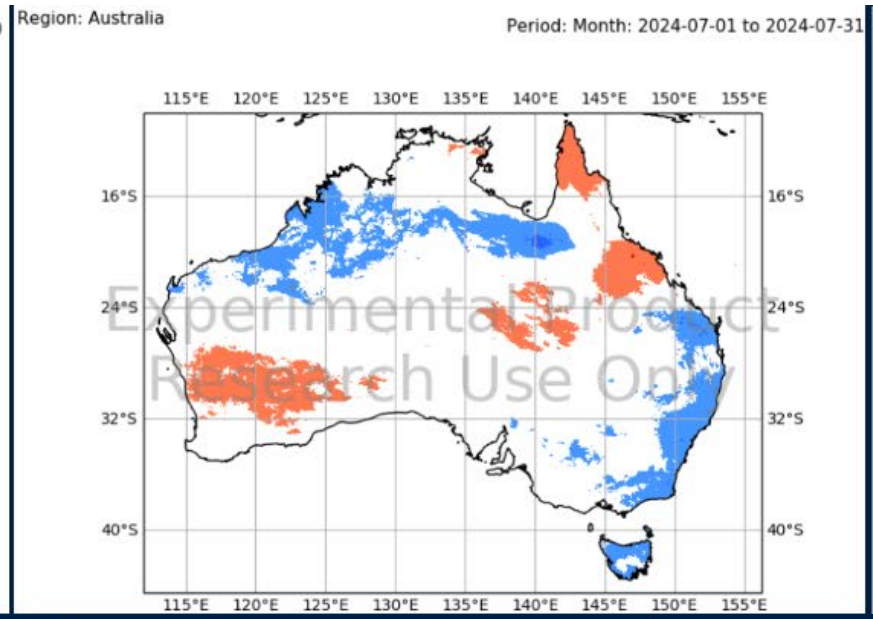
### Chance of unusually wet

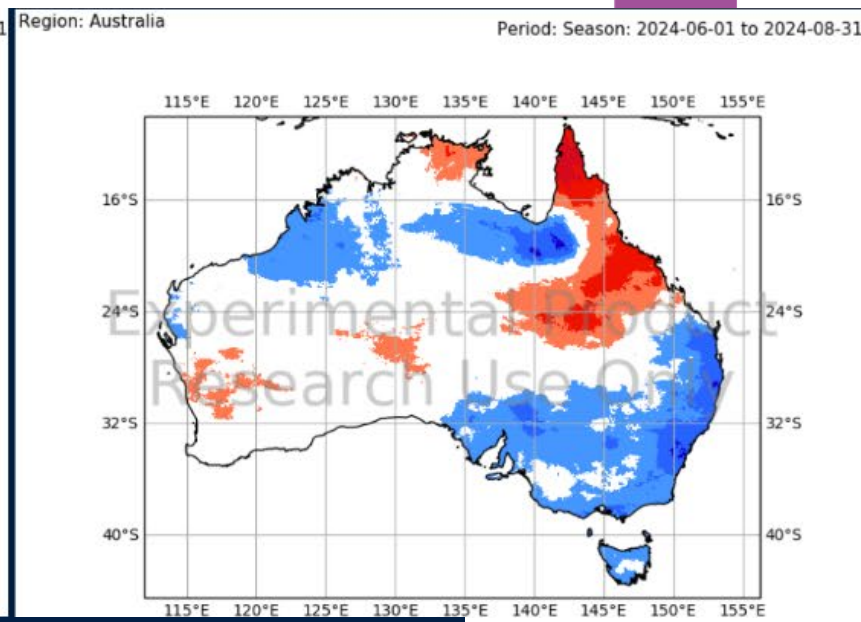



Increased likelihood of unusually wet conditions large parts of WA.

# June to August 2024:
## Wind speed Outlook

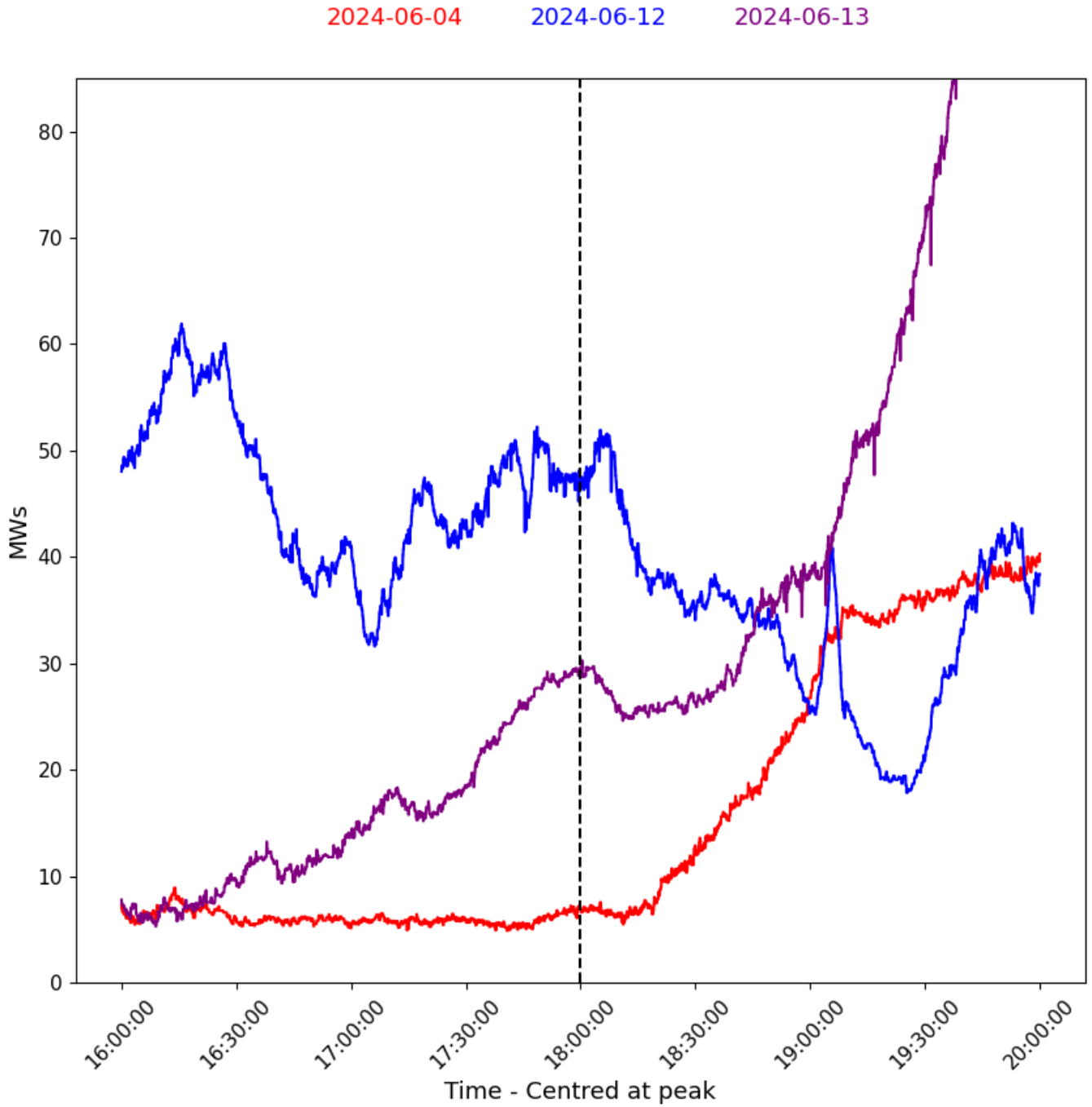




- Red shaded areas correspond to increased likelihood of observing above-median wind speeds
- Blue shaded areas correspond to reduced likelihood of observing above-median wind speeds

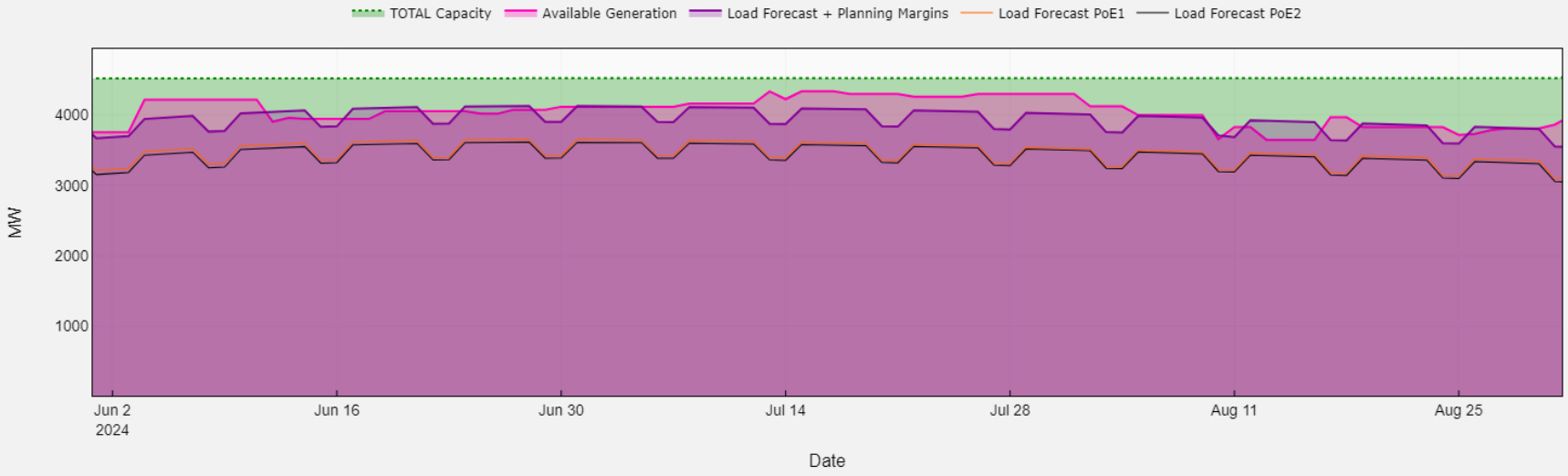



# Wind actuals over evening peak June 2024

| | | |
|---|---|---|
| 4/06/2024 17:46 | 4 | MW |
| 12/06/2024 17:55 | 48 | MW |
| 13/06/2024 18:16 | 25 | MW |

# Electricity System Readiness

# Generation Availability



# Operational Update:

## WEMDE v2 APIs.

| | |
|---|---|
| Presenter | Hayden Collett |

# What

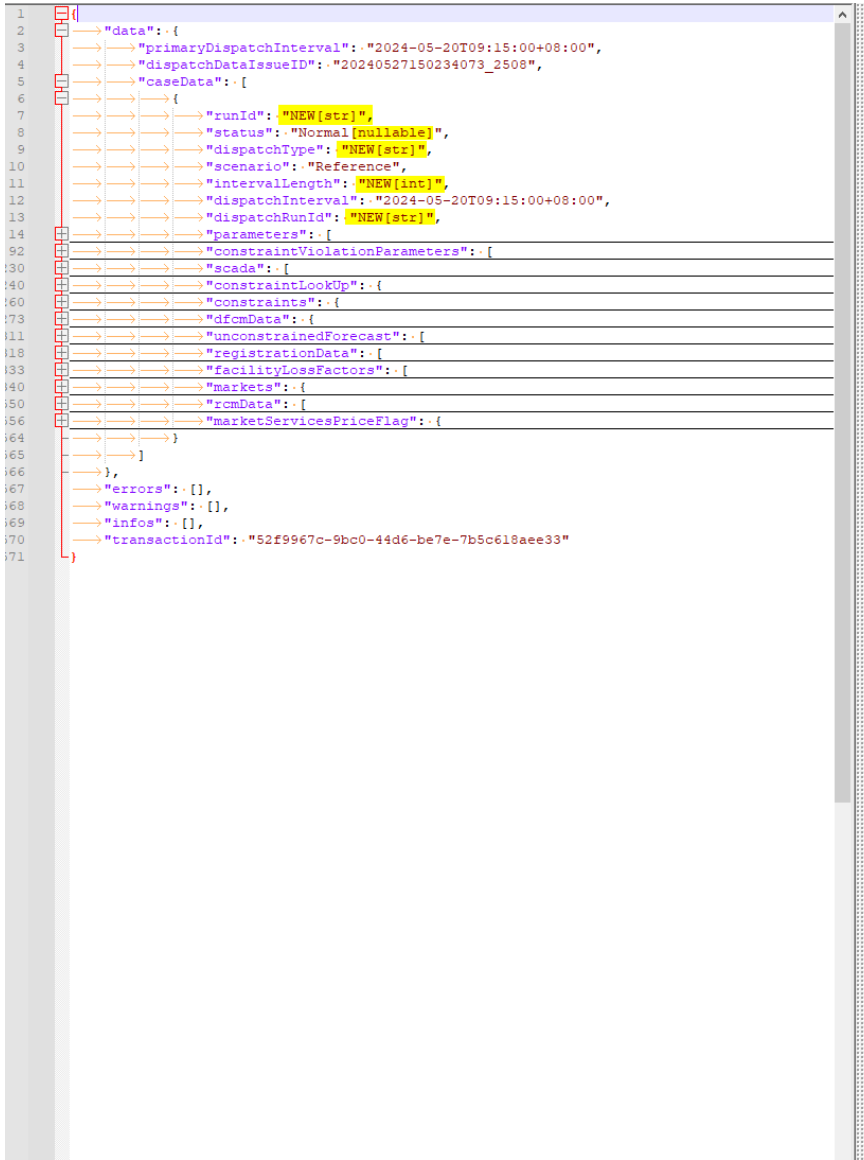
- Making improvements to the case and solution end points
  - dispatch, pre-dispatch, week-ahead

| v1 End Point | Proposed v2 End Point |
| --- | --- |
| /WEM/v1/dispatchCase/dispatchData | /WEM/v2/dispatchCase/dispatchData |
| /WEM/v1/dispatchCase/preDispatchData | /WEM/v2/dispatchCase/preDispatchData |
| /WEM/v1/dispatchCase/weekAheadDispatchData | /WEM/v2/dispatchCase/weekAheadDispatchData |
| /WEM/v1/dispatchSolution/dispatchData | /WEM/v2/dispatchSolution/dispatchData |
| /WEM/v1/dispatchSolution/preDispatchData | /WEM/v2/dispatchSolution/preDispatchData |
| /WEM/v1/dispatchSolution/weekAheadDispatchData | /WEM/v2/dispatchSolution/weekAheadDispatchData |

# Why

- Improve consistency between case and solution end points
  - Uniformity between dispatch, pre-dispatch and week-ahead
- More run/run interval metadata
- Improve visibility/awareness around Affected Dispatch Intervals
- Improve robustness behind the scenes

# Structural Changes/New Objects



```
{
    "data": {
        "primaryDispatchInterval": "2024-05-20T09:15:00+08:00",
        "dispatchDataIssueID": "20240527150234073_2508",
        "caseData": [
            {
                "runId": "NEW[str]",
                "status": "Normal[nullable]",
                "dispatchType": "NEW[str]",
                "scenario": "Reference",
                "intervalLength": "NEW[int]",
                "dispatchInterval": "2024-05-20T09:15:00+08:00",
                "dispatchRunId": "NEW[str]",
                "parameters": [
                "constraintViolationParameters": [
                "scada": [
                "constraintLookUp": {
                "constraints": {
                "dfcmData": {
                "unconstrainedForecast": [
                "registrationData": [
                "facilityLossFactors": [
                "markets": {
                "rcmData": [
                "marketServicesPriceFlag": {
                }
                ]
            },
        "errors": [],
        "warnings": [],
        "infos": [],
        "transactionId": "52f9967c-9bc0-44d6-be7e-7b5c618aee33"
}
```

```
{
    "data": {
        "primaryDispatchInterval": "2024-05-09T09:05:00+08:00",
        "dispatchDataIssueID": "20240527153330084_2293",
        "solutionData": [
            {
                "runId": "NEW[str]",
                "status": "NEW[str][nullable]",
                "dispatchType": "NEW[str]",
                "scenario": "NEW[str]",
                "dispatchInterval": "2024-05-09T09:05:00+08:00",
                "dispatchRunId": "NEW[str]",
                "solveSatus": "NEW[str]",
                "objectiveFunctionValue": "NEW[float]",
                "runIterationInformation": {
                    "fastStart": "NEW[bool]",
                    "intervention": "NEW[bool]",
                    "ocd": "NEW[bool]"
                },
                "solveStartAsAtTS": "NEW[datetime]",
                "solveFinishAsAtTS": "NEW[datetime]",
                "schedule": [
                "dispatchCaps": [
                "trapeziumAdjustments": [
                "facilityScheduleDetails": [
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                        "contingencyRaisePF": 0.0,
                        "contingencyLowerPF": 1.0,
                        "regulationRaisePF": 1.0,
                        "regulationLowerPF": 1.0,
                        "rocofPF": 1.0,
                        "contingency": 12.0,
                        "initialMw": 12.9,
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                        "fastStartInitialMode": 0,
                        "fastStartTargetMode": 0,
                        "fastStartTargetModeTime": 0,
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                        "facilityRisk": 12.0,
                        "projectedChargeLevel": "NEW[float][nullable]",
                        "projectedDischargeLevel": "NEW[float][nullable]"
                    },
                ],
                "definedContingency": [
                "constraints": [
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                "availableQuantities": {
                "marketShortfalls": {
                "prices": {
                "dispatchTotal": {
                "rocofControlRequirements": {
                "contingencySolution": {
                "priceSetting": [
                "fcessMarketClearingPriceCeilings": [
                "marketServiceRequirements": {
                }
                ]
            },
        "errors": [],
        "warnings": [],
        "infos": [],
        "transactionId": "996c1d6d-01fd-4e90-9727-7a583060d528"
}
```

# New Request Parameters

## Case File

| Name | Required | Type | Values |
|---|---|---|---|
| dispatchScenario | false | string | ‘Reference' (default), ‘ForecastHigh’, ‘ForecastLow’, 'InServiceCapacityOnly’ |

## Case & Solution

| Name | Required | Type | Values |
|---|---|---|---|
| dispatchIntervalScope | false | string | “Latest” (default) or “Original” |

“Latest” returns the latest updatedDate for the PDI and for each of the horizon intervals.
“Original” return the original/minimum updatedDate for the PDI and for each of the horizon interval.

# When

- Rough timeline of around end of July (WEMDEUI Release 2.2)
- With respect to the V2 API changes, expect updates on:
  - Developer portal API information
  - Sample swagger files
  - Public Data Site changes
- V1 and V2 will be available concurrently for a period with the intention of retiring V1
- AEMO is currently in the process of streamlining its Market Readiness/change management functions in which more information will be shared soon.

# Operational Update:

## AEMO Intervention Events.

| | |
|---|---|
| Presenter | AEMO & EPWA |

# Background

- First summer after SCED market start required significant AEMO real-time intervention to manage peak dispatch conditions
  - Interventions resulted in collapse of market prices
- Intervention frequency has significantly declined since:
  - Less extreme conditions under normal dispatch
  - Improvements through:
    - Participant and AEMO operational experience and leanings.
    - Dispatch system (market engine, engineering inputs, real time interface) fixes and re-turning
- Outlook is significantly improved for future LOR events
  - AEMO and EPWA reviewing intervention scenarios to define intended market outcomes

# Intervention Policy

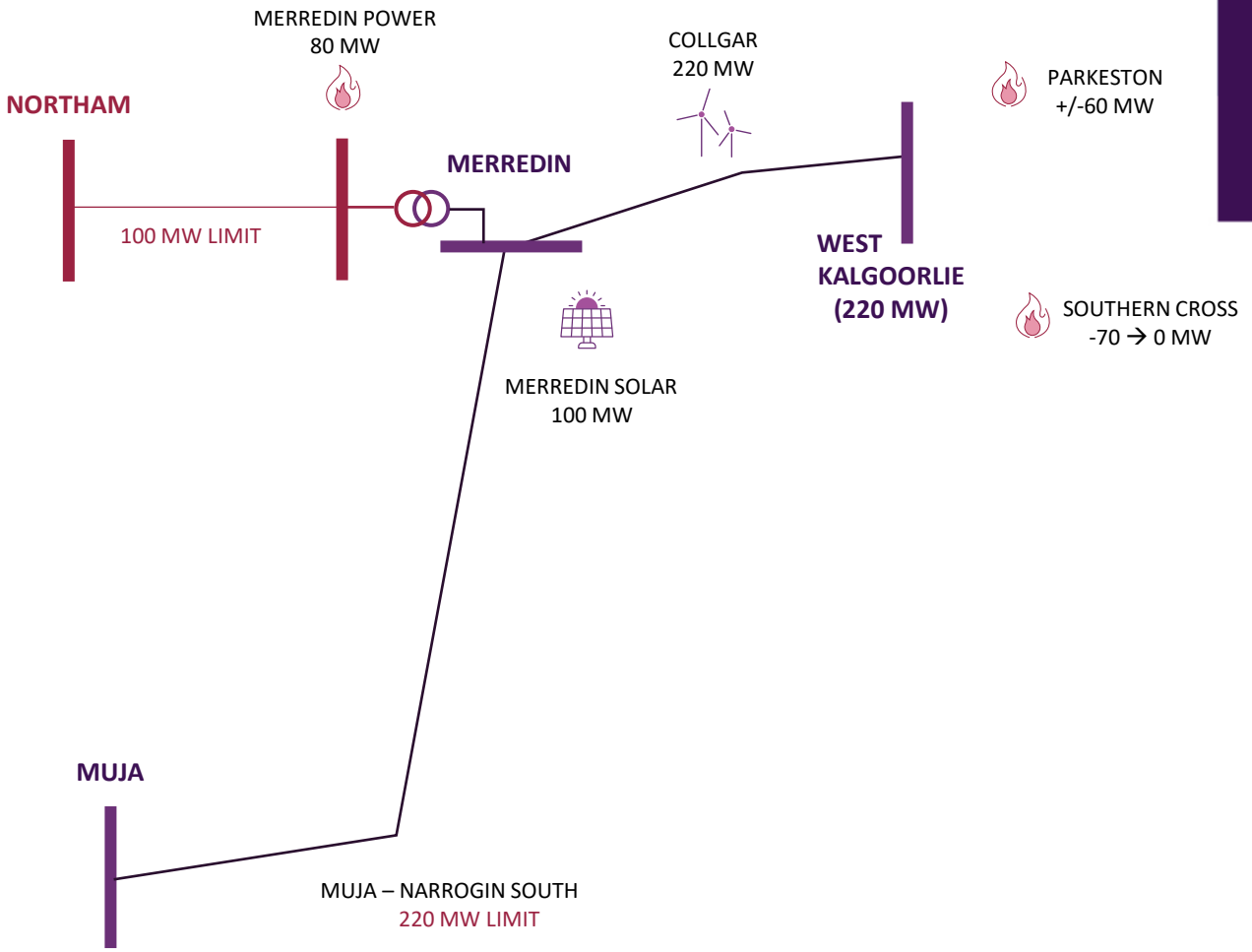
EPWA has confirmed the following policy to guide intervention scenarios:

- AEMO must take all available actions and interventions to minimise risk of directed load shedding
  - AEMO needs to improve transparency: market communication and procedure for Lack of Reserve Conditions
- Where possible, these interventions should avoid / minimise impact to market prices, e.g.:
  - preference directions to Participants to update market offers
  - trigger Intervention Pricing as appropriate
- There should careful consideration for compensation for interventions to manage non-network scenarios

# Intervention Scenario 1: Network Limit to Eastern Goldfields

Eastern Goldfields Power Transfer Limit

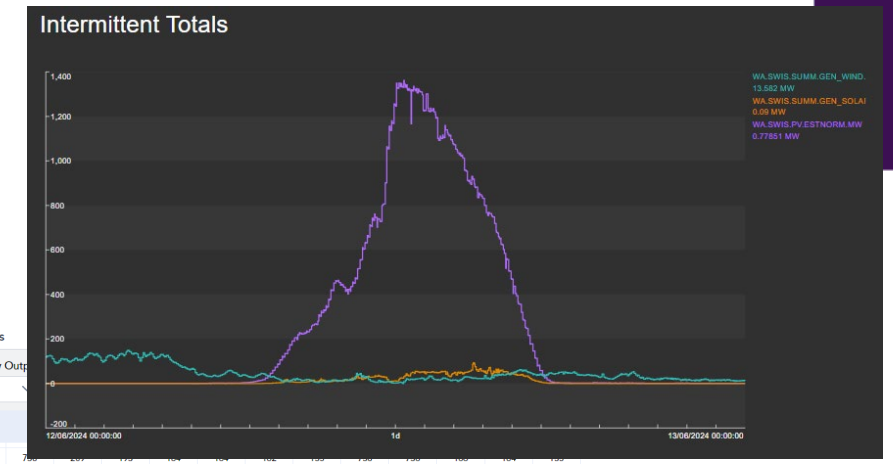
- Limited supply:
  - Single circuit
  - 220 MW **hard limit**
- Normally managed through equations:
  - NIL > CVP0 {…} [MU-NGS X1 (MU~)]
  - {…}: network and generation contingencies to consider
- However, conditions are subject to **oscillating commitment**



# Intervention Scenario 1: Network Limit to Eastern Goldfields

Conditions 12 June 08:00

- Market struggling with morning peak:
  - Low wind and PV output
  - Raise Services and Energy shortfalls
  - Early loss of Goldfields unit
- Oscillating commitment Dispatch Instruction to NAMKKN_MERR_SG1
  - Operator does not update offers (frustrated by short run and non-physical instructions.)




**Dispatch Display**

Graphs | Summary Data | Facility Data | Constraints | Market Offers

| Forecast Scenario | Market Schedule | Filter by Facility Class | Filter by Facility Outp |
|---|---|---|---|
| Medium | Dispatch | Select All | Select All |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prices | 167 | 204 | 190 | 738 | 738 | | | | | | | | | | | | | |
| Energy | 167 | 204 | 190 | 738 | 738 | 738 | 209 | 193 | 164 | 164 | 162 | 135 | 738 | 738 | 186 | 184 | 135 | |
| Regulation Raise | 14 | 47 | 37 | 500 | 500 | 500 | 53 | 40 | 21 | 21 | 18 | 0 | 500 | 500 | 36 | 34 | 1 | |
| Regulation Lower | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Contingency Raise | 32 | 101 | 79 | 500 | 500 | 500 | 114 | 90 | 46 | 46 | 40 | 0 | 500 | 500 | 89 | 88 | 39 | |
| Contingency Lower | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| RoCof | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Market Shortfalls | | | | | YES | | | | | | | | | | | | | |
| Constraints | V | V | V | | | | | | | | | | | | | | | |

**Facility Data**

| Facility | Initial MW | 08:00 | 08:05 | 08:10 | 08:15 | 08:20 | 08:25 | 08:30 | 08:35 | 08:40 | 08:45 | 08:50 | 08:55 | 09:00 | 09:05 | 09:10 | 09:15 | 09:20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALINTA_WGP_U2 | 172 | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 174 | 170 | 167 | 133 | 114 | 147 | 170 | 142 | 137 | 114 |
| KEMERTON_GT11 | 91 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 71 | 5 | 19 | 0 | 0 |
| KWINANA_ESR1 | 92 | 99 | 99 | 94 | 26 | -34 | -30 | 2 | 16 | 7 | -4 | -6 | -1 | 3 | 2 | 0 | -1 | 0 |
| MUJA_G6 | 172 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 165 | 175 | 175 | 175 | 175 |
| MUJA_G7 | 193 | 195 | 195 | 195 | 195 | 195 | 195 | 185 | 175 | 175 | 175 | 175 | 175 | 175 | 176 | 175 | 175 | 175 |
| NAMKKN_MERR_SG1 | 0 | 0 | 0 | 0 | 18 | 48 | 19 | 4 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 |
| NEWGEN_KWINANA_CCG1 | 313 | 320 | 311 | 310 | 293 | 283 | 291 | 305 | 314 | 317 | 318 | 319 | 320 | 290 | 272 | 287 | 298 | 304 |

# Intervention Scenario 1: Network Limit to Eastern Goldfields

# Intervention Scenario 1: Network Limit to Eastern Goldfields

- Intervention counter-factual:
  - Critical facility de-commits following oscillating market Dispatch Instruction
    - AEMO has no reliable information on cycling capabillity
  - Risk that no options remain to re-secure system:
    - System conditions *may* bind again
    - Facility *may* enter restart cycle

Risk appetite does **not** support this outcome.

- Intervention Scenario:
  - AEMO intervenes in advance to prevent potential non-securable system
    - In this scenario: constrain facility to minimum stable output
  - Flagged as network constraint; facility is uplifted to submitted offer price

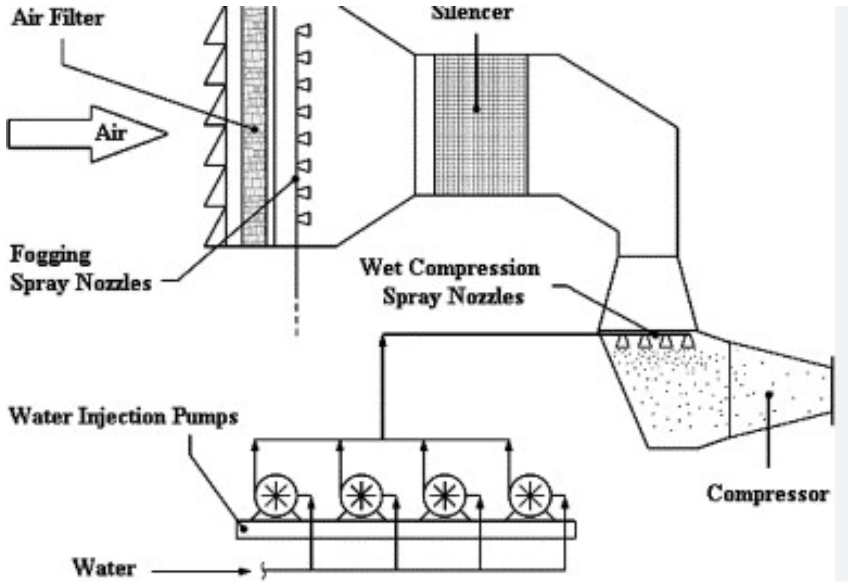
# Intervention Scenario 1 Policy Discussion

What is the intended outcome when market dynamics do not manage power system requirements?

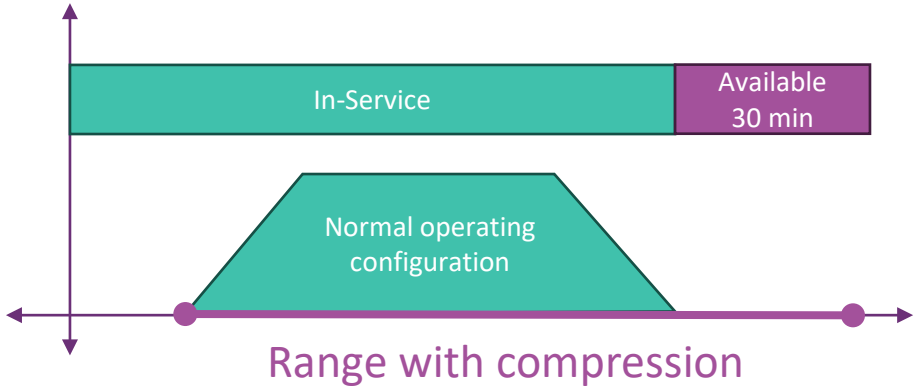
Why are network limits uplifted?

Is this an end-state scenario?

# Trapezium limits and commitment

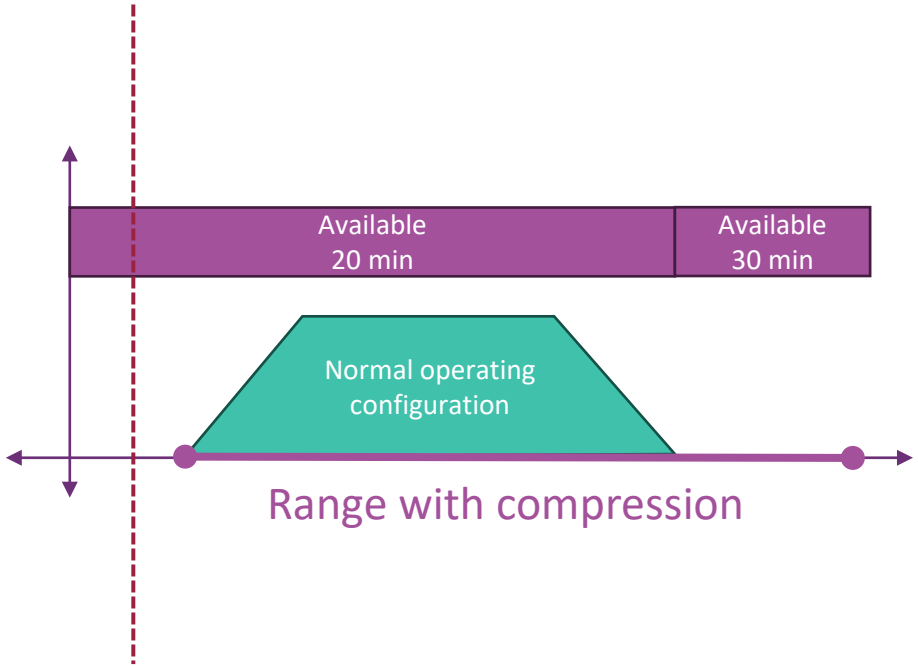






# Intervention Scenario 2 Rolling Commitment

- Market is short of In-Service reserves:
  - Shows as ESS shortfall
  - Dispatch Instructions not desirable for participant:
    - Short-run
    - Below min-stable
    - Oscillating / “fleeting”
  - Most likely at price cap due to tie break
- Operator does not update submissions:
  - Market Prices are corrupted
    - Recurring shortfalls
    - Alternative facilities do not receive instructions
  - AEMO does not intervene **unless system is non-secureable**
    - ESS reserves generally sufficient for 1 facility



# Intervention Scenario 2 Policy Discussion

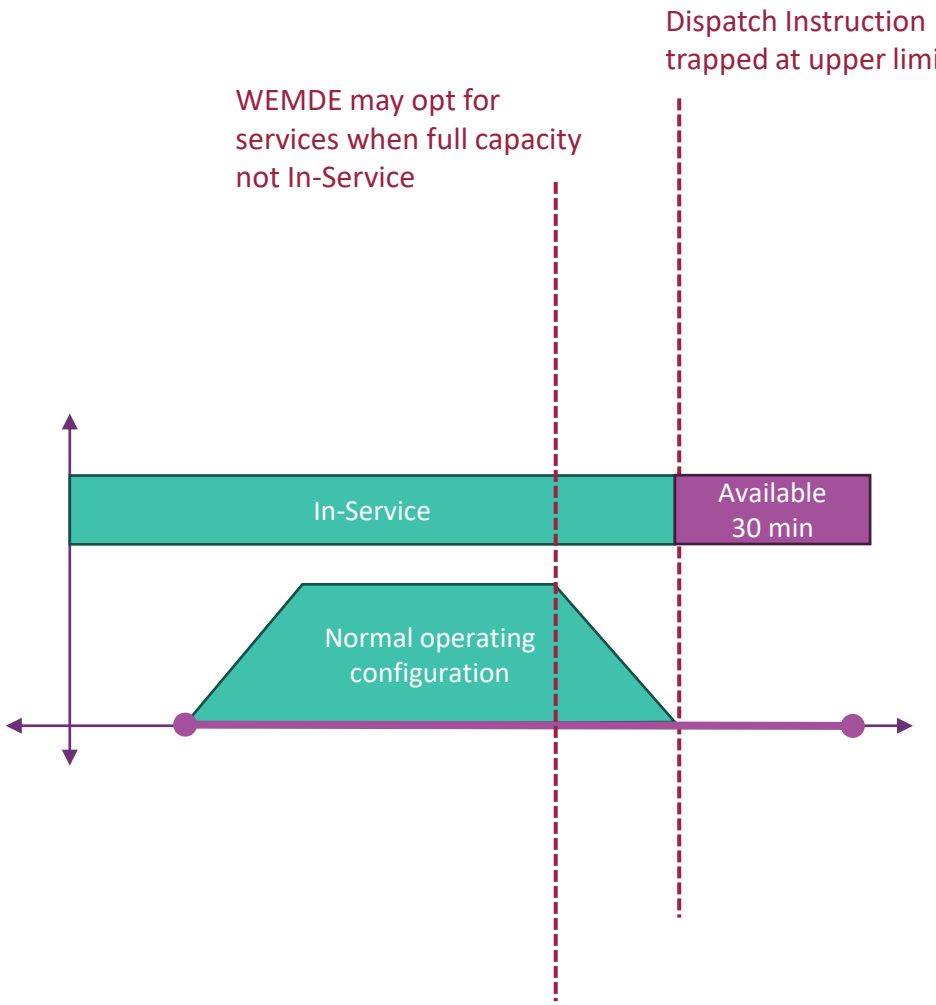
What is the intended outcome when market dynamics do not manage power system requirements?

If AEMO does intervene, why are participants not uplifted?

Is this an end-state scenario?

# Intervention Scenario 3 Trapezium limits

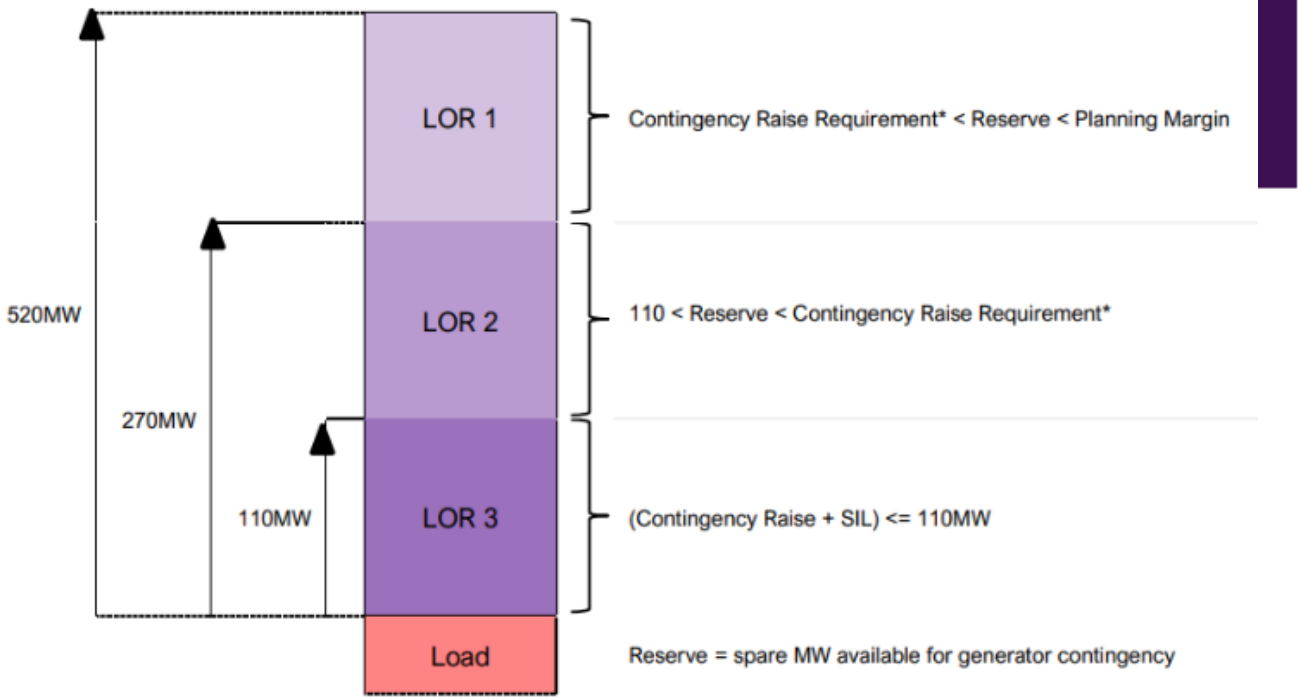
- Capacity from facility unavailable due to trapezium trapping
  - Normally occurs at upper bound for overload facility capability
- Participants do not respond to signal:
  - Capacity unavailable to WEMDE; facility is co-optimised to supply reserve
  - Reserve price is high due to energy congestion
    - Participant prefers to supply ESS
- Capacity takes time (Start-Decision Cut-off) to activate and is unavailable when required.



# Low Reserve Conditions (LRC) Lack of Reserve (LOR) levels

LRC greatly increase the chance of a non-secureable system

- Forecast assumption that ALL accredited capacity is dispatched
- Without intervention, AEMO has insufficient reserves operate securely




Under LOR2, any ***sequence of events*** with unavailable capacity will lead to a non-secureable system and credible risk of directed load shedding

# Intervention Scenario 3
# Lack of Reserve Conditions

During 2023/24 summer events:

- Significant proportion of capacity did not offer In-Service
- AEMO intervened to force instructions to capacity outside trapeziums
  - Market prices collapsed
  - ESS quantities did not reflect facility physical capability

| | |
|---|---|
| **Details:** | Due to heatwaves forecast across the SWIS driving high Operational Demand, AEMO has declared Low Reserve Conditions (LRC) for the peak period 2024-Feb-23 15:00 – 20:30.<br>The forecast condition level is Lack of Reserve 2 (LOR2)<br>Market Participants are advised that during this LRC Declaration period:<br>1. All generation Facilities are likely to receive a Dispatch Instruction<br>2. Facilities offering Essential System Services may be trapped at Enablement Maximum limits.<br>3. Demand Side Programs are likely to receive a Dispatch Instruction for maximum curtailment capacity.<br>4. Supplementary Reserve Capacity (SRC) is likely to be dispatched<br>5. Facilities should not be de-committed without first contacting the AEMO Control Room<br>6. AEMO may take further actions to manage Power System security and Reliability as required.<br>If forecast energy shortfalls are not resolved by 15:00, AEMO may be required to implement an AEMO Intervention Event to ensure:<br>• Sufficient capacity is committed In-Service (with allowance for Start Decision Cutoff); and<br>• Facilities are not trapped at Enablement Maximum limits.<br>Power System Security and Reliability through other actions as required. |
| **Action AEMO will take:** | • Provide updates of any significant changes or amendments to the forecast Low Reserve Conditions.<br>• If market conditions do not resolve the LRC conditions, implement an AEMO Intervention Event to maintain Power System Security and Reliability. |
| **Action MP and NO must take:** | Monitor forecast Pre-Dispatch and Dispatch Schedules and update Real-Time Market Submission to reflect commitment intentions by:<br>• Committing maximum available capacity In-Service<br>• Ensuring forecast Dispatch Instructions clear minimum stable generation requirements of physical plant<br>Market Participants must contact the AEMO Control Room prior to any facility decommitment within the LRC period. |
| **Action MP may take:** | Monitor forecast Pre-Dispatch and Dispatch Market Schedules and update and where:<br>• Energy market shortfalls are forecast; and<br>• A facility is trapped at its high enablement limit with further energy capacity available.<br>• Update Real-Time Market Submission to prevent enablement trapping. |

# Intervention Scenario 3
# Lack of Reserve Conditions

For future LOR events:

- Prior to intervention cut-off, AEMO will direct facilities to update offers under LRC framework
  - WEM Procedures in development
- After cut-off, AEMO will intervene as before
  - Directed participants in this scenario will not be uplifted
  - Other scenarios *may* still result in uplift
    - Case-by-case basis
  - Ongoing review of options to preserve market prices

(i) that the Registered Facility is:

(A) capable of providing the required Essential System Service; or

(B) may supply sufficient energy to allow co-optimisation of the required Essential System Service from another facility;

(ii) the relevant Start Decision Cutoff and capable speed at which the Registered Facility can synchonise and reach an output level necessary to supply the relevant Essential System Service;

(iii) whether Energy Storage Constraints apply to the Registered Facility;

(iv) that synchonisation of the Registered Facility does not increase the Largest Credible Supply Contingency;

(v) any recent outages or issues of power plant reliability known to AEMO;

(vi) that the output of the Registered Facility will not be impacted by network congestion or otherwise result in the constraint of another Registered Facility;

(vii) the relative offer price into all markets for the Registered Facility;

(viii) as relevant, any nearby storm activity, bushfires, or any other real time conditions or information known to AEMO that may impact the Registered Facility's performance or reliability;

(ix) any other information known to AEMO relevant to the Registered Facility performance, capability, or reliability in providing the Essential System Service.

Department of **Energy, Mines, Industry Regulation and Safety**

GOVERNMENT OF WESTERN AUSTRALIA

# Update:

## FCESS Cost Review Update.

| | |
|---|---|
| Presenter | EPWA |

# Summary of ongoing initiatives

- Obligations for Market Participants to offer in-service where certified reserve capacity is required.
- AEMO Low Reserve Condition procedure and market information transparency improvements.
- Intervention review and direction classification framework.
- Intervention pricing triggers and review of circumstances where Energy Uplift Payments are warranted.
- Options to uplift Market Advisory detail and intervention transparency

# Other FCESS Cost Review matters

- The FCESS tie-break method.
- Energy Market Clearing Prices reaching the cap due to the prices in submissions rather than real-time shortfalls.
- Definition of Notice Periods.
- Minimum enablement quantities.
- RoCoF Uplift Payments and Uplift payments more generally.

# Questions, Feedback, Ideas

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For more information visit

**aemo.com.au**