

WDR Guidelines Technical Working Group #1

Tuesday 11th August 2020

WebEx only

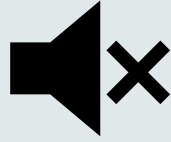
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**PLEASE NOTE THIS MEETING WILL BE RECORDED FOR THE
PURPOSE OF PREPARING MINUTES**

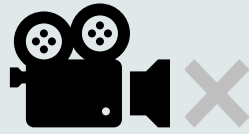
*We acknowledge the
Traditional Owners of country
throughout Australia and recognise
their continuing connection to
land, waters and culture.*

*We pay our respects to their
Elders past, present and emerging.*

Online forum housekeeping



1. Please mute your microphone, this helps with audio quality as background noises distract from the information being shared.



2. Video is optional, but having it turned off helps with webinar performance and minimises distractions.



3. We ask that you utilise the Chat function for any questions or comments you may have if you are unable to use audio.



4. If you have dialled in via phone, could you please email your name and organisation to WDR@aemo.com.au for our records.



5. Be respectful of all participants and the process.

AEMO Competition Law Meeting Protocol

AEMO is committed to complying with all applicable laws, including the Competition and Consumer Act 2010 (CCA). In any dealings with AEMO regarding proposed reforms or other initiatives, all participants agree to adhere to the CCA at all times and to comply with this Protocol. Participants must arrange for their representatives to be briefed on competition law risks and obligations.

Participants in AEMO discussions **must**:

1. Ensure that discussions are limited to the matters contemplated by the agenda for the discussion
2. Make independent and unilateral decisions about their commercial positions and approach in relation to the matters under discussion with AEMO
3. 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

Participants in AEMO meetings **must not** discuss or agree on the following topics:

1. Which customers they will supply or market to
2. The price or other terms at which Participants will supply
3. Bids or tenders, including the nature of a bid that a Participant intends to make or whether the Participant will participate in the bid
4. Which suppliers Participants will acquire from (or the price or other terms on which they acquire goods or services)
5. Refusing to supply a person or company access to any products, services or inputs they require

Under no circumstances must Participants share Competitively Sensitive Information. Competitively Sensitive Information means confidential information relating to a Participant which if disclosed to a competitor could affect its current or future commercial strategies, such as pricing information, customer terms and conditions, supply terms and conditions, sales, marketing or procurement strategies, product development, margins, costs, capacity or production planning.

Agenda

NO	TIME (AEST)	AGENDA ITEM	RESPONSIBLE
1	1:30pm – 1:40pm	Welcome	Greg Ruthven (Chair)
2	1:40pm – 2:00pm	WDR Guidelines development: <ul style="list-style-type: none"> Principles, approach, schedule 	Greg Ruthven
		<ul style="list-style-type: none"> Amend/agree WDRG TWG Terms of Reference 	Greg Ruthven
3	2:00pm – 2:15pm	Approach to designing baseline processes	Katalin Foran
4	2:15pm – 2:30pm	WDRU classification and aggregation requirements	Adam Gorton
BREAK 2:30pm – 2:40pm			
5	2:40pm – 2:50pm	Assessing power system security impact of aggregation	Ben Blake
6	2:50pm – 3:05pm	Telemetry and communications requirements	Ben Blake
7	3:05pm – 3:20pm	Regional thresholds for increased visibility	Robert Manolache
8	3:20pm – 3:30pm	WDRU maximum responsive component	Steven Humphries
9	3:30pm – 3:35pm	Forward meeting plan	Greg Ruthven
10	3:35pm – 3:40pm	General questions and close	Greg Ruthven

WDR Guidelines Development: Principles, Approach and Schedule

Greg Ruthven

Scope of WDR guidelines – clause 3.10.1(a)

WDR guidelines must be made by no later than 24 June 2021

	Description	Discussion
(1)	Requirements for classification & aggregation of WDRUs	TWG #1, item #4
(2)	Telemetry and communications equipment requirements	TWG #1, item #6
(3)	Methodology for regional non-SCADA telemetered thresholds	TWG #2
(4)	Process for developing baseline methodologies, including new proposals	TWG #2
(5)	Process to apply baseline methodology and baseline settings to a WDRU	TWG #2
(6)	Process to change the maximum responsive component of a WDRU	TWG #1, item #8
(7)	Arrangements for providing details applicable to a WDRU (baseline methodology/settings, maximum responsive component)	TWG #2
(8)	Any other WDR-related information determined by AEMO This may include: <ul style="list-style-type: none">- Baseline methodology metrics- Baseline compliance testing	TWG #2

Principles for developing and amending of WDR guidelines – clause 3.10.1 (b)

AEMO must have regard to:

	Principle
(1)	The need not to distort the operation of the market
(2)	The need to maximise the effectiveness of WDR at the least cost to end use consumers of electricity
(3)	Any other matter determined by AEMO acting reasonably and which must be specified in the WDR guidelines. This may include: <ul style="list-style-type: none">- The need to ensure adequate power system operation, and the maintenance of power system security and reliability of supply

Scope and principles

Stakeholder questions:

- What other topics should AEMO include in the WDR guidelines, having regard to the trade-off between flexibility and certainty?
- What other principles should AEMO consider when amending the WDR guidelines?

Proposed approach for developing WDR guidelines

- Rules consultation procedures
- Pre-initiation:
 - Concepts, draft requirements/processes presented to TWG for discussion/feedback
 - TWG input to guide content and approach for issues paper
- Issues paper:
 - Formally propose the requirements/processes for inclusion in the WDR guidelines
 - 25 business day 1st round consultation period
- Draft determination:
 - Draft report and draft WDR guidelines
 - Extended 2nd round consultation (length TBA) – newly developed guideline and Christmas/New Year period
- Potential for additional TWG meetings to discuss submissions

Indicative timing

Stage		Indicative dates
	TWG #1	Aug 20
	TWG #2	Sep/Oct 20
1st Round Consultation	Issues paper published	Oct 20
	Submissions due on Issues Paper	Nov 20
2nd Round Consultation	Draft Report/Draft Guidelines published	Dec 20
	Submissions due on Draft Report/Draft Guidelines	Jan/Feb 21
	Final Report/Final Guidelines published	Mar 21

Alternative approach for developing WDR guidelines

- Develop draft guideline for release alongside issues paper
 - Advantages: Provides two rounds of formal consultation on draft guidelines; potential for a 3rd TWG meeting prior to initiating rules consultation
 - Disadvantage: Defers finalisation of WDR guidelines

Stage		Indicative dates
TWG #1		Aug 20
TWG #2		Sep/Oct 20
TWG #3		Oct/Nov 20
1st Round Consultation	Issues paper published	Nov 20*
	Submissions due on Issues Paper	Dec 20/Jan 21
2nd Round Consultation	Draft Report/Draft Guidelines published	Feb 21
	Submissions due on Draft Report/Draft Guidelines	Mar 21
Final Report/Final Guidelines published		Apr/May 21

Proposed approach and indicative timing

Stakeholder questions:

- Do stakeholders have a preference between the proposed and alternative approaches?
- What changes to the proposed or alternative approach could better facilitate stakeholder input within the time constraints?
- What changes to the indicative schedule may assist in balancing the need for adequate consideration of content against the need for early certainty of requirements?
- Are TWG members satisfied that the draft Terms of Reference reasonably reflect the proposed approach?
 - Seeking endorsement of Terms of Reference

Approach to developing baseline processes

Katalin Foran

Baselines - introduction

- The demand response settlement process requires the establishment of a baseline for each WDRU.
- A baseline is the counterfactual energy amount for the WDRU that is dispatched for demand response.
- Generally, baselines represent an estimate of the consumption per trading interval during a day, based on a history of like days in the near past.
- Under the Rules, AEMO must develop:
 - one or more baseline methodologies (BLMs)
 - related baseline settings
 - baseline methodology metrics for eligibility/compliance testing

Baseline definitions

- **Baseline methodology (BLM)** – methodology to determine a baseline for a WDRU.
- **Baseline settings** – set parameters that allow the BLM to be applied to different WDRUs (i.e. qualifying days, baseline window, adjustment window, weekday/weekend etc).
- **Baseline methodology metrics** – parameters (i.e. accuracy/bias) used to assess a WDRU baseline for eligibility and compliance.
- **Accuracy** – how closely a baseline methodology predicts actual loads in the sample.
- **Bias** – the systematic tendency of a baseline methodology to over- or under-predict actual loads.

Overall Approach

- Single BLM for start of WDRM (to include weekday/weekend options)
 - Minimise cost and time to market
 - Further BLMs can be added in the future
 - Aim to balance accuracy, simplicity, and integrity
- Starting point for WDRM BLM
 - Methodology currently used for RERT (which is based heavily on AEMO's 2013 DRM proposal).
 - For description see Appendix F in: <https://arena.gov.au/assets/2019/06/demand-response-funding-announcement-update-2.pdf>
- RERT methodology overview:
 - CAISO 10 of 10 with additive symmetric adjustment.
 - Use last 10 eligible days.
 - Adjustment up or down on the day of WDR by average of a 3-hour window ending one hour before the first TI of the WDR.

Baseline responsibilities

- What does AEMO have to do?
 - Develop a BLM that can be applied to WDRUs.
 - Determine the settings under which the BLM will operate.
 - Determine how bias and accuracy metrics will be calculated (statistical methods, data required, processes etc).
 - Define the threshold values for accuracy and bias required for eligibility and compliance.
 - AEMC determination - baselines should exceed the levels of accuracy considered 'good' in the AEMO-ARENA demand response RERT trials (i.e. Relative Root Mean Square of the Errors (RRMSE) of < 10%).
- What do DRSPs have to do to participate in WDRM (wrt baselines)
 - Have the required data to allow AEMO to calculate WDRU baselines according to the BLM and BLM settings.
 - For WDRM eligibility - have baselines that meet the bias and accuracy threshold levels set by AEMO.
 - For compliance - have baselines that meet the bias and accuracy threshold levels set by AEMO.

Consultant engagement and next steps

AEMO has engaged consultant to:

- 1) Test the efficacy of a variety of “RERT like” BLMs with commonly accepted adjustment approaches.
- 2) Development the methodology for calculating accuracy/bias metrics and appropriate threshold values.

We will share results with the TWG when available.

Questions/Comments

?

WDRU classification and aggregation requirements

Adam Gorton

WDR registration applications

1. Application to be registered in the category of Demand Response Service Provider (DRSP)
 - **Three requirements** set out by clause 2.9.2(b)
2. Application for approval to classify the qualifying load as a WDRU
 - **Seven requirements** set out by clause 2.3.6(e)
 - (5) Baseline — any **criteria in the WDR guidelines**
 - (7) the load must **satisfy each requirement in the WDR guidelines**
3. Application to aggregate two or more WDRUs so they are treated as one WDRU for the purpose of central dispatch
 - **Four requirements** set out by clause 3.8.3(b2)
 - (4) the aggregation must **satisfy each requirement in the WDR guidelines**

WDRU classification

1. Qualifying load
2. Provide WDR in accordance with the Rules
3. Providing a quantity of WDR at least equal to the maximum responsive component
4. DRSP has adequate telemetry and communications
5. Baseline methodology applied the load
 - Produces a baseline that satisfies the baseline methodology metrics and
 - Any criteria in the WDR guidelines
6. Schedule 3.1 data
7. WDR guidelines requirements

WDRU aggregation

1. Aggregated WDRU must be connected within a single region and classified by the same DRSP
2. Power system security must not be materially affected
3. Control systems must satisfy WDRU classification requirements after aggregation
4. WDR guidelines requirements

Prescribed registration forms and processes

- AEMO will design forms and processes to enable the joint submission and assessment of applications to register, classify and aggregate ahead of market start.
- Registration forms capture information required by AEMO to determine whether an application meets the applicable requirements
- Applications must be determined complete, before being considered by the Participant Registration Committee
- AEMO will develop registration guides to assist proponents submit applications, these guides will not set additional requirements

WDRU classification and aggregation requirements

Stakeholder questions:

- Do stakeholders support registration forms that are designed to enable joint applications to register, classify and aggregate?
- As potential DRSP, how likely will stakeholders apply to AEMO to classify the same load as both a WDRU and ASL?
- Do stakeholders support registration forms that are designed to enable applications for DRSP registration and both ancillary service load (ASL) classification/aggregation and WDRU classification/aggregation?

BREAK

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Assessing power system security impact of aggregation

Ben Blake

Power system security and aggregation

- Regional aggregation an issue for forecasting and power system security
- Generally would be regional e.g. Sydney or Melbourne or central Qld
- Many areas of congestion in the power system and these are changing
 - 5 MW in some locations will be ok, other locations will be an issue
- AEMO already uses an assessment process for 5-30 MW generators – will use the same process for WDR.



Power system security and aggregation

Stakeholder questions:

- What information do stakeholders need on the assessment process for power system security/aggregation?

Telemetry and communications requirements

Ben Blake

Comms requirements

- AEMO's considerations:
 - NER requirements
 - AEMO's responsibility for managing grid security in the context of an increasingly challenging power system security environment
 - Cost and other impacts to participants
- SCADA is currently the main comms with AEMO
- Alternative telemetry/comms options being trialled (i.e. VPP trial)
 - "SCADA lite" as a more cost effective/simpler option
 - AEMO expects it will be able to include this option when available, anticipated to be in draft WDR guidelines published with draft determination
- Consistent with other NEM scheduled plant, SCADA or "SCADA lite"
 - Needed for sites 5 MW and above or where multiple sites at the same connection point are going to be greater than 5 MW
 - May be needed for sites less than 5 MW if located in a congested area of the power system

Regional thresholds for increased visibility

Robert Manolache

Regional non-SCADA thresholds

- The aggregate MW amount of WDR that may be registered in each region without SCADA telemetry
 - Comprises all smaller WDRUs below 5 MW that are exempt from SCADA
 - Note that SCADA exemption is not guaranteed for all WDRUs below 5 MW
- These smaller WDRUs will be the first scheduled units for which SCADA telemetry is not mandated
 - Reducing the barrier for smaller C&I loads to participate in WDR
- However, the lack of real-time visibility can impact AEMO's operations

Importance of Real-Time Visibility

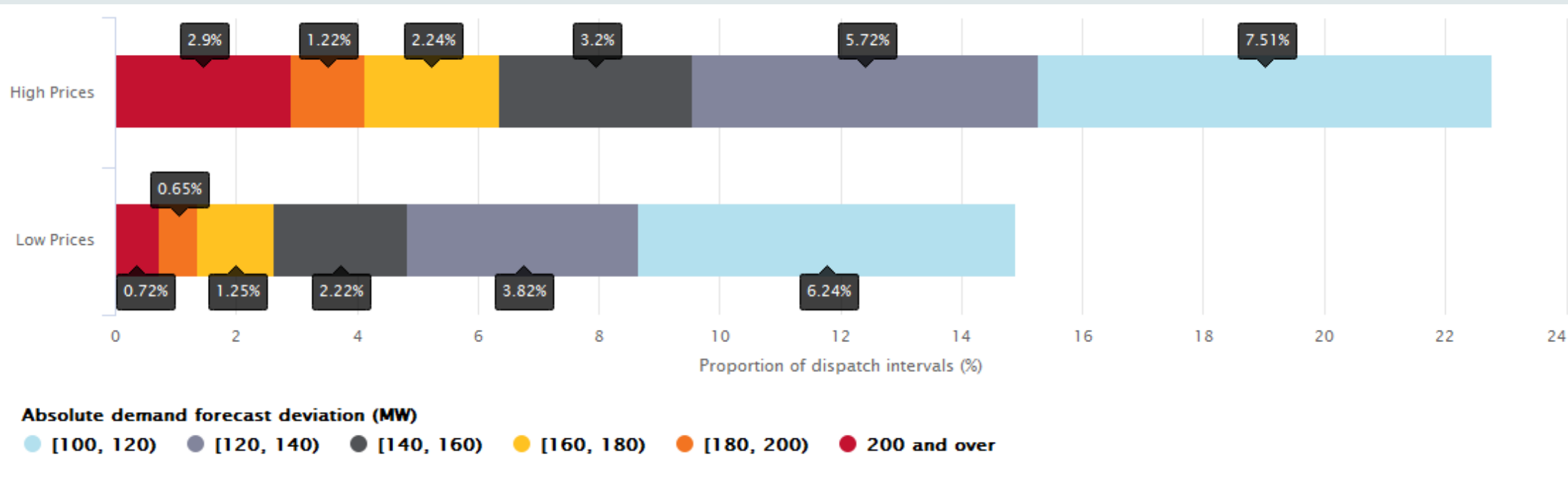
- AEMO is responsible for system security
 - Visibility of the current state of the system is critical
 - Without SCADA, dispatched unit performance is not visible to the control room
- If actual WDR differs from the dispatch target
 - With SCADA telemetry, WDR dispatch errors can be immediately identified
 - Without SCADA telemetry, they become an unknown source of dispatch error, which impacts AEMO's ability to forecast accurately
- This can lead to:
 - Increased market costs through:
 - Increased regulation and contingency FCAS
 - Unnecessary activation of RERT
 - Potential supply shortfalls, particularly on operationally challenging days

Setting Non-SCADA Thresholds

- Methodology currently under development
- Objective is to identify optimal threshold levels for non-SCADA WDR in each NEM region
 - Allowing for the maximum level of WDR participation while maintaining AEMO's ability to manage system security and operations
- Undergoing internal consultation to ensure we incorporate all relevant factors to construct a robust framework

High Prices and Forecast Deviations

- Dispatch intervals with high prices* are typically more difficult to forecast



*Dispatch intervals over the past 2 years where price is greater than \$300/MWh in at least 1 mainland NEM region

WDRU maximum responsive component

Steven Humphries

Maximum Responsive Component (MRC)

The maximum quantity (in MW) of wholesale demand response that a wholesale demand response unit is able to provide in accordance with the Rules.

For wholesale demand response units aggregated in accordance with clause 3.8.3, the maximum responsive component specified by AEMO as a condition of aggregation under clause 3.8.3(b3) (if any) or otherwise, the aggregate maximum responsive component of the aggregated wholesale demand response units.

- What is the role of the MRC?
 - The DRSP must specify the proposed **MRC** when applying to classify a load as a WDRU
 - Caps the quantity that may be offered in dispatch
 - Sum of the MW quantities in each price band for each trading interval must not exceed the **MRC** of the WDRU
 - Used in settlement to cap the quantity of WDR at each NMI
 - May be adjusted following settlement/review of dispatch conformance at the NMI

What evidence/assurance is expected?

Application to classify WDRU must specify the proposed **maximum responsive component** for that WDRU

DRSP	captured in rego data
Address details for providing response	captured in rego data
NMI	will have that as primary key for WDRU data
Counterparty	company doing the DR
Type of Site	industrial/commercial/agricultural [drop down list]
Plant (types)	could have multiple plant - need to be able to choose more than one [drop down list]
Plant - size	MW or MVA and PF
Plant - storage	Free text eg air in kl or MWh for battery
Plant - model number	if applicable - brand, model - Free text
Plant - means of control	telemetry, SMS etc
MRC (Firm MVA x PF)	MW
Response Time	if > 2 mins need extra info on how to meet dispatch timeframes

Aggregate/ DUID MRC	MW, <= to sum(NMI MRCs)
Aggregate/ DUID MRC explanatory	Free text

Forward meeting plan

Greg Ruthven

TWG Meeting 2

- Second meeting – Sep/Oct, 3-4 hour duration
- Agenda to include:
 - Regional thresholds for increased visibility
 - Baselines
 - Arrangements for provision of WDRU-specific data
 - Carry-over items from meeting 1

Stakeholder questions:

- What other topics or issues do members wish to discuss at the next TWG, prior to release of the consultation paper?



Please also provide agenda suggestions at any time to WDR@aemo.com.au

General questions

Greg Ruthven

