MEETING RECORD

MEETING:	Wholesale Demand Response Guidelines Technical Working Group (WDRG TWG)
DATE:	Tuesday, 11 August 2020
TIME:	1:30pm – 4:45pm
LOCATION:	WebEx only
MEETING NUMBER	#01

ATTENDEES:

NAME	COMPANY
Tom Kelly-Spanner	AGL
Melissa Perrow	Brickworks
Damian Edwards	CQ Energy
Emeka Chukwureh	Electricity Exchange
Elisabeth Ross	Enel X
Georgina Snelling	EnergyAustralia
Ben Pryor	ERM Power
Alex Leemon	Flow Power
David Headberry	Major Energy Users (MEU)
Craig Keenan	Origin Energy
Anna Livsey	PIAC
Adam Gorton	AEMO
Anthony Hill	AEMO
Ben Blake	AEMO
Emily Brodie	AEMO
Greg Ruthven	AEMO
Katalin Foran	AEMO
Nick Regan	AEMO
Rob Selbie	AEMO
Robert Manolache	AEMO
Ruth Guest	AEMO
Steven Humphries	AEMO

NOTE: some attendees who joined through WebEx and phone may not have been identified. Please advise via email to WDR@aemo.com.au if you attended the meeting but have not been noted above.

Disclaimer - This document provides an overview of the main points of discussion at an industry forum convened by AEMO on 11 August 2020 to provide information and invite perspectives and feedback on matters relating to the development of the Wholesale Demand Response (WDR) guidelines. Readers please note that:

- This document is a summary only and is not a complete record of discussion at the forum.
- For presentation purposes, some points have been grouped together by theme and do not necessarily appear in the order they were discussed.

- The views expressed at the forum and reflected here are not necessarily those of AEMO.

1. Welcome (G. Ruthven, slides 1- 5)

Attendees were welcomed to the first WDRG TWG meeting and the agenda was confirmed. AEMO noted this meeting was unable to be recorded due to technical reasons.

AEMO explained that it is interested to hear stakeholder input through the development of the WDR guidelines, so had included stakeholder questions in the slides to encourage input. Where any issues from this meeting's agenda required further consideration beyond the meeting, AEMO would consider carrying items over to a subsequent meeting.

2. WDR guidelines development: principles, approach and schedule (G. Ruthven, slides 6-13)

AEMO set out the scope of the WDR guidelines, and the principles that AEMO must consider when developing and amending the guidelines, as set out in the National Electricity Rules (NER).

MEU put forward the view that there was a fair degree of similarity between the Reliability and Emergency Reserve Trader (RERT) and WDR and asked that AEMO provide information on how RERT operates. AEMO noted that RERT and WDR are more dissimilar than similar, aside from the respective baselining approaches. Fundamentally, WDR is market-driven via bidding and dispatch processes. WDR was developed to mimic scheduled plant by the AEMC via its consulted rule change process.

ACTION 01.02.01: AEMO to arrange for a comparison of WDR and RERT mechanisms to be discussed at an upcoming forum.

MEU also noted that the rules seem to imply that a WDR service would be provided infrequently when needed, not on a daily or hourly basis (like scheduled plant). Brickworks noted that participating in the NEM was not core business for large users, although there may be sub-types of demand response to which the WDR rule may be suited in the future. MEU put forward the view that there is flexibility within designing the guidelines and that this could be an avenue for enabling WDR to be realistically provided.

AEMO responded that it understands that some plant is not well-suited to the WDR mechanism. It has invited the AEMC to the next consultative group to speak about these matters. These matters (about how WDR is to be implemented) were prosecuted during the rule consultation process, and the WDR Mechanism rule reflects fast-acting dispatchable plant. AEMO noted that its intention is to try to include as many participants as possible in WDR, but there will be a point where a large user will need to decide on whether it is able to participate within the constraints of the NER. AEMO also advised that large users can manage their WDR through their bidding strategies or within the capacity of the Demand Response Service Provider (DRSP).

Brickworks suggested that a discussion on the end-to-end WDR process for large users would be helpful, including information on what systems a large user would need and the role of baselines in the dispatch and settlement processes.

ACTION 01.02.02: AEMO to consider developing end-to-end process information for large users.

Brickworks noted that it was concerned about AEMO imposing unreasonable procedural and system costs. PIAC also expressed this concern. Enel X signalled its concerns about ramping requirements and compliance requirements, but understood that these will be worked through during the workshop. It is keen to get these requirements right and supports what others are saying in terms of compliance and ramping requirements.

AEMO emphasised that it wants WDR to be successful and does not want to provide hurdles to participation. However, when developing the guidelines, it has to balance its NER obligations, principles for developing the WDR guidelines and NEM system security.

Brickworks noted that the cost of participating in the NEM was more of an impact for large users than, say, vertically integrated energy companies. The 'least cost' principle for developing and amending the WDR guidelines is important as the cost of registering and implementing WDR systems and processes could mean that participating in WDR is not worth it. AEMO noted that it is bound by the 'least cost' principle.

Enel X enquired as to how AEMO would interpret the second principle[1] and how it would consider trade-offs between different principles. AEMO noted that system security and reliability are paramount. If these are a risk, then they would be the primary consideration. However, when assessing that risk, AEMO would need to compare against all other sources of risk, ensuring that WDR requirements are proportionate and consistent with those that apply to other facilities in the market.

In response to a question from PIAC, AEMO stated that its intention is to include the proposed third principle[2] in the guidelines. PIAC observed that the wording seemed to frame WDR more like RERT in providing system security. AEMO responded that it sees WDR as a market option that supplements other NEM participation options.

MEU suggested including a principle that recognises the different way various demand side participants can provide a WDR service e.g. those facilities that can provide fast response, short duration service versus those that are slower responding but can provide a long duration demand response.

ACTION 01.02.03: AEMO to consider another guidelines principle recognising different ways end users can provide service

AEMO then presented its high-level approach and schedule for developing the WDR guidelines. It also presented an alternative approach that would allow additional consultation on a draft guidelines document, but would result in the guidelines being finalised one to two months later.

EnergyAustralia noted that the regulated requirement for completing the guidelines is June 2021, but this is only a few months before go-live. It questioned whether some significant elements of the guidelines can be progressed faster. AEMO noted that it intends to have the draft guidelines as close to final as possible, when these are published in December. It also asked (1) which areas need most certainty the soonest, and (2) should AEMO running parallel processes, one for the guidelines, and another for those areas that are important to stakeholders? EnergyAustralia agreed with both these questions and identified the WDR baseline methodology as an area to understand earlier because it has implications for business revenue expectations. It emphasised that although there is an indication that it will be a "RERT-like" methodology, there is no certainty for participants until the methodology is

[1] From clause 3.10.1(b)(2), "the need to maximise the effectiveness of *wholesale demand response* at the least cost to end use consumers of electricity".
[2] From the meeting pack, "The need to ensure adequate power system operation, and the maintenance of power system security and reliability of supply".

final. AEMO noted that it has the ability to run engagement on the baseline methodology separate from the guidelines consultation, though indicated that the development of baseline information was on the critical path for development of the WDR guidelines, which would make it challenging to accelerate this ahead of the WDR guidelines consultation. Origin indicated a preference for an earlier (March) date for the guidelines. It agreed with EnergyAustralia on having different streams to prioritise resolution of key issues.

ACTION 01.02.04: AEMO to consider timing options for developing the baseline methodology separate to the guidelines.

Origin stated that it was seeking alignment between the WDR and Five Minute Settlement (5MS) program workstreams and in particular would like to see a WDR "functional deployment matrix" similar to the 5MS artefact. AEMO noted that it is currently working on alignment with 5MS wherever possible. However, the earlier AEMO releases information about alignment with 5MS, the more uncertainty there is in the timeframes.

MEU reiterated that some large users will be unable to manage 5-minute dispatch. AEMO reiterated that the AEMC determined the WDR rule, under which a wholesale demand response unit (WDRU) is expected to mimic scheduled plant. If a DRSP wants to participate in demand response and its facility cannot respond within 5 minutes, it would need to either manage its WDR response via its bidding strategy (akin to how slower responding scheduled generators will need to manage their dispatch compliance under 5MS) or seek out a demand response option more suited to its operational capabilities.

ACTION 01.02.05: AEMO to consider facilitating discussion on how participants with differing capabilities may be able to meet dispatch instructions.

AEMO sought endorsement of the TWG Terms of Reference, which were distributed at the time of the call for TWG nominations and with the meeting pack for this meeting. There were no objections to the ToR from the TWG.

ACTION 01.02.06: AEMO to publish the final TWG Terms of Reference.

AEMO indicated that it was interested in further feedback to the stakeholder questions in the meeting pack via email at wdr@aemo.com.au. These relate to:

- whether additional topics should be included in the WDR guidelines;
- what other principles AEMO should consider when developing and amending the WDR guidelines; and
- whether changes to the approach and schedule for developing the WDR guidelines may better facilitate stakeholder input within the time constraints, recognising the benefit of early certainty of requirements.

ACTION 01.02.07: TWG to provide any further feedback on stakeholder questions.

3. Approach to developing baseline processes (K. Foran, slides 14-20)

AEMO provided an introduction to the key concepts of WDR baselines, an overview of the responsibilities of AEMO and DRSPs in relation to baselines, and an explanation of AEMO's approach to developing the initial baseline and associated processes.

In response to a query from AGL, AEMO noted that it needed WDRU data to run baseline methodology calculations and metering data will be delivered to the Enterprise Meter Data Manager (eMDM) system by metering data providers.

Enel X supported the overall approach however it noted two issues: (1) the cap on 'day of' adjustments can create a systemic bias towards underestimating temperature-dependent loads, and (2) having RRMSE value of <10% may be too onerous. AEMO responded that it understood these issues and the consultant engaged by AEMO was considering a variety of issues around the accuracy and bias metrics.

Enel X also asked whether the consultant will undertake an international comparison. AEMO confirmed this would occur but noted that the final recommendation must be applicable to the NEM.

AEMO stated that it will share outcomes of the consultant's work with the TWG. Timing for final report will be in the next couple of months. AEMO is aiming for the analysis to be as comprehensive as possible within the tight timeframes available.

Brickworks enquired about the dataset the consultant would use and whether this represented a diverse range of large users across different industry sectors and load sizes. AEMO stated that it will segment users by size for the analysis and also potentially use information from the Demand Side Participation Information portal, which segments users into different categories. However, it noted that it could be helpful to identify different large user industry sectors. Origin expressed interest in understanding the 'water utility' load type. AEMO indicated that participants could provide specific NMIs to AEMO that are identified by industry (i.e. ANZSIC[3] three-digit codes), which AEMO could consider including in the baseline work.

ACTION 01.03.01: AEMO to consider segmenting load data by industry for the baseline analysis (noting that it is already considering how to incorporate this into the consultant work).

Brickworks expressed interest in a service that would allow AEMO to test baseline compliance for a prospective WDRU before initiating the process of applying to classify the load as a WDRU. AEMO indicated that it hadn't considered such a facility yet, noting that the DRSP should be able to access all of the necessary data (baseline methodology, metering data) to perform a self-assessment. AEMO offered to consider the development of a rudimentary spreadsheet calculator that could be made available to participants.

ACTION 01.03.02: AEMO to consider a facility for participants to assess baseline performance against the baseline methodology metrics prior to applying for classification of a load as a WDRU.

AEMO noted that its baseline approach will need to consider the transition from 30-minute to 5-minute metering data.

4. WDRU classification and aggregation requirements (A. Gorton, slides 21-26)

AEMO presented an overview of the rule requirements in respect of DRSP registration, and the classification and aggregation of WDRUs. This includes the ability for AEMO to prescribe additional requirements for classification and aggregation of WDRUs in the WDR guidelines. AEMO also explained its approach to the development of registration guides, forms and processes.

MEU observed that end users with embedded generation may have generation export limits placed on them as part of being exempted from classifying the generating unit(s). It suggested that AEMO could ensure that embedded generation is not constrained through the

[3] Australian and New Zealand Standard Industrial Classification.

WDR mechanism, thereby enabling the large user to provide more electricity beyond any export limit. AEMO responded that if a large user has an exemption, it is because it doesn't export, or it is export limited. Broadly, if a large user were to export too much, it could be acting as a generator instead of a WDRU and potentially would need to classify the generating unit(s).

In response to a question from AEMO on the design of registration forms, Enel X stated that there may be occasions where it would want to classify a load as both a WDRU and an ancillary service load, so it would be beneficial if there was a streamlined form to apply for both classifications.

Flow Power enquired as to whether AEMO intended to upgrade its registration systems and processes to handle the volume of applications. It noted that RERT application processing can be quite slow, although noted that it is a less time-critical process. AEMO stated that it would be implementing a portfolio management system to manage the classification and aggregation assessment process, as noted in the WDR High Level Design (see page 13). AEMO also noted that it must make significant decisions around aggregations, and these can take time. However, it is mindful that participants want certainty as fast as possible, noting that AEMO's decisions for each individual registration and classification are required to meet the statutory timeframes in the NER.

Brickworks asked whether the registration process for participants is separate for WDRU classification. AEMO confirmed that registration to be a participant is a once-off process, but classification of WDRUs is separate.

5. Assessing power system security impact of aggregation (B. Blake, slides 28-30)

AEMO explained the need for system security assessments to be performed when assessing an application to aggregate WDRUs for the purpose of bidding and dispatch.

Brickworks enquired why AEMO needed to consider the congestion impacts of WDR when it relates to a reduction in consumption. AEMO agreed that in some locations WDR will ease congestion, however it responded that it needs to consider congestion impacts into the future as generation and load profiles change. This was unlikely to be a concern for individual loads but required analysis of requests to aggregate WDRUs. For example, if two WDRUs were aggregated on either side of a binding constraint then there could be a congestion issue.

Brickworks suggested there would be value in AEMO providing thresholds beyond which it would require assessment. AEMO indicated that it currently considered that 5 MW would be the primary threshold for an assessment, but that it may need to assess smaller aggregations if there are potential system security impacts. AEMO also noted that a DRSP could participate in WDR with a minimum of 1 MW of aggregate capacity.

Enel X enquired whether AEMO is considering requiring disaggregation of load in certain areas, as congestion changes over time. AEMO responded that this power exists in the rules and it would consider this where a material power system security problem arose, however AEMO's preference is to have fewer dispatchable unit IDs (DUIDs) through aggregations.

Enel X raised a further question about whether the 5MW threshold to trigger system security assessment relates to the aggregated threshold or an individual load. AEMO indicated that it is for the aggregate. Enel X asked if a participant were to add a 1MW to a 4.9MW portfolio, then would AEMO assess whether the additional 1MW would create power system security issues? AGL also questioned whether this would allow numerous 4.9 MW aggregations. It

also noted that there are incentives for a DRSP to aggregate WDRUs so that it only needs to manage one DUID.

MEU enquired whether, for example, two potlines behind a common meter at the Portland smelter would be considered an aggregation. AEMO answered that they would be a single WDRU if behind a single meter.

In response to a question from MEU, AEMO noted that if there was congestion it was possible that dispatch of WDRUs out of merit order can occur, however this was expected to be an unusual occurrence.

6. Telemetry and communications requirements (B. Blake, slides 31-32)

AEMO described its initial positions in respect of telemetry and communications requirements for WDRUs.

AEMO noted that SCADA is operational today, but was designed to connect large participants and is high cost. It is currently developing a 'SCADA-lite' system (not its official name), which is currently being tested and is expected to be operational before October 2021. AEMO expects that it would be able to specify 'SCADA-lite' in the draft WDR guidelines that are scheduled for release in December 2020.

In response to a question from MEU, AEMO advised that 'SCADA-lite' is similar to the existing SCADA system, with the key difference being alternative communication channels to the Inter-Control Centre Communications Protocol (ICCP). In response to a question from Enel X, AEMO responded that "SCADA-lite" would be encouraged for use by WDRUs larger than 5MW.

Enel X noted that AEMO intends to exempt WDR sites less than 5MW from requiring SCADA and asked whether generation facilities less than 5MW, that are eligible for an exemption to register, are also exempt for using SCADA? AEMO responded that that may be the case and noted that some 4.9 MW sites do provide SCADA to networks, although not necessarily to AEMO.

Brickworks asked whether the SCADA threshold applied at the NMI or aggregation level. AEMO noted that it would clarify the approach.

ACTION 01.06.01: AEMO to clarify whether the SCADA threshold would apply only to individual loads or also to aggregated WDRUs.

7. Regional thresholds for increased visibility (R. Manolache, slides 33-37)

AEMO introduced the concept of regional thresholds for increased visibility and provided an overview of the analysis that it is conducting to support the development of a methodology for determining such thresholds.

AGL enquired whether SCADA signals would need to be provided for each individual site or at the aggregated level. AEMO noted that the SCADA signal will be a single value to reflect the response of the aggregation.

Brickworks noted that the chart on slide 37 indicates that forecast variability often occurs during periods of high prices. This may occur when the temperature is very high, but WDRUs may not be temperature sensitive. For example, Brickworks is not temperature sensitive. AEMO agreed it was aware of this and more work needed to be done.

EnergyAustralia cautioned that it is important to avoid confusing correlation with causation. For example, high prices could be the result of underlying factors (e.g. weather) causing a high forecast and potentially higher forecast variability. AEMO reiterated that it was presenting the chart as a starting point only. It is starting with high price scenarios because these are the circumstances in which WDRUs are likely to be dispatched, with further analysis to be done.

8. WDRU maximum responsive component (S. Humphries, slides 38-40)

AEMO explained the information that it would likely consider when assessing a proposed value for the maximum responsive component (MRC) of a WDRU.

Brickworks suggested that the capture of model numbers and minute details of plant seemed to be excessive. However, AEMO may wish to consider capturing the type of demand response (e.g. manual, onsite generation, onsite batteries) as this would provide information on how each site would respond. MEU agreed, suggesting that some of the data fields shown in the meeting pack would not be useful to AEMO and would be difficult for participants to gather.

AGL also questioned the need to capture information on each individual item of equipment at a customer premises. For example, a telecommunications site could have multiple generators and batteries, which would be complex from a data entry perspective. AEMO advised that the 'plant type' would reflect the equipment across the whole site.

There was discussion about how a DRSP would advise a modified MRC following equipment changes at the customer site. AEMO noted that further work was needed to consider how baselines could be adjusted for such changes and the implications for baseline compliance.

Brickworks enquired what was meant by a 'counterparty', and why AEMO needed to know the identity of the counterparty. AEMO responded that the counterparty was the end consumer that contracted with a third party DRSP. AEMO advised that it anticipates that most businesses that participate in WDR will do so via a third party DRSP. However, if Brickworks, for example, registered as a DRSP and classified its own sites as WDRUs, then there would be no counterparty.

AEMO also advised that the identity of the counterparty would support its assessment that the load can provide WDR in accordance with the rules, which is a condition of classifying a load as a WDRU, as well as its assessment of the MRC.

Brickworks and Origin asked for details of what information would be made available to other market participants, or included in the public registration list. AEMO noted that the identity of a DRSP would be discoverable through NMI Discovery; that the DRSP and financially responsible market participant (FRMP) could access baseline data; and agreed to provide specific details of the information that would be included in the public register.

ACTION 01.08.01: AEMO to clarify what information about WDRUs will be publicly available.

Origin asked whether system changes were required for NMI Discovery to reflect the DRSP role. AEMO responded that no aseXML changes were required, only configuration changes.

9. Forward meeting plan (G. Ruthven, slides 41-42)

AEMO provided the likely agenda and timing for the next TWG meeting.

In response to a question from AEMO on agenda items for the next TWG, Brickworks requested a walk-through of settlement, e.g. for a facility that could provide 10 MW but has a MRC capped at 6 MW. It also enquired about managing bidding where the baseline is moving around and where dispatch quantities and settlement quantities are potentially different.

ACTION 01.09.01: AEMO to develop examples from suggested scenarios and consider the appropriate forum to present these (which may be the WDR Consultative Group).

MEU reiterated that not all large users will be able to respond within a 5-minute trading interval. AEMO reiterated that the AEMC set the WDR rule and that under the rule WDRUs are expected to mimic scheduled plant. If a DRSP wants to participate in WDR and its facility cannot respond within five minutes, it would need to either manage this via its bidding strategy (akin to how slower responding scheduled generators will need to manage their dispatch compliance under 5MS) or seek out a demand response option more suited to its operational capabilities.

ACTION 01.09.02: AEMO to provide examples of inflexible plant bidding.

10. General questions and close (G. Ruthven, slides 43-44)

Attendees were thanked for their attendance and level of engagement, and the meeting was closed.

ACTION ITEMS RAISED AT WDRG TWG MEETINGS

ITEM	TOPIC	ACTION REQUIRED	RESPONSIBLE	DUE BY
01.02.01	Stakeholder information	AEMO to arrange for a comparison of WDR and RERT mechanisms to be discussed at an upcoming forum	AEMO	18 Aug 20 (WDR CG)
01.02.02	Stakeholder information	AEMO to consider developing end-to-end process information for large users	AEMO	TBA
01.02.03	WDR guidelines development	AEMO to consider another guidelines principle recognising different ways end users can provide service	AEMO	Oct 20
01.02.04	WDR guidelines development	AEMO to consider timing options for developing the baseline methodology separate to the guidelines	AEMO	Oct 20
01.02.05	Stakeholder information	AEMO to consider facilitating discussion on how participants with differing capabilities may be able to meet dispatch instructions	AEMO	TBA
01.02.06	TWG administration	AEMO to publish the final TWG Terms of Reference	AEMO	25 Aug 20
01.02.07	WDR guidelines development	TWG to provide any further feedback on stakeholder questions	TWG	31 Aug 20
01.03.01	Baselines	AEMO to consider segmenting load data by industry for the baseline analysis	AEMO	TBA

ITEM	TOPIC	ACTION REQUIRED	RESPONSIBLE	DUE BY
01.03.02	Baselines	AEMO to consider a facility for participants to assess baseline performance against the baseline methodology metrics prior to applying for classification of a load as a WDRU	AEMO	TBA
01.06.01	Telemetry and communications	AEMO to clarify whether the SCADA threshold would apply only to individual loads or also to aggregated WDRUs	AEMO	Oct 20
01.08.01	Data publication	AEMO to clarify what information about WDRUs will be publicly available	AEMO	Oct 20
01.09.01	Stakeholder information	AEMO to develop examples from suggested scenarios and consider the appropriate forum to present these (which may be the WDR Consultative Group)	AEMO	TBA
01.09.02	Stakeholder information	AEMO to provide examples of inflexible plant bidding	AEMO	TBA