

20 September 2019

Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Level 22
530 Collins Street
Melbourne VIC 3000

Postal Address:
GPO Box 2008
Melbourne VIC 3001

T 1300 858724
F 03 9609 8080

By electronic submission, reference ERC0247

Dear Mr Pierce

Wholesale Demand Response Mechanism – Draft Determination

AEMO welcomes the opportunity to provide input to the Commission’s Draft Determination on wholesale demand response (WDR) mechanisms for the National Electricity Market (NEM), which has been made in response to three rule change requests in relation to WDR.

AEMO supports the long-term vision of a customer-centric two-sided NEM and sees the introduction of a WDR mechanism as an important part of this evolution. This will support a greater role for demand response to improve market efficiency and to support the management of an increasingly variable power system.

The high-level WDR mechanism design that is proposed in the draft Rule is consistent with the core principles outlined in AEMO’s previous submission to the Consultation Paper, being the provision of access for third-party aggregators and service providers and the inclusion of WDR in the central dispatch and market processes.

In reviewing the Draft Determination and draft Rule, AEMO has identified various potential amendments to the draft Rule, which are detailed in the attached submission. These recommended amendments aim to improve the practicality and efficiency of the mechanism, streamline processes, and clarify and simplify the Rules.

The attached submission also presents AEMO’s current system design assumptions and considerations for the commencement of new WDR arrangements. AEMO supports the proposed commencement date of 1 July 2022, which allows for completion of work to implement Five-Minute Settlement and Global Settlement, and is considering reasonable transitional steps that may allow for a limited commencement of WDR in advance of the 2021/22 summer.

AEMO acknowledges the considerable work of the AEMC and the consultation performed to date. AEMO is keen to support the AEMC and industry stakeholders to refine the detailed design of the WDR arrangements prior to the Final Determination.

WDR – SUB TO DRAFT DET

If you would like to discuss the contents of this submission further, please do not hesitate to contact Kevin Ly, Group Manager - Regulation on Kevin.Ly@aemo.com.au.

Yours sincerely,



Peter Geers
Chief Strategy & Markets Officer

Attachments: Wholesale Demand Response Draft Determination Consultation Response

Wholesale Demand Response Draft Determination Consultation Response

September 2019

Submission to the AEMC's Wholesale Demand
Response Mechanism Rule Change

Executive summary

AEMO considers that the Draft Determination for the Wholesale Demand Response (WDR) Mechanism is a very important step in the evolution of the National Electricity Market (NEM) to a customer-centric market. AEMO supports the overall design approach taken by the AEMC and acknowledges the work to date to deliver the Draft Determination in response to three differing Rule change requests in the National Electricity Rules (Rules).

This is a complex change that involves many functional teams across AEMO and has implications for many of the systems and processes used to operate the market. There are significant changes to dispatch, settlement, and real-time operations, and the inclusion of a new system for measurement and verification of demand response, initially focused on baselines.

AEMO will bear much of the responsibility for the delivery and operation of the WDR Mechanism. AEMO has undertaken a thorough review of the Draft Determination and explored the operational processes and impacts. This submission recommends amendments to the Draft Rule to improve the practicality and efficiency of the WDR Mechanism.

AEMO is also considering what it can do to bring forward the delivery of the WDR Mechanism to allow Demand Response Service Providers (DRSPs) and their customers to access key systems and functionality, with the summer period of 2021-22 the earliest possible target. However, AEMO is concerned that the limitations of early delivery may outweigh the benefits.

Recommended amendments to Draft Rule

AEMO has reviewed the Draft Determination and the Draft Rule and recommends several amendments to the drafting to improve the policy. The recommended amendments are collated under their respective functional areas.

Proposed changes to the registration model for WDR aim to simplify processes and align more closely with existing registration constructs. These include:

- Shifting the classification process from the wholesale demand response unit (WDRU) to the scheduled wholesale demand response unit (SWDRU).
- Performing compliance checks, including assessment of baseline compliance, when a DRSP applies to classify a WDRU as a SWDRU or add it to an existing SWDRU.
- A different approach for small customer exclusion to that currently in the Draft Rule, placing the obligation on the DRSP to confirm that the customer is not a small customer as part of the classification process.
- Clarifying that it is the responsibility of the DRSP to not participate in central dispatch in respect of a WDRU that no longer satisfies the compliance requirements, including baseline compliance. The final Rule could also preclude settlement against any WDRU which is not baseline compliant.

Where a SWDRU is an aggregation of multiple WDRUs within a region, AEMO recommends that it should have the ability to require the DRSP to split the SWDRU into two or more SWDRUs where it considers that changes to system conditions mean that power system security could be materially affected if the current SWDRU aggregation was to continue. For example, an SWDRU may need to be split in two if it contains WDRUs on either side of an intra-regional network constraint to ensure the secure management of network flows within equipment limits. This ability could be limited to SWDRUs with a total demand response capacity of 30 MW or more.

AEMO's recommendations in respect of power system operation aim to promote reliability, maximise flexibility, and enable the WDR Mechanism to evolve. AEMO recommends that the Draft Rule consider the potential for withdrawal of SWDRU availability at short notice, and the potential inaccuracy of the 30-minute

post-dispatch load forecasts, including implications for the DRSP and corrective reliability actions that AEMO may take. AEMO also considers there are circumstances where it may be appropriate to direct a DRSP, such as in Lack of Reserve (LOR) conditions and recommends that this be permitted in the final Rule. If this is accepted, the direction compensation arrangements available to generators should be extended to DRSPs. Without adequate safeguards concerning the dispatch of SWDRUs, these units may exacerbate the problems with supply demand balance, making AEMO's real time operations task more difficult.

The settlement arrangements in the Draft Rule could be simplified. While AEMO agrees with the principle of aligning the arrangements for generation and WDR to the greatest practicable extent, AEMO considers it unlikely that a SWDRU could trigger a need for contingency raise services, so recommends that DRSPs be excluded from the recovery of costs of these services. With DRSP dispatch likely to be infrequent, AEMO also advises against including DRSPs in the allocation of regulation costs (causer pays arrangements), at least in the initial years of DRSP operation, because the cost to implement this is likely to exceed the benefit. AEMO reserves the right to revisit allocation of FCAS costs more generally if scheduled demand response uptake increases in the NEM. However, DRSPs should be required to contribute to Participant fees and the Participant compensation fund.

In relation to system design, AEMO considers that Rules should avoid prescription. The Draft Rule is prescriptive about the use of the Market Settlement and Transfer Solution (MSATS) for various functions related to DRSPs. Some functions could be implemented more efficiently and cheaply in separate systems, and AEMO recommends changes to the Draft Rule to allow more flexibility in system design for the WDR Mechanism. AEMO considers that this alternative system design could still allow the information sharing between parties that is envisaged in the Draft Determination. AEMO presents in this submission some initial thoughts on the high-level system design for WDR, noting that further work is currently being undertaken to provide the AEMC with cost estimates for the full system development and implementation.

In relation to the regulatory framework, the Draft Determination calls out that demand response can be provided through export (generation) at a load connection point. This proposal reflects the nature of the NEM's distribution systems, which have a significant and growing number of connected devices which export into the energy market. AEMO proposes that this is the right time to amend the regulatory framework to reflect the changed nature of the energy markets it regulates, to ensure facilitation and avoid hindrance of the potential services being brought to market. Specifically, the definition of 'load' from which the DRSP provides demand response needs to be amended to reflect the bi-directional nature of load connection points. This change has the potential to solve a series of issues in interpretation and implementation of the Rules which participants and AEMO are currently grappling with.

Implementation considerations – potential early delivery

AEMO will be working on a detailed system development and implementation plan to determine how soon it can deliver key systems and processes to enable demand response to be activated as early as possible, perhaps even by the summer of 2021-22. AEMO will make registration for new DRSPs available at least six months ahead of the proposed July 2022 start date for the WDR Mechanism.

For AEMO to allow DRSPs to start to operate in the way the Draft Rule suggests, there are a number of areas of key functionality – such as settlement and dispatch – that are reliant on the Five Minute Settlement project providing a production or pre-production environment upon which to build WDR changes.

A new baseline system will also need to be built and integrated with the updated AEMO settlement systems. There is a systems and implementation cost trade-off between standardised baselines and bespoke baselines offered by the DRSP. AEMO must be able to determine this trade-off in the design and implementation of the WDR.

Options for early delivery is contingent on restriction of the number and size of customers, utilising a limited selection of baseline methodologies which AEMO will determine through procedures, and the utilisation of current Scheduled Load bidding and dispatch capability to work with the WDR rules for DRSPs. In addition, AEMO would be specifying the use of SCADA data for telemetry for all sites, to maintain conformance against dispatch targets.

AEMO in discussions with stakeholders has been informed that it is unlikely that prospective DRSPs will want to make an investment in SCADA systems if the final delivery of the WDR Mechanism permits more cost-effective telemetry options. This therefore brings into question the volume of demand response that is likely to be available should early delivery of the reduced capability be offered by AEMO.

AEMO points out that the current set of Rule changes presents an unprecedented level of change for AEMO systems, with Five Minute Settlement and Global Settlement Rule change programs already underway, and a series of other Rule changes before the AEMC which are likely to have an impact on AEMO systems to varying degrees.

However, even with those constraints, it may be possible to bring forward the delivery of the key systems and functionality early enough to allow for WDR to be available in market or for DRSPs to provide response under the RERT program in the summer period of 2021-22. Once further implementation and systems development planning is complete, AEMO will inform the AEMC and industry more broadly to the possibility of bringing forward any capability prior to July 2022. Considerations for this can be found in the appendix.

Next steps

AEMO acknowledges the materiality of many of its recommended changes to the Draft Rule and is keen to support the AEMC and industry stakeholders to refine the detailed design of the WDR arrangements prior to the Final Determination.

Contents

Executive summary	2
1. Introduction	6
1.1 The need for a demand response mechanism	6
1.2 Small customer considerations	6
1.3 Limitations of the WDR Mechanism	7
2. Suggested amendments to Draft Rule	8
2.1 Classification of WDRU and relationship with SWDRU	8
2.2 Small customer exclusion	9
2.3 Aggregation	10
2.4 Baselines	11
2.5 Definition of load	12
2.6 Ancillary services load revisions	13
2.7 Projected Assessment of System Adequacy (PASA)	14
2.8 Power system operations	14
2.9 Settlement and Prudentials	17
2.10 Market Settlement and Transfer Solution (MSATS)	20
2.11 Other matters for consideration	20
3. System design	22
Appendix	23
Implementation considerations for early delivery of Wholesale Demand Response	23

1. Introduction

1.1 The need for a demand response mechanism

As the market and system operator for the National Electricity Market (NEM) and Western Australian Wholesale Electricity Market (WEM), AEMO's ultimate objective is to operate efficiently, using competitive market processes to the extent practicable, to support affordability for Australian consumers while delivering power system security and reliability, using all available resources.

As noted in AEMO's previous submission to the AEMC's Consultation Paper on wholesale demand response (WDR) mechanisms, the effective integration of WDR in the NEM can support power system reliability and increase competition, both in the wholesale market and for energy services delivered to consumers.

AEMO supports the overall design approach taken by the AEMC in the Draft Rule, which aligns with the core principles outlined in AEMO's submission to the Consultation Paper:

- Promoting competition and consumer choice by providing access to third-party service providers and aggregators to engage directly in the wholesale spot market.
- Improving the visibility, predictability and dispatchability of the power system through transparent participation of demand response above a certain threshold in the spot market and central dispatch processes.

AEMO has identified potential amendments to the Draft Rule that it considers would improve the practicality and efficiency of the WDR Mechanism to better align with the principles that have guided the AEMC's assessment framework¹. These suggested amendments are described in Chapter 2 of this submission.

1.2 Small customer considerations

AEMO considers that the extension of the WDR Mechanism to small customers will require specific consideration of consumer protection mechanisms and baseline methodologies for these customers.

AEMO supports a holistic review of energy-specific consumer protections to ensure adequate coverage of third-party service provider activities, as explained by the AEMC in its Draft Determination. AEMO looks forward to working with the AEMC on this important reform.

AEMO advises that the baselining approach in the draft mechanism is not well suited to measurement of smaller energy volumes and small consumer loads. Due to the behavioural nature of small consumers' responses, and the technical characteristics of the load profile of households, it is difficult to establish predictable baselines and verifiable demand responses of individual small consumer loads. This difficulty has been evident during the first year of the joint AEMO-ARENA demand response trial.

If baselining was to be extended to small customers in the future, AEMO recommends that baselines should be determined on a portfolio or aggregation basis only. Baselines based on aggregated portfolios of small customers would require consideration of the attribution of the Retailer Reimbursement Rate, and may then limit the DRSP to creating scheduled wholesale demand response units (SWDRUs) based on portfolios of customers per retailer in each zone or region. It may also require consideration of the 5 MW minimum size for each SWDRU to be scheduled and the processes that may apply when a customer changes retailer.

A further consideration with respect to the inclusion of small customers would be the need to determine a more robust approach to the churn of customers between different DRSPs. If a Retail market-like approach were to be taken this would have significant implications for AEMO procedures and systems – specifically the Market Settlement and Transfer Solution (MSATS) and Customer Administration and Transfer Solution (CATS).

¹ The principles were outlined in section 4.3 of the Draft Determination.

Small consumers might be better suited to other forms of engagement with the market, or more straightforward incentive and arbitrage arrangements, such as accessing a Small Generator Aggregator connection point or accessing network tariffs designed to incentivise similar behaviour to that which is targeted by the WDR Mechanism.

1.3 Limitations of the WDR Mechanism

The current proposed design seeks to strike a balance between a broad range of existing and emerging stakeholders and participants, and AEMO is exploring opportunities to accelerate the program. At the same time, it is prudent for AEMO to highlight that this current mechanism and core design elements introduce a level of complexity which AEMO believes to be inefficient in both the short and long run, pending subsequent evolution of the mechanism.

The current design necessitates a long lead time and high costs, due to complexity introduced by:

- **Process and system design** – the mechanism touches multiple key AEMO processes and operational systems including metering, settlement, dispatch, and forecasting, all of which will require significant modification.
- **Operation** – the mechanism introduces considerable ongoing operating costs.
- **Baselines** – these are a difficult and inexact toolset, and (as discussed by various stakeholders and the AEMC at the recent workshops) while the model may be suitable for connection points with large, predictable loads, the design is not suitable for smaller and less predictable loads. AEMO agrees with the AEMC that baselining should not be an enduring feature of the mechanism as we move toward a two-sided market.

2. Suggested amendments to Draft Rule

AEMO welcomes the opportunity to work with the AEMC and industry stakeholders to refine the design of the WDR arrangements and the Draft Rule. To guide this work, this chapter explains AEMO's suggestions to amend the Draft Rule to improve the practicality and efficiency of the WDR Mechanism.

2.1 Classification of WDRU and relationship with SWDRU

2.1.1 Background

AEMO's registration function delivers two main services to the NEM:

- Registering Registered Participants to allow participation in the NEM; and
- Approving the classification of certain loads or generating units to participate in energy and ancillary services markets in particular ways.

Currently, there are 14 participant categories and 16 separate classifications which AEMO administers under Chapter 2 of the National Electricity Rules the Rules. AEMO has developed internal processes and systems to perform the registration function in accordance with the requirements of the Rules and the National Electricity Law (NEL).

Conceptually, an approval of a classification is a decision made by AEMO under the Rules which allows a Registered Participant to participate in the energy or ancillary services markets in a particular way. Categories and classifications are fundamental to the establishment of fees and settlement recovery amounts.

All recommendations for registration and classification approval are made to an executive committee within AEMO, known as the Participant Registration Committee (PRC). The PRC considers and, as appropriate, approves applications for registration and classification. The PRC also considers evolving requirements for registration as they arise.

AEMO is reviewing its current internal processes to improve streamlining of classification approvals processes, to facilitate faster transfers for participants and improve the efficiency of ancillary services markets. For example, where a single Market Customer or Market Ancillary Service Provider (MASP) seeks to classify 100 loads which each have the same small-scale facilities behind the meter (for example, a 5 kVA battery), a degree of automation may be appropriate to apply the classification approval decision with respect to one load to other loads controlled by the same participants. This evolution in approach to classification can be usefully built on in the WDR Mechanism Rule Change.

2.1.2 Comments

AEMO is concerned that the Draft Rule deviates from the approach otherwise adopted in Chapter 2 of the Rules, by:

- Requiring AEMO to approve a classification of a WDRU, when a WDRU does not participate in energy or frequency control ancillary services (FCAS) markets. As noted above, Chapter 2 of the Rules generally requires AEMO to approve the classification of loads and generating units so that they can participate in dispatch. The Draft Rule, however, introduces a requirement to approve a classification of a WDRU, which cannot participate in dispatch. The relevant concept for participation in dispatch is the SWDRU.
- Providing that a SWDRU is 'established'. This concept is otherwise not present in Chapter 2. Further, the drafting is not entirely clear as to whether AEMO 'establishes' the SWDRU, or it is 'established' by the

DRSP. Clause 2.3.6(a) provides the DRSP 'allocates' a WDRU to a SWDRU, while AEMO may approve the aggregation of two or more WDRUs under clause 3.8.3. The only basis on which AEMO determines that the SWDRU is 'established' is the 'capability' of the proposed SWDRU to provide 5 MW of WDR when dispatched.

The Draft Determination states that a customer transfer process would facilitate different national metering identifiers (NMIs) joining and leaving the DRSP's portfolio (independent of the customer transfer process relating to a change of retailer). AEMO understands the intent is that AEMO's systems facilitate automatic entry of different WDRUs into an aggregated SWDRU, through a customer transfer process. This approach appears to be based on the logic of the way loads move between retailers currently under Chapter 2. However, AEMO does not consider this to be an appropriate concept for demand response, which is scheduled in the market and requires AEMO to make a classification approval decision. AEMO considers that there is potential for a degree of automation in the classification approval process, and that the WDR guidelines could explain the process and parameters of such automation.

The Draft Rule is also inconsistent with the approach otherwise adopted in Chapter 2 in requiring revocation of a WDRU's classification 'in accordance with WDR guidelines' if the WDRU ceases to meet the requirements in clause 2.3.6. Chapter 2 does not otherwise require AEMO to revoke classifications in specified circumstances, nor require that AEMO publish its process for revocations in a guideline. The drafting in this respect marks a significant departure from the approach to registration and classification in the Rules, would impact AEMO's processes, and would create considerable uncertainty for DRSPs.

2.1.3 Recommendation

AEMO considers that the final Rule should provide greater consistency with current Chapter 2 to reduce the risk of unintended consequences, minimise complexity (and associated cost) in AEMO's registration process, and provide greater certainty for participants.

AEMO supports a policy that facilitates automation in allowing a DRSP to add or remove a WDRU to an aggregated SWDRU, provided the WDRU is sufficiently similar (within parameters which may be set by the WDR guideline) to other WDRUs already classified in the portfolio (for example, so that the same baseline methodology would apply to the additional WDRUs). This policy intent can be better implemented through the classification function (as part of AEMO's registration function) rather than through the customer churn processes.

2.2 Small customer exclusion

2.2.1 Background

AEMO understands that the Rule, as drafted, restricts the loads that are eligible to participate in WDR to only those for which the retail customer is not a small customer.

2.2.2 Comments

There is some complexity to consider in how best to give effect to the policy position of excluding small customers.

AEMO considers that there are several options for implementing this restriction, including:

1. DRSP confirmation and undertaking.
 - AEMO requires the DRSP during the registration process to provide positive confirmation that all loads to be classified meet the requirement under Draft Rule 2.3.6(b). This would be expected to involve the DRSP seeking information from the customer about whether they are considered a small customer (based on the applicable thresholds), and how this relates in situations where the customer is associated with multiple connection points.

2. AEMO check against customer classification.

- AEMO’s CATS Procedures require the provision of a Customer Classification Code and Customer Threshold Code, which is provided by the Financially Responsible Market Participant (FRMP – the retailer) and local network service provider (LNSP) respectively, for every NMI (connection point). AEMO understands that there may be issues with the provision and quality of this information, as it is not currently used in the settlement and retail transfer processes.

3. AEMO check against NMI classification.

- AEMO’s CATS Procedures define an NMI classification, which is provided by the LNSP based on the annual energy consumption of the NMI (connection point). The consumption thresholds for this classification are set out in the procedure, based on guidance from each jurisdiction. However, the determination of NMI classification does not account for customers with multiple NMIs, and may potentially consider an NMI as being “SMALL” even though the retail customer is not considered a small customer.

2.2.3 Recommendation

AEMO considers that Option 1 is the most appropriate option to implement a small customer exclusion is for the DRSP to perform the confirmation and provide an undertaking as part of the registration process.

2.3 Aggregation

2.3.1 Background

The Draft Rule allows for aggregation of WDRUs into a SWDRU, and provides that AEMO must approve applications if the WDRUs:

- Are connected within a single region.
- Have been classified by a single DRSP.
- If aggregated, will not materially affect power system security.
- Have appropriate control systems.

2.3.2 Comments

Until the WDR Mechanism is effective in the energy market, the implications of allowing aggregated WDRUs (as a single SWDRU) to participate in WDR will not be fully understood. Under the Draft Rule, it will be open to participants to seek to create substantial portfolios of demand response under a single SWDRU, and the process for adding WDRUs is anticipated to be automated to some extent.

AEMO considers that while region-level aggregation may be appropriate where the total quantity of demand response is relatively small for one SWDRU, it may be less appropriate to allow such aggregation for SWDRUs with significant demand response capability.

At a minimum, AEMO will likely need to consider transmission constraints in the bidding and dispatch of demand response once an SWDRU has a demand response capability exceeding 30 MW, in line with scheduled generation. In addition, the Rules do not provide for a disaggregation process for reasons of system security once an SWDRU is established. A disaggregation rule provision may be required in a situation where these aggregations exceed 30 MW.

2.3.3 Recommendation

AEMO recommends that the final Rule provide a right for AEMO to require an aggregated SWDRU to disaggregate. The final Rule could provide a threshold level for the right to disaggregate, for example the right could be triggered if the SWDRU exceeds 30 MW of demand response capability within a region. Under this approach, AEMO would also anticipate that any automation of adding WDRUs to a SWDRU (through the

classification process) would cease once a SWDRU has reached a capability of 30 MW. This approach would help minimise any systems implications of a SWDRU operating in aggregate in the market.

2.4 Baselines

2.4.1 Accuracy and bias

Background and comments

The concept of a baseline is fundamental to the design of the WDR Mechanism, with a baseline being calculated for each WDRU to support settlement of the DRSP and retailer. The Draft Rule requires AEMO to publish baseline methodologies and to develop the baseline methodology metrics (BMMs), which require the baseline to satisfy accuracy and bias parameters.

The definitions of accuracy and bias in clause 3.10.2(b) of the Draft Rule appear to limit the determination of these measures to the connection point. It is unclear how much discretion AEMO would have to consider more innovative approaches to measurement and assessment of baseline compliance, including the use of sub-metering, without the need for a Rule change.

Recommendation

AEMO recommends that the definitions of accuracy and bias in clause 3.10.2(b) are reviewed to promote flexibility in assessing baseline compliance.

2.4.2 'Abnormal conditions' mechanism

Background and comments

Clause 3.10.4(b) of the Draft Rule provides for a mechanism through which a DRSP can notify AEMO of an event of circumstance that resulted in the consumption of a WDRU deviating from the baseline, which could not have reasonably been accounted for within the baseline methodology. This mechanism allows the baseline to be scaled down in the trading intervals that are specified in the notice. Clause 3.10.4(d) requires AEMO to determine conditions for the submission of notices.

The design of baseline mechanisms requires careful consideration of the risks of gaming and administrative burden. Without tight conditions on the provision of notices, the 'abnormal conditions' mechanism could undermine the effectiveness of the BMMs to ensure that baselines are within accuracy and bias parameters. AEMO also acknowledges that there will be a difficult trade-off between the stringency of the BMMs and the likely frequency of notices from DRSPs; more stringent BMMs are likely to result in DRSPs submitting more notices for abnormal conditions.

AEMO recognises that there may be circumstances where an adjustment to a baseline, to account for abnormal conditions, would be preferable to a judgement of baseline non-compliance. To clarify the operation of this mechanism, AEMO suggests that the Final Rule clearly provide a consequence for the DRSP issuing an abnormal condition notice other than in accordance with the WDR Guideline. For example, AEMO could have a right to exclude abnormal conditions notices which are issued, to reject abnormal conditions notices in certain circumstances, and to limit the frequency of abnormal conditions notices which are considered when assessing baseline compliance in a given time period.

Recommendations

AEMO recommends that the final Rule explicitly describes a right for AEMO to reject a notice under clause 3.10.4(b), based on consideration of conditions determined under clause 3.10.4(d). This would clarify the process in the Draft Rule. The final Rule could also allow AEMO to limit the number of abnormal conditions notices in respect of a specific SWDRU which are taken into account when assessing baseline compliance.

2.4.3 Baseline compliance

Background

The concept of 'baseline compliance' and the consequences of non-compliance are relevant to several sections of the Draft Rule:

- A WDRU must have a baseline that satisfies the BMMs to be classified as a WDRU (Draft Rule 2.3.6(c)(2)).
- If a load ceases to meet the requirements of classification as a WDRU (including if not baseline compliant), this could be grounds for AEMO to revoke the classification (Draft Rule 2.3.6(m)).
- An SWDRU is only eligible to participate in dispatch if each WDRU comprising the SWDRU is 'baseline compliant' (Draft Rule 3.8.2A(a), and also 3.10.3).
- AEMO must not include in dispatch any SWDRU that has a WDRU that is not baseline compliant (Draft Rule 3.8.2A(d)).
- If a WDRU is not 'baseline compliant', AEMO must notify the DRSP and the DRSP may elect to withdraw the WDRU from the SWDRU until it is baseline compliant, or AEMO may approve the application of another baseline methodology that when applied to the WDRU satisfies the BMM (Draft Rule 3.10.3(c) and (d)).

Comments

AEMO considers that there is currently uncertainty regarding the consequences for a DRSP of a baseline not being baseline compliant under the Draft Rule. In particular, it may be difficult (and expensive to build as a system) for AEMO to exclude from dispatch a SWDRU if a particular WDRU is not baseline compliant – noting that the SWDRU will be allocated a dispatchable unit identifier (DUID) in dispatch at an aggregated level, not at a NMI (that is, WDRU) level.

Recommendation

AEMO considers that it should be the responsibility of the DRSP to ensure that a WDRU is not used to provide demand response if it has been found to not be baseline compliant (either due to AEMO notifying the DRSP, or the DRSP identifying the non-compliance). Where a SWDRU is comprised of aggregated WDRUs, the DRSP could still be entitled to participate in dispatch with respect to the SWDRU, provided the non-compliant WDRU is not used to provide demand response. The final Rule could, however, preclude settlement against any WDRU which is not baseline compliant.

AEMO recommends that the final Rule simplifies the approach in the Draft Rule to deal with this issue.

2.5 Definition of load

2.5.1 Background

The distribution system has been transitioning over the last few years from the one that the regulatory framework envisaged, where all the connection points were energy consumption connection points, to one where the connection points can be significant exporters of energy. In South Australia, export from load connection points is sufficiently material to give rise to challenges around the minimum demand that the system can tolerate. While this transition has been occurring, the regulatory framework has not been sufficiently adaptive to take account of this change in dynamics.

2.5.2 Comments

The definition of load in the Rules has not been amended to reflect the changes in the activity at load connection points. While the definition of load has not inhibited the significant uptake of rooftop solar PV, it does result in material distortions in settlement. AEMO considers that providing greater clarity in the regulatory regime will allow a smoother process for the provision of all available WDR from load connection

points. This is particularly important because the AEMC has been explicit in its Draft Determination that demand response should be available to those who export at the connection point.

The AEMC has recently published AEMO's Integrating Energy Storage Systems into the NEM Rule Change proposal. This proposal seeks to address the transition to grid-scale bi-directional resources in the regulatory framework. Several of the issues it seeks to address are analogous to those caused by bi-directional flow at load connection points in the distribution systems. These include:

- Distortion on non-energy settlement amounts caused by treating export as negative load.
- Lack of clarity around application of Distribution Use of System Charge (DUoS).

2.5.3 Recommendation

AEMO recognises that the above issues in the distribution system may need to be considered separately to this Rule Change. However, the Rule Change would benefit from clarification that a service provided as export of energy can occur at a load connection point.

The Draft Determination and the AEMC's earlier publication of the *Frequency Control Frameworks Review* support a position that both ancillary service load and demand response can be provided not just through consumption at a load connection point, but also through export from a load connection point. AEMO would welcome an opportunity for this position to be clarified through the WDR Rule Change, as all interested parties would benefit from greater clarity in the regulatory framework.

2.6 Ancillary services load revisions

2.6.1 Background

The Draft Rule amends the existing Rules provisions by deleting the Registered Participant category MASP and substituting it with the DRSP. Consequential changes are also proposed to clause 2.3.5, regarding a classification of a load or market load as an ancillary service load.

The Draft Rule accordingly envisages that, where there is a separate financially responsible Market Participant at a connection point, a single Registered Participant category (the DRSP) will be the relevant Registered Participant who may be eligible to provide ancillary services and demand response from the load.

2.6.2 Comments

The concepts underpinning a secondary financial relationship at a connection point (whether to provide demand response or ancillary services) are in many respects similar. In this context, it would be helpful if the Rules provisions aligned the concepts relating to the relationship of the DRSP to the customer at the connection point for the purposes of ancillary services and demand response.

Under the Draft Rule, draft clause 2.3.5(4) requires that the DRSP 'demonstrate how the units of load' are 'under the applicant's ownership, operation or control' (among other things). In contrast, to be eligible to classify a WDRU, the DRSP must have an 'arrangement with the retail customer at each connection point for the load'. AEMO considers that the latter concept is more relevant, and notes it is difficult in practice to establish the ownership, operation, or control of a load. It may also be confusing for the ancillary services rules to refer to 'units of load', as this is not a term generally used in the Rules (and it may lead to confusion in the context of the WDR mechanism, which establishes new 'unit' of load concepts in the form of the WDRU and the SWDRU).

2.6.3 Recommendation

AEMO recommends that the final Rule reflect similar drafting approaches across the ancillary services concepts and the WDR concepts.

2.7 Projected Assessment of System Adequacy (PASA)

2.7.1 Short Term (ST) PASA (and Pre Dispatch [PD] PASA)

Comments

Clauses 3.7.2(d)(3) (MT PASA) and 3.7.3(e)(5) (ST PASA) in the Draft Rule require weekly and daily 'wholesale demand response constraints' to be submitted for 'wholesale demand response constrained' SWDRUs. No requirement or option to submit such constraints is included either in clause 3.8.4 (energy availability) or 3.8.7B (SWRDU dispatch offers).

It is currently unclear if there is any relevant equivalent to energy constraints in relation to SWDRUs, outside of bidding profiled availability. AEMO questions the need for these provisions in relation to SWDRUs.

In addition, changes to PASA arrangements for DRSPs will need to be included alongside other improvements to PASA that the AEMC is considering.

AEMO is currently assessing the need to overhaul the ST PASA procedure and systems to allow for a WDR and other changes to the market, such as the inclusion of increasingly large amounts of transmission-connected storage devices. The ST PASA and PD PASA systems as they currently exist may not be fit for purpose to accommodate the changes anticipated in this Draft Determination, however, AEMO expects that DRSPs and their SWDRUs will be appropriately accommodated in ST PASA and PD PASA changes in 2021, and these will be picked up in the review of the systems in the period before the July 2022 deadline.

2.7.2 Medium Term (MT) PASA

Comments

AEMO is sceptical of the value of including WDR availability and constraints in MT PASA. Currently, MT PASA uses information maintained in the demand side participation (DSP) database to determine load response availability.

Recommendation

Instead of providing availability into MT PASA, AEMO suggests there are a few alternatives, including:

- Only requiring the MT PASA inputs if requested by AEMO.
- Requiring DRSPs to provide MT PASA input to AEMO, but allowing AEMO to publish MT PASA values based on its own work or on the inputs provided, at its discretion.
- DRSPs providing data to the DSP portal.

The last approach would have the benefit of allowing AEMO to run checks against data provided by multiple parties for the same NMI, (for example, FRMP at the connection point and DRSP) to remove duplicate records. This would also likely reduce the initial load on DRSPs to provide ongoing MT PASA inputs.

In addition, this approach would allow AEMO to formulate an approach to the inclusion of demand response into the medium-term availability calculations after the experience of the operation of the WDR Mechanism and monitoring of the operation of DRSPs.

AEMO suggests that this approach be reviewed after 24 months of the operation of the WDR Mechanism.

2.8 Power system operations

AEMO has an obligation to manage overall transmission grid stability, including keeping the frequency and voltage within agreed operating envelopes, and by extension, the real-time balance of generation and demand:

To facilitate pre-emptive actions, AEMO needs accurate forecasts of the demand and generation balance, as well as relying on the commitment of load-balancing services (and inertia capability) ahead of time.

To facilitate post-incident actions (for example, restoring grid stability after a large generator has tripped off), AEMO needs the capability to dispatch/direct plant in near real time, with a high level of certainty that plant will action instructions in fast-response timeframes. It is important that large MW step changes (either reduction or increase) are avoided, particularly with respect to the restoration of load following a DR event.

Unexpected delays between dispatch and actualisation of load reduction should also be minimised. It may be necessary for inflexibility profiles to be used to reflect the way in which load reduction responds, to ensure dispatch can appropriately reflect the expected response.

2.8.1 Load restoration following a dispatch event

Comments

This section relates to the DRSP following an agreed load profile for allowing load to increase post-dispatch.

AEMO notes that the AEMC has included provisions which stipulate that the DRSP must provide a forecast of load for the 30 minutes post the last dispatch interval they were scheduled in. This needs to be submitted electronically every time a WDR is bid into the market. AEMO considers this an important provision, however is concerned that there may be insufficient incentives and obligations for the DRSP to follow this forecast, particularly with rapidly changing market conditions.

AEMO also considers that late notice changes in availability by DRSPs are likely to exacerbate existing challenges with supply/demand uncertainty, and lead to greater volatility in the market and increasing likelihood of the need to intervene. In order to manage the optional participation of DRSPs, AEMO is of the view that:

- DRSPs are required to follow dispatch instructions for a period following the DR event (after the last interval they are bid to opt-in).
- Compliance obligations should apply to following dispatch instructions post event, including following targets and ramp rates.
- Restrictions should apply to how/when a DRSP can rebid, particularly if it is late notice.

To give effect to these recommendations it may be necessary to treat WDR differently to existing scheduled load and generation, and AEMO proposes to work with the AEMC on how these arrangements would be drafted.

Recommendation

AEMO considers it important that load restoration following a DR event should occur in an orderly manner and should be required in accordance with dispatch instructions in a similar way as if it was being dispatched. This is necessary to ensure the appropriate controls are in place to manage the timing and ramp rate of the restoration.

2.8.2 Ramp rates and inflexibility profiles

Comments

AEMO note that further considerations of load inflexibility profiles (such as minimum notification times, and capability to execute smaller MW step changes) may be required.

Loads cannot necessarily be treated the same as generation, AEMO will need to consider how SWDRUs can use inflexibility profiles or other methods to ensure linear ramp rates are adhered to.

Recommendation

AEMO proposes that this is address in procedures and further consultation outside of the Final Rule determination.

2.8.3 Directions

Comments

In response to the question of the applicability of directions to a DRSP raised in the Draft Determination, AEMO does believe there are circumstances where it may be appropriate to direct a DRSP. This could be to direct a scheduled WDRU to come on or off. Because, conceptually, scheduled WDR can substitute for generation, AEMO considers that provisions for direction should apply equally to DRSPs. In applicable circumstances, where the direction requires the provision of energy or a service, directed participant compensation arrangements should also apply.

An inability to direct may result in:

- A smaller pool of directable reserves in Lack of Reserve (LOR) 2 or LOR 3 operating conditions
- A limit to tools available to AEMO in operating conditions where a load response may affect congestion in the network.
- A larger than expected load shedding amount being required by AEMO if a DRSP bids out a SWDRU in the lead up to a load shedding event.

The Draft Determination expressed the view that a DRSP should not be subject to direction because it may not have the capacity to respond, putting it in breach of the Rules (and the National Electricity Law): “the provisions relating to directions would not provide a DRSP with reasonable grounds to not respond to a direction. For example, if the DRSP had no capacity to provide a response, the NER would not necessarily accommodate this.”

AEMO sees no difference between the position of a DRSP which does not have access to WDR capacity and a generator whose units are unavailable for technical or fuel supply reasons. An aggregator DRSP is, in fact, one step further removed. All that can be required of the aggregator is that it take all reasonable steps to make its SWDRU available – if that cannot reasonably be achieved (for example because it has no contractual right or direct control of the SDWRU at the relevant time), AEMO considers no breach will occur. AEMO routinely makes enquires of relevant generators when there may be a need to direct, to elicit information about their availability. The same would apply for any relevant DRSPs.

In the event that the final Rule does not extend the application of NER clause 4.8.9(a1(1) to SWDRUs, AEMO understands that it would still be possible to issue a direction to the DRSP in accordance with clause 4.8.9(a) or section 116 of the NEL, but that direction would be a ‘clause 4.8.9 instruction’ for the purposes of the NER.

2.8.4 Telemetry

Comments

The Rule Change specifies that DRSPs will be required to provide real-time or near real-time telemetry of their present load level (and other relevant data).

Recommendation

AEMO requests that the Final Rule should allow, at a minimum, for the following through procedures or other means outside of the Rules to accommodate present unknowns:

- AEMO to have discretion to define and approve communication protocols based on industry standards and hardware offerings that will accommodate most participants in the long run.
- AEMO to have reasonable discretion to determine the granularity of required real-time data (for example, dispersed grid node loads vs aggregated nodes) on a case-by-case basis.

The currently preferred mechanism for transmission of real-time data is an RTU/ICCP/SCADA feed (usually via an NSP).

AEMO agrees that the Rule Change should include discretion to evaluate the feasibility of allowing other types of real-time data feeds via non-SCADA channels (for example, Internet of Things [IoT] protocols).

AEMO would prefer SCADA, because it is a well-established technology and an existing key input into Energy Management Systems (EMS). However, AEMO does not want to limit demand response participation by restricting DRSPs to one protocol only.

Real-time data is required for processes including operational forecasting, contingency analysis, constraints, and conformance monitoring. For example, in cases of sustained non-conformance, AEMO should have the ability to exclude that demand response offering from the next dispatch interval (DI), for the sake of grid stability. This is congruent with AEMO's real-time VAr Dispatch for voltage control.

In summary, the considerations for real-time telemetry are:

- Aggregation vs distribution level granularity (for conformance monitoring, contingency analyses, network limits, and constraints).
- Adequacy of time resolution (4-second SCADA data vs less frequent).
- RTU/ICCP/SCADA protocols vs other means via Internet/NEMNET.

AEMO is not suggesting that the Rule Change should cover the above in detail. It merely has to create the room for managing these unknowns via procedural or other means, and also to state that prospective DRSPs will have options other than SCADA, to avoid barriers to entry.

2.9 Settlement and Prudentials

2.9.1 Calculation of wholesale demand response settlement quantity (WDRSQ)

Background and comments

Clause 3.15.6B(c) of the Draft Rule calculates the WDRSQ for a WDRU as the sum of the baseline settlement quantity (BSQ) and the metered energy (ME). Loss factors are not considered in the settlement calculations.

Both BSQ and ME are defined as being "a positive value where the flow is towards the *transmission network connection point* to which the *connection point* is assigned and negative value where the flow is in the other direction". Consequently, the WDRSQ should be calculated as the difference between BSQ and ME.

As settlement of WDR will occur at the individual WDR level, AEMO considers it is desirable that loss factors are considered, so that quantities and prices align more closely with energy settlement under clauses 3.15.4 and 3.15.6.

Recommendations

AEMO recommends changes to the calculation of WDRSQ in clause 3.15.6B(c) such that it is determined from the difference between BSQ and ME, adjusted for loss factors.

2.9.2 Limiting exposure of negative response

Background and comments

Under the Draft Rule, the calculation of WDRSQ can result in a negative quantity of demand response being exposed to the pool price, if the metered energy of a WDRU is greater than the baseline during a period of dispatch.

In theory, negative demand response means that the WDRU has increased its load at a time when it was expected to decrease. Clearly this is undesirable, so exposing the DRSP (and by implication the customer) to the pool price during these times would seem to provide a strong incentive for the DRSP and its customer to

manage its load to avoid this outcome. The retailer is also made whole through this arrangement, because it receives a contribution from the DRSP for the negative demand response which reduces its pool exposure down to the level of the baseline.

However, baselining is an inexact science. Standard baselining methods rely on historical meter data over a period of time and make adjustments to more accurately reflect on-the-day usage. The uncertainty inherent in any baseline methodology means the customer could be deemed to have exceeded its baseline even though it genuinely tried to reduce its demand on the day. In such circumstances, the DRSP and potentially the customer could find themselves exposed to very high pool prices which they cannot control.

For AEMO, this creates the risk that the DRSP may be a pool price payer rather than a pool price recipient, which would require AEMO to develop further prudential requirements for registering DRSPs. The obligation to provide bank guarantees, and the difficulty for AEMO in specifying the size of the prudential requirement, would create additional barriers to provision of this service. For customers, there is the likelihood that the DRSP would seek to pass this risk through to them, and this could deter them from participating in the scheme.

Recommendation

To mitigate the risk of customers and DRSPs being exposed to the pool price, and avoid unnecessary complexity in prudential processes, AEMO recommends that the formulation of WDRSQ be changed to prevent negative demand response occurring.

AEMO does not foresee this creating a problem for the retailer, given it needs to estimate the actual load (rather than the baseline) when hedging its exposure. Note that the retailer cannot rely on hedging to the baseline amount, because it will find it hard to predict what the baseline will be in advance and also will not be sure that the DRSP will be dispatched in any case.

2.9.3 Wholesale demand regional reimbursement rate

Background and comments

The Draft Rule requires the AER to determine the wholesale demand regional reimbursement rate (WDRRR) for each region, to be calculated as the load weighted average spot price for the regional reference node. The WDRRR would be determined quarterly using price data from the previous 12-month period.

AEMO recognises that the WDRRR seeks to reimburse the retailer for costs associated with lost energy sales from its customers who are dispatched to provide demand response, which may include hedging costs. Such underlying costs may vary throughout a year due to seasonal, day-of-week and time-of-day effects.

In addition, while the Draft Determination explains that the AER has been chosen to determine the WDRRR due to its existing functions relating to the monitoring of wholesale electricity markets, the Draft Rule is prescriptive in stipulating how the WDRRR is to be calculated, via a transparent and simple calculation.

Recommendations

AEMO recommends that:

- The AEMC considers the merit of including seasonality, day-of-week and time-of-day effects in the calculation of the WDRRR.
- If the WDRRR methodology is prescribed in the Draft Rule and relies solely on data possessed by AEMO, it should be calculated by AEMO to reduce administrative complexity.

2.9.4 Recovery of contingency raise services costs

Background and comments

The Draft Rule requires DRSPs to pay a portion of the contingency raise FCAS costs. The Draft Determination articulates the principle of aligning the arrangements for generation and WDR to the greatest practicable extent, though does not specifically explain the decision to levy contingency raise costs on DRSPs.

While AEMO agrees with the principle of aligning the arrangements for generation and WDR to the greatest practicable extent, AEMO considers it implausible that a SWDRU could trigger a need for contingency raise services. Consequently, the allocation of these costs to DRSPs is not aligned with the principle of causer pays.

Recommendation

AEMO recommends that DRSPs are excluded from the recovery of contingency raise FCAS costs.

2.9.5 Causer pays cost recovery for regulation services

Recommendation

Adding Causer pays to the settlement arrangements will add cost and complexity to AEMO's settlements system implementation. AEMO recommends the AEMC review the inclusion of DRSPs in these arrangements, because the likely benefit of inclusion will outweigh the cost and complexity of inclusion.

In addition to AEMO system costs, the ability to assign a Causer pays contribution factor to a DRSP would require the individual WDRUs to have 4-second SCADA monitoring. At this stage, AEMO cannot confirm that this will be the case, and must then define a way of determining their contribution other than via 4-second SCADA (as outlined in the Causer pays procedures).

In the absence of Causer pays arrangements for DRSPs, any deviations caused by WDRUs not meeting targets will go to the residual and be recovered from Market Customers based on customer energy.

2.9.6 Prudential calculation

Comments

If the suggested removal of negative demand response is not amenable to the AEMC then AEMO will need to set Prudential requirements for DRSPs as it does for other market participants (clause 3.3.8) especially in relation to contribution factors, potential Causer pays exposure, and the potential for DRSPs to be exposed to pool prices where the reimbursement rate exceeds the pool price for the dispatch interval the DRSP has been dispatched into.

Recommendation

AEMO recommends the AEMC add a further passage in 3.3.8 that considers the baseline amounts in its calculation of the amount of credit support and the type of credit support from DRSPs.

In addition, this may also be a factor in Retailer prudential assessment, given the Retailer exposure to DSRP dispatch of SWDRUs containing the WDRUs of the NMs for which they are the FRMP.

2.9.7 Participant fees

Comments

AEMO understands that each DRSP will be subject to the payment of participant fees calculated under clause 2.11. AEMO's current fee structure expires on 30 June 2021, and does not consider the role of DRSPs in participating in the market. AEMO intends to consult on a new fee structure, which will come into effect from 1 July 2021, and anticipates consideration of the extent to which DRSPs participate in the market and the participant fees they should be liable for.

Further, the Draft Rule does not contemplate contributions from DRSPs to the Participant Compensation Fund.

Recommendation

AEMO considers that, as a scheduled participant, the DRSP should be subject to fees associated with the Participant Compensation Fund, as set out in clause 3.16.1. Therefore, AEMO suggests DRSPs are explicitly included in this clause.

2.10 Market Settlement and Transfer Solution (MSATS)

Comments

The Draft Rule and Draft Determination identify that existing MSATS Procedures would be impacted by WDR, and it will be necessary to consult on changes to these procedures and for AEMO to make changes to corresponding IT systems.

In particular, AEMO considers it will be necessary to create a new participant role in the MSATS Procedures for the DRSP, which will be used to coordinate the provision of information to the DRSP by AEMO and other participants and service providers.

However, AEMO considers that in implementing WDR, other functions associated with managing the inventory of WDRU, baselines, and other standing data may be done separately from AEMO's existing MSATS system.

Recommendation

AEMO recommends that the final Rule and determination is not prescriptive on the solution design, to allow flexibility for AEMO to implement the most efficient design.

2.11 Other matters for consideration

2.11.1 FCAS and energy dispatch

Comments

There are three separate options for allowing a DRSP and its WDRU to supply both FCAS and energy:

- a. FCAS trapezium for full optimisation,
- b. DR DUID and FCAS DUID separately dispatched, or
- c. Only FCAS or demand response allowed at NMI.

The Draft Rule has chosen option b. However, if the AEMC imagines that in future the DRSP will want to provide both, an optimisation approach will be beneficial, which will likely be reflected in the FCAS trapezium approach applied to generation bidding.

At this stage this approach may not be warranted, because the markets that demand response can provide services into are limited, and will likely be further limited with the introduction of 5-minute settlement in 2021.

Recommendation

AEMO recommends that the final Rule should allow flexibility for the co-optimisation of energy and FCAS from a DRSP to evolve in the future, potentially by allowing for the treatment of energy and FCAS dispatch of DRSPs to be described in procedures.

2.11.2 Reliability and Emergency Reserve Trader (RERT)

Comments

The transitional provisions (Draft Rule clause 11.[118].5) require AEMO to update the RERT procedures and publish them by 1 July 2022. There is no relief provided from the Rules consultation provisions. By contrast, the Reliability Panel does get relief from the Rules consultation provisions in proposed clause 11.[118].7 in its obligation to update the RERT Guidelines by the same date.

The draft rule explicitly prevents scheduled WDR from being used to as part of a RERT contract. This also aligns with provisions in the Enhanced RERT rule which contains an explicit restriction on reserves being available for dispatch in the previous 12 months

AEMO is concerned about the pool of resources available for RERT contracts may be diminished due to WDR, and particularly the 12 month restriction. This restriction may be unnecessarily conservative, and prevent flexibility in using resources in the most appropriate way to avoid involuntary load shedding

Recommendation

The 12 month out-of-market requirement is overly restrictive, and AEMO would suggest a shorter time frame for market exclusion – perhaps 6 months.

In addition, it is preferable for AEMO to have the same relief from the Rules consultation procedures for updates to the RERT procedures.

AEMO's RERT procedures are required by clause 3.20.7(e) to take into account the Reliability Panel's RERT Guidelines. This will be very difficult if they are being changed at the same time. It may be preferable for AEMO to ask for staggered publication dates (for example, the RERT Guidelines some months earlier) so AEMO can take account of the RERT Guidelines in its procedures. Note that the extent of the difference between the publication dates should depend on whether AEMO succeeds in getting relief from the Rules consultation procedures.

2.11.3 Demand Side Participation (DSP) information

Comments

The Draft Determination described some negative stakeholder feedback regarding the operation of the DSP portal, much of which had not previously been passed to AEMO. AEMO would welcome the opportunity to work directly with stakeholders providing information into the portal to address some of the more operational concerns.

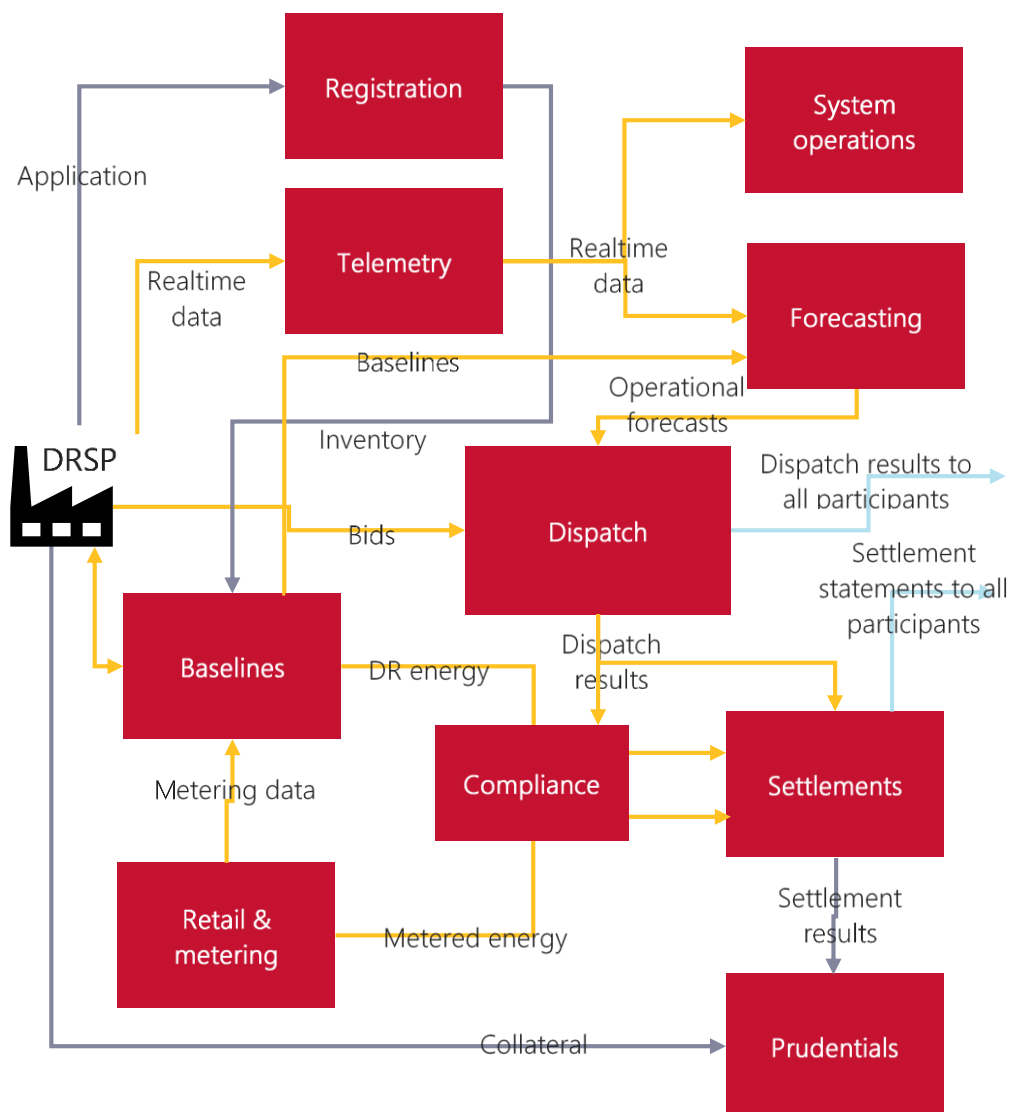
AEMO agrees with many of the amendments to clause 3.7D in the Draft Rule, including the reference to load adjustment rather than curtailment, the requirement for participants to notify AEMO even if they have no DSP information to report, and the introduction of civil penalties for non-compliance.

3. System design

Based on the Draft Determination AEMO has begun consideration of the system design to deliver Wholesale Demand Response. This is expected to involve changes to a number of existing AEMO systems, but will also involve new systems and capabilities being developed.

The figure below shows an initial view of the high-level process of information and data between the new participant (the DRSP) and AEMO systems (both new and envisaged).

AEMO will continue to develop the system design in cooperation with the AEMC and industry stakeholders.



Appendix

Implementation considerations for early delivery of Wholesale Demand Response

Functional Area	Potential Options for early delivery	Implications for early delivery
Baselines	<ul style="list-style-type: none"> New Baseline system required utilising existing RERT Baselines methodologies (no new baselines) No or limited interface 	<ul style="list-style-type: none"> All features and functions of final delivery required by the summer 2021-2022 period
Settlements and Prudentials	<ul style="list-style-type: none"> Updated and Automated Systems Limit to only energy recovery and baseline. No compliance-based recovery for Causer pays, contingency FCAS or Prudential changes 	<ul style="list-style-type: none"> Critical Dependency with SMS and Global Settlement overlapping development, release and testing
Dispatch	<ul style="list-style-type: none"> Use normally on Scheduled Load. Provide full dispatch – fast start inflexibility, operational forecasts, ramp rates Dispatch as RERT 	<ul style="list-style-type: none"> Critical Dependency with SMS and Global Settlement overlapping development, release and testing
Telemetry	<ul style="list-style-type: none"> DRSP must provide SCADA New Data communication standards SCADA for WDR not before 2022 	<ul style="list-style-type: none"> Significant barrier limits DRSP sites to those that have SCADA Potential DRSPs may not want to invest in expensive SCADA systems if a replacement protocol is introduced nine months later.
Operations and Forecasting	<ul style="list-style-type: none"> Treat as normally on scheduled load. Compliance based on telemetry – linear ramping. ST PASA, PD PASA – DRSPs bid availability 	<ul style="list-style-type: none"> Bidding interfaces not designed for DRSPs/SWDRUs ST PASA Review may delay capability to deliver
Registration	<ul style="list-style-type: none"> Manual Process steps need to be defined – telemetry, aggregation, and baselines Separated from MSATs (use something like Virtual Power Plant [VPP] Portal) CATS change only for new Category (DRSP) no churn 	<ul style="list-style-type: none"> Manual process and customers will not be able to move DRSPs in first year.
Retailer	<ul style="list-style-type: none"> Manual process for baseline data 	<ul style="list-style-type: none"> Manual process for Retailer
Customers	<ul style="list-style-type: none"> Fewer than 1,000 Customers or more than 1,000 MWh to a total of 100 MW per region 	<ul style="list-style-type: none"> Limits demand response capability in first year