Declan Kelly
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

12 September 2019

ERC0247 Wholesale Demand Response Mechanism

Delta Electricity welcomes the opportunity to contribute to the AEMC's deliberations on the design of a wholesale demand response mechanism (WDRM). Delta owns and operates the 1320MW Vales Point power station in NSW and has a retail licence to sell electricity to large customers. Delta has operated coal and gas fired generating plant in the National Electricity Market (NEM) since its start in 1998 and is an active participant in both the electricity and gas trading markets.

Discussion

Delta supports several of the principles behind the proposed design of the WDRM. Placing demand response on a level playing field with generation supports competitive neutrality by helping to ensure that the costs of participation are equivalent on the supply and demand side. Restricting the scheme to large loads only is sensible given the complexity of setting and monitoring compliance with baselines. Compelling demand response providers to submit bids through AEMO's market systems should ensure that price and volume transparency is maximised.

However, there are several design outcomes that Delta hopes to see addressed prior to the AEMC's final determination and implementation of the final rule change. These relate to baselines, bidding arrangements, the reimbursement rate to retailers, and differences in risks borne by retailers and demand response service providers (DRSP's).

Delta engaged Marsden Jacob to provide background analysis of the dynamics introduced by the WDRM proposal. The report provided by Marsden Jacob is attached and provides more detailed analysis of the issues. The specific concerns are that:

1. it has not been sufficiently demonstrated that the current arrangements need changing;
2. the WDRM introduces considerable complexity into the NEM;
3. the value that can be offered by a DRSP is lower than under the current arrangements;
4. by disrupting the price signals that currently exist, and introducing risks including those associated with baselines, an uptake of demand response through third-party DRSPs could result in substantial risk to retailers and potentially less demand response than is currently available; and
5. potential increased costs to consumers.

Baselines

The measurement of baselines introduces significant complexity and risk to the wholesale market which we acknowledge is unavoidable with the use of a baseline approach to demand response. While Delta agrees that the approach to baseline compliance and additionality helps limit the magnitude of these issues, it would be appropriate that the AEMC provide more detailed guidance on the principles and frameworks to be used by AEMO in developing the demand response baseline methodology guidelines. The absence of this detail limits the ability of market participants to properly assess the impact of the WDRM.

Bidding

Delta does not support the proposal to allow DRSPs to provide bids only for periods of their choosing. For pre-dispatch and PASA purposes it would be beneficial to the market and AEMO to understand the availability of demand response at all times.

In addition, Delta supports the view that the final rule should require DRSPs to comply with all the provisions of the good-faith rebidding requirements.

Reimbursement Rate

Reimbursing retailers with the trailing 12-month average spot price is likely to significantly disadvantage retailers when compared with an independent DSRP. An example calculation shows that for a theoretical 1MWh load participating in the WDRM as a DSRP a retailer would have to pass through 90% of the savings in order to compete (refer Attached Section 4). This effect is likely to disproportionately impact small retailers and therefore introduces a competitive distortion to the retail market. It would be more equitable for retailers to recover the full retail tariff relevant to the customer for the relevant time when demand response was activated to ensure that the risks for retailers are minimized and retail prices are not unduly impacted.

Small Consumers

Delta does not support extending the WDRM to include small consumers. The baseline methodology is significantly more complex and error prone when applied to this class of consumers who have more unpredictable consumption on an individual and collective basis. A more appropriate mechanism should be found to incentivize demand response from small customers.

Conclusion

The draft determination and more preferable rule change on the wholesale demand response mechanism introduces substantial risk to retailers as well as potential distortions to investment signals. These issues are detailed in the attached report which highlights the contracting dynamics and price risks introduced by the WDRM. These concerns appear to be a feature of any wholesale demand response mechanism reliant on baselines and are unlikely to be removed by improving the current proposal. While It may be possible to minimize these to a level that is non-material Delta observes that the information sharing requirements between AEMO, DRSPs and retailers would likely lead to computer system changes that would not be cost effective given the level of benefits expected from the WDRM. Therefore, while Delta supports a number of the high level design principles applied in the proposed WDRM, it would be helpful for the AEMC to provide additional detail around the baseline setting approach along with consideration of changes to

bidding requirements and the reimbursement rate prior to imposing this rule change on market participants.

To discuss any questions arising from this submission, please contact Peter Wormald by email (peter.wormald@de.com.au) or phone (02 4352 6425).

Sincerely,

Anthony Callan

Executive Manager Marketing

Attached: MJA Submission on Draft Rule Determination: Wholesale Demand Response

MARSDEN JACOB ASSOCIATES

6 September 2019

MJA Submission on Draft Rule Determination: Wholesale Demand Response Mechanism

Marsden Jacob Associates (Marsden Jacob) is pleased to provide this report to Delta Electricity (DE) in relation to the AEMC Draft Rule Determination – National Electricity Amendment - Wholesale Demand Response Mechanism, dated 18 July 2019.

This review is based on reading of the abovementioned AEMC report.

This paper identifies issues that, in the opinion of the author, indicate that the basis and assessment on the WDRM in the Draft Rule Determination Report may need further consideration. In presenting this analysis, Marsden Jacob appreciates the work undertaken in developing the WDRM and the complexity of the matters involved.

This report is structured as follows:

- Executive summary – this presents the identified issues in the Draft Rule Determination Report and conclusions;
- For a demand response (DR) interval, the change in cash flows to the parties involved (consumer, retailer, DRSP) is shown and the associated risks noted. While this could be derived from the Draft Rule Determination Report, this was not explicitly presented;
- The implications of identified risks in the spot energy market are identified;
- The associated impact to the contract market is then considered. This is a critical issue to least-cost market development;
- The issue of centralised versus decentralised operation, - a key issue in the Draft Rule Determination Report – is discussed;
- The potential dynamics issues identified with the WDRM are then summarised;
- Consistent with the findings in this paper, the final section identifies submissions and feedback that will possibly require increased attention.

A number of abbreviations are used throughout this paper. These are shown in the table below.

Abbreviation	
Draft Rule Determination Report	AEMC Draft Rule Determination – National Electricity Amendment - Wholesale Demand Response Mechanism, dated 18 July 2019.
Spot Price	SP
Reimbursement Price	RP
WDRM	Wholesale Demand Response Mechanism
DR	Wholesale demand response
DRSP	Demand Response Service Provider
FRMP	Financially Responsible Market Participant

Executive Summary

This paper presents a review of the Draft Rule Determination Report for the purposes of identifying potential issues that, in the opinion of the author, require further addressing before committing to the proposed WDRM.

Key Finding

The key findings of this paper are as follows:

It has not been sufficiently demonstrated that the current arrangements (with a maximum spot of $14,700/MWh) are not increasingly incentivising consumers to provide DR. It is likely that this has low visibility.

The WDRM introduces considerable complexity into the NEM.

The value that can be offered by a DRSP is lower than can be offered under the current arrangements. The uptake may be low.

By disrupting the price signs that currently exist and introducing risks including that associated with baselines, an uptake of DR through third-party DRSPs could result in:

- Increased risk to retailers. These increased risks could be substantial;
- Reduced value of DR to a retailer in risk management;
- An introduction of NEM development inefficiency;
- Discrimination against smaller retailers due to risk and compliance requirements; and
- The perverse outcome of less demand response and higher retail prices.

In summary, arrangements implemented that are not suitable could limit DR, increase costs to consumers, and hinder the long-term objective of a two-sided market.

A summary of this paper is presented below.

Overview of the WDRM

The Wholesale Demand Response Mechanism (WDRM) was developed in response to the (AEMC stated) views that included:

- The level of demand management services is lower than could potentially be achieved, due to an underperformance of many retailers to provide this service;
- Additional competition is required in the provision of wholesale demand response (DR); and
- Non-scheduled demand management is of less value to reliability (and the NEO) due to AEMO having less certainty and control of DR.

Key features of the design of the WDRM are:

- The introduction of Demand Response Service Providers (DRSPs) that can arrange DR with the customers of retailers;
- Measurement of DR through the use of baselines; and
- DRSP being allocated the spot price payment reduction due to the DR, for use to share with the consumers and compensate retailers (who have customers providing DR to third-party DRSPs).

Assessment of Dynamics

The NEM was designed to have spot prices as the prime signal for balancing supply and demand from each 5-minute dispatch period to the longer term. The balance between spot price signals, contracting, and new investment is fundamental to the efficient (and least-cost) development and operation of the NEM.

As the proposed WDRM interrupts these signals, confidence is required that there will not be unintended consequences.

An analysis of the potential dynamics of the WDRM found that the arrangements introduce significant uncertainty into the cash flows to the various parties, introduce increased risk to retails without confidence that DR will be increased, and reduces the relationship of DR capacity to the capacity contract market:

- The increased risk to retailers is primarily associated with not receiving the reduced spot purchase costs associated with DR;
- The spot purchase reductions obtained by a DRSP are unlikely to be used to hedge capacity sales;
- The risk of a low take-up of DR is due to the DRSP potentially absorbing a significant portion of the DR value;
- Baselines introduce significant cash flow variability risk; and
- The retailer and market do not have a reduced contract requirement that would result from DR being supplied via a third-party DRSP.

These issues could mean that additional capacity would be required that would not have been otherwise needed, with the flow-on effect of a reduction in the value of DR. This dynamic could also impact the potential transition to a two-sided market.

Stakeholder views

Stakeholder views are most important in developments such as this. Although stakeholder views were mixed, they supported the notion of increased DR, but were tentative on the proposed rules of the WDRM.

Issues included an agreement that the NEM can deliver increased DR, a wariness of baselines and that spot price signals do provide the signals necessary for DR.

Summary of Benefits and Risk

Table ES1 overleaf summarises the identified benefits and risks.

Table ES1 Summary of Issues and Identified Risks

Issue	Assessment
Greater demand-side transparency	Yes. But limited to the DR that is scheduled.
Assist with reliability	Not demonstrated that USE would be reduced through centralised versus decentralised (current) arrangements.
DR incentives	Not proven that the WDRM, as presented, would invoke a higher level of DR.
Consumer choice in relation to DR	Yes. But not demonstrated that the arrangements are economically efficient or that retailer prices may be increased by third-party cashflows.
Better facilitate automated demand response that can follow dispatch instructions from AEMO	Yes. The increased amount has not been demonstrated.
Minimise distortions introduced under the WDRM	There are sizeable distortions introduced which may result in substantial inefficiency.
Minimise upfront costs imposed on AEMO and the market, specifically retailers	Yes, but at the expense of market efficiency.
Risks and costs introduced by baselines	Recognised, but report dismisses these as manageable. There was no basis for this conclusion.
Risk to retailers introduced by the WDRM.	Significant issue. Not recognised or addressed.
3rd party diluting signals to the customer.	Significant issue. Not recognised or discussed.
The non-firmness of scheduled DR.	Not considered in relation to reliability.
WDRM does not have capacity translated to the contract market.	Recognised but implications not considered necessary for further consideration.

1 Background to the WDRM

The AEMC Draft Rule Determination – National Electricity Amendment - Wholesale Demand Response Mechanism report (Draft Rule Determination Report) presented the issues that the rule change has been designed to address, the long-term needs for a two-sided market, and the rules of the proposed Wholesale Demand Response Mechanism (WDRM).

Before reviewing the proposed WDRM, this section presents the rationale and principles presented (in the Draft Rule Determination Report) that formed the basis of the WDRM. These matters are referred to in the subsequent sections of this report.

1.1 Managing the NEM Transformation

The Draft Rule Determination Report noted that Wholesale DR will play an increasingly important role in the future of the NEM, notably as an alternative to peaking generation. This transformation was described as follows.

Evolving technologies are resulting in increasing variability, not only on the supply side (with more weather-dependent generation), but also on the demand side. This will result in supply and demand forecasts used in dispatch being a poor reflection of actual outcomes.

Managing this trend in dispatch would be best accommodated by moving toward a two-sided market. This would permit active participation from the supply and demand sides and allow the setting of prices in accordance with the revealed preferences from both sides of the market.

There are benefits available from greater participation on the demand side. These include:

- Deferring investments in capital-intensive networks;
- Maintaining the supply-demand balance at lower cost than doing so with peaking generation;
- Providing the least-cost resource for maintaining the power system within secure limits; and
- Replacing involuntary load shedding with controllable demand response.

1.2 Principles from Reliability Frameworks Review

The Reliability Frameworks Review developed recommendations aimed at supporting increased demand-side integration into the wholesale market. These principles – the first two of which formed the basis of the WDRM – were as follows[1]:

- Demand response providers should be able to be recognised on equal footing with generators in the wholesale market;
- Consumers should be allowed to engage multiple retailers/aggregators at the same connection point (known as multiple trading relationships); and
- Implementation of a voluntary, contracts-based short-term forward market.

1.3 WDRM Design Consideration

The WDRM was designed to encompass the following:

- Increase the signals and incentives for consumers to engage in DR;

[1] See Section 1.4 of the Draft Rule Determination Report.

- Consistency of treatment between scheduled wholesale demand response units and scheduled generating units in central dispatch[2]; and
- Recognise the benefits of scheduling through central dispatch:
  - the availability of demand response is more certain[3], and this would substantially increase the reliability benefits associated with the mechanism[4];
  - participants' bids and offers are accounted for in determining the price and quantity of electricity cleared[5]; and
  - scheduled participants provide greater amounts of information to other market participants, thereby improving their ability to make efficient decisions in operational and investment time frames on both the supply and demand side of the market[6].

1.4 Not a Permanent Solution

The Draft Rule Determination Report notes that the WDRM will eventually be outgrown because:

- It provides consumers with opportunities to substitute for generation[7]; and
- It relies on setting a baseline quantity against which the value of demand response would be calculated and paid.

The report also says that 'in the meantime, the draft rule will facilitate consumers looking to participate in wholesale demand response through the mechanism'.

2 The WDRM – Summary of Rules and noted Issues

This section presents a dot point summary of the WDRM rules and relates these to the principles described in Section 1 above.

2.1 Summary of WDRM Rules

The rules of the WDM as presented in the Draft Rule Determination Report are summarised (in dot point form) as follows:

- Creates a new participant called a Demand Response Service Provider (DRSP);
- Obligations on DRSPs closely replicate those applied to scheduled generators;
- DRSP to include the current Market Ancillary Service Provider (MASP);
- Classify load as either a wholesale demand response unit and/or market ancillary services load;
- DRSP can elect when they participate in central dispatch. There is no obligation to submit bids for DR;
- Load in DR must meet technical requirements including compliance with dispatch targets;

[2] See Section C5.2 of the Draft Rule Determination Report.

[3] Scheduled participants need to have the capacity to receive and respond to dispatch instructions.

[4] See Section C1 of the Draft Rule Determination Report.

[5] See Section C5.1 of the Draft Rule Determination Report.

[6] See Section C5.1 of the Draft Rule Determination Report.

[7] See Executive Summary paragraph 19 of the Draft Rule Determination Report.

- Incurring FCAS contribution factors for deviating from dispatch targets;
- Consumption profile to be provided 30 minutes after the dispatch interval;
- Bids – price and quantity represent demand reduction with respect to an established baseline;
- Information to be provided includes MT-PASA and ST-PASA;
- Baselines to define the reference for the amount of DR. Baselines are to involve AEMO methodology and testing of compliance. This would be required for DRSPs to participate in central dispatch; and
- A settlement model which would reduce the upfront costs for consumers and market participants (discussed below).

2.2 WDRM – Issues

From the principles described in Section 1 and the WDRM rules listed above, there were many issues that were not addressed and assumptions that were not supported. These included:

- For the cases of a DRSP being separate from, or combined with, a retailer or a customer;
  - the cash flow changes to each party;
  - the associated incentives and risk changes; and
  - compliance issues and costs.
- The added value of AEMO knowing of DR (through central dispatch) versus the probability that DR will occur when needed (either through central dispatch or not through central dispatch). In other words, the benefit of centralised scheduling of DR to reliability was not addressed;
- The impact of removing the spot price cash flows of demand response from the energy flow path (generator → retailer → consumer) to capacity value, contract demand and least-cost system development. This also has implications to the value of DR under the WDRM to the Retailer Reliability Obligation (RRO);
- The risks introduced by baselines and the need for evidence to support their use;
- The manner in which the WDRM would result in least-cost market development and the associated cost of demand response under the mechanism; and
- Whether the WDRM hinders or assists the transition to a two-sided market.

In the opinion of the author of this paper, these matters require addressing. Within the scope of this paper, these are discussed below.

Discrepancy in the Draft Rule Determination Report

Figure F.7 and Figure 5.1 in the Draft Rule Determination Report have the payment by the DRSP (via AEMO) to the Retailer as the 'difference between baseline and actual consumption at the retail rate'.

However, Section 5.1.5 that describes the settlement and cost recovery states that 'the reimbursement rate would be calculated by the AER on a quarterly basis and would be based on average wholesale prices over the previous 12 months.'

In this report, the description in Section 5.1.5 is assumed to be the proposed rule.

3 WDRS – Participant Cash Flows

The NEM is based on a spot market for energy that provides price signals for response on both the supply and demand side, and contract (derivatives) markets to hedge / manage the risks associated with spot price exposure.

The Draft Rule Determination Report presented the financial flows (i.e. cash flows) associated with settlements when a customer undertakes DR (see section 5.1.5 and Figure 5.1).

A clearer picture of the incentives for DR is provided by the **change** in cash flows associated with undertaking DR.

This is shown below for five cases:

- The current arrangements;
- The WDRM when the retailer, DRSP and customer are different parties;
- The WDRM when the retailer, DRSP and customer are different parties and the retail contract has spot price passthrough;
- The WDRM when the retailer and the DRSP are the same party; and
- The WDRM when the retailer and the DRSP are different parties.

3.1 Current Arrangements

Figure 1 shows the ***change*** in cash flows (in settlements) when a customer undertakes DR. This refers to reduced energy purchase at the tariff rate and reduced spot prices by the retailer.

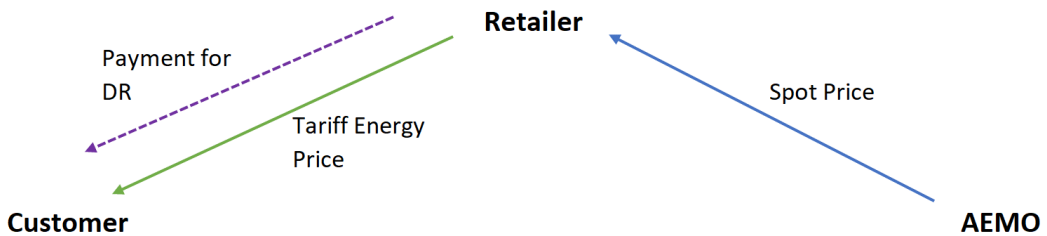
When a retailer undertakes an arrangement with a customer for DR, any incentive arrangements to the customers are arrangements that are outside of the AEMO dispatch / settlement process.

A key feature of this model is that DR reduces the retailer's exposure to high spot prices and is equivalent to capacity (either physical or contractual).

This demand response model:

- Provides the cash flows (in the intervals of DR) that present the value of DR in those intervals, and that can form the basis of arrangements for DR between the parties; and
- Is consistent with the "two-sided market" arrangements (although not through central dispatch) described in the Draft Rule Determination Report.

Figure 1 Change in Settlement Cash Flows due to Demand Response Current Spot Market Arrangements



Source: Marsden Jacob Associates

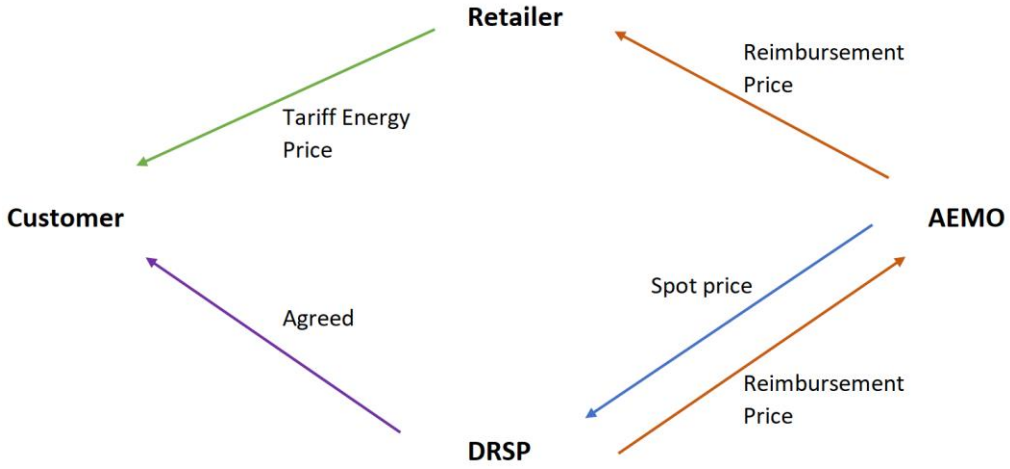
The Draft Rule Determination Report states that the perceived lack of DR (which is the prime reason for the WDRM) has been an unwillingness of many retailers to undertake such arrangements.

The obvious question is this: are these cash flows consistent with the long-term two-sided market presented in the Draft Rule Determination Report (leaving aside centralised dispatch)?.

3.2 WDRM - Retail and DRSP are Separate Bodies

When a customer undertakes DR, Figure 2 shows the **change** in cash flows under the WDRM when the retailer and DRSP are different parties, and the retail contract has the spot price removed.

Figure 2 Change in cash Flows due to Demand Response Retail and DRSP Separated – Proposed Arrangements



Source: Marsden Jacob Associates

Comments on the "settlement and cost recovery" description presented in section 5.1.5 are presented below.

Cash flow change – AEMO to DRSP

'The DRSP would receive a payment from AEMO for the quantity of demand response provided by the customer (i.e. the customer's baseline level of consumption minus its actual consumption) at the spot price'.

Comments

The level of demand reduced at the prevailing spot price (which may be lower than it would have been without the demand response/reduction) represents the underlying value in the spot market of the demand response.

Any error in the baseline directly impacts the payment to the DRSP.

Cash flow change –Retailer to Customer

Customer payment to the retailer is the product of the agreed price (which may be a fixed tariff price and / or spot price) and the amount of demand response (i.e. baseline less actual).

Comments

Both the price and volume are unlikely to reflect the economic quantities, which substantially increases the costs and risks.

The agreed energy price of a fixed tariff[8] or spot price[9] in intervals of DR would be expected to be substantially higher than average spot prices.

Any error in the baseline directly impacts the Retailer.

Cash flow change –DRSP to Customer

'The DRSP would share a proportion of the reduced spot price payment with the customer in accordance with the terms agreed between those parties.'

Comments

The basis of this payment is that the customer is not "seeing" the spot price, and this is needed to provide that signal.

As the DRSP would have a business model to capture a proportion of this value, the incentives for the customer to undertake DR would be proportionally reduced.

Cash flow change – DRSP to Retailer (via AEMO)

For the retailer to recover the cost it incurs in paying for the customer's baseline level of consumption at the spot price, the DRSP pays the retailer (via AEMO) an amount equal to the quantity of DR provided by the customer (i.e. the customer's baseline level of consumption minus its actual consumption), multiplied by a predetermined reimbursement rate. The reimbursement rate would be calculated by the AER on a quarterly basis and would be based on average wholesale prices over the previous 12 months.

Comments

The suggestion that a "reimbursement rate" based on average wholesale prices over the previous 12 months (understood to be spot prices) would have the retailer recover the costs that it incurs is misleading.

This is because the periods of demand response are at time of high spot prices, and such prices are very much higher than average spot prices.

On the assumption that spot prices at the time of load shedding are at least $1,000/MWh, a retail would only recover say about 10 per cent of the cost of demand response.

3.3 WDRM - Retail and DRSP are Separate Bodies – Spot Price Passthrough

When a customer undertakes DR, Figure 3 shows the **change** in cash flows under the WDRM when the retailer and DRSP are different parties and the retail contract has spot price passthrough to the customer.

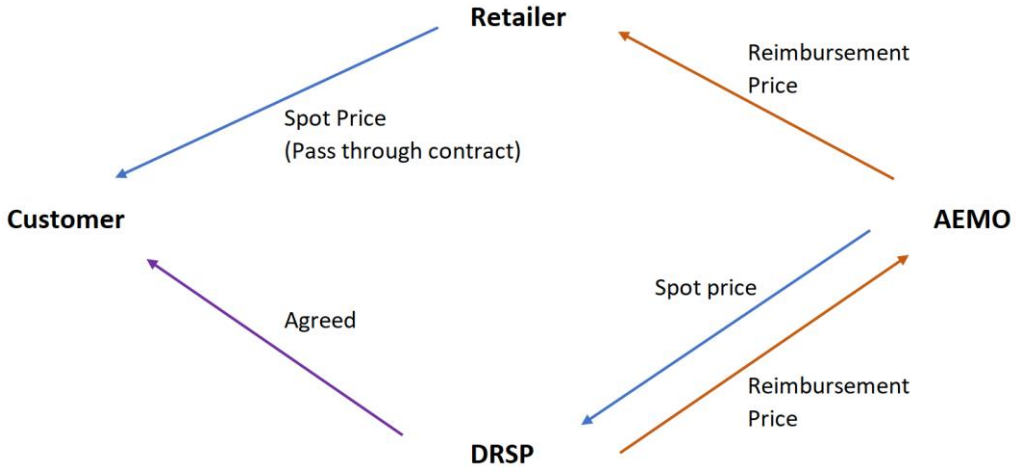
While still small, the amount of demand contracted to retailers with spot price pass-through is increasing. Customers that accept spot exposure may have internal systems to manage this risk through DR. Such contracts may be private.

[8] The energy price in a fixed tariff represents the competitive energy costs, accounting for hedging and prudential costs.

[9] If the customer has spot price exposure, then the spot prices at the time of demand response would be expected to be high.

Under this arrangement, the retailer does not have sufficient funds to address the reduction in revenues at the spot price received from the customer (the change being a payment to the customer).

Figure 3 Change in Cash Flows due to Demand Response
Retail and DRSP Separated – Proposed Arrangements



Source: Marsden Jacob Associates

If the WDRM allowed a customer to have a relationship with a DRSP for DR without reference to the retailer or the type of contract the customer has with the retailer, then this would present a significant risk to the retailer. Such risk would be reflected in consumer costs. This risk is not addressed in the Draft Rule Determination Report.

This raises the question as to whether a DRSP can organise DR without resources to the retailer serving that consumer.

3.4 WDRM - Retail and DRSP Combined

When a customer undertakes DR, Figure 4 shows the **change** in cash flows under the WDRM when the retailer and DRSP are the same party.

Figure 4 Change in Cash Flows due to Demand Response
Retail and DRSP Combined – Proposed Arrangements

Source: Marsden Jacob Associates

The payment by the Retailer/DRSP for DR is described in the Draft Rule Determination Report as 'the DRSP would share a proportion of this payment with the customer in accordance with the terms agreed between those parties'. This would be undertaken outside of AEMO settlements, in the same manner as which currently occurs.

The difference between this and the current arrangements is that the DR would be scheduled.

A key feature of the WDRM when the retailer and DRSP are the same party is that DR reduces the retailer's exposure to high spot prices and is equivalent to capacity (either physical or contractual).

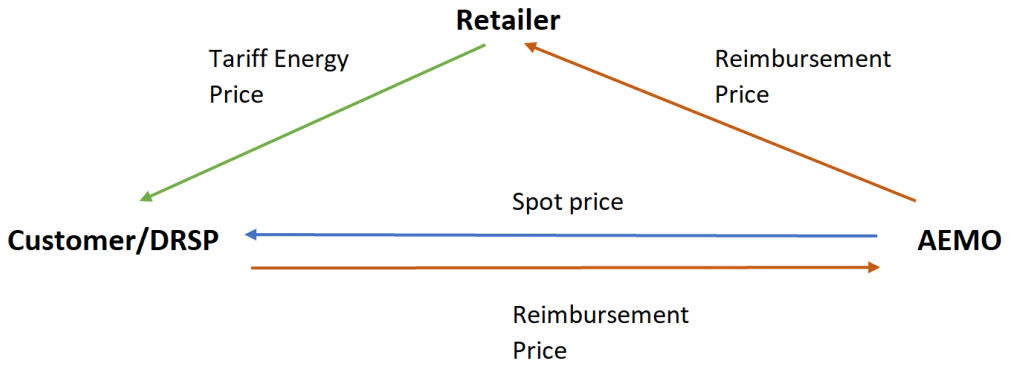
3.5 WDRM – Customer and DRSP Combined

When a customer undertakes DR, Figure 5 shows the ***change*** in cash flows under the WDRM when the customer is also the DRSP.

For DR, the customer obtains both the reduction in tariff and the cost reduction at the prevailing spot price. A reimbursement payment is required, noting that this would be small compared to the value at the prevailing spot price.

This arrangement has the issue that if the retailer contract has spot price passthrough, then the retailer would not have the revenue to pay for DR that occurred under the WDRM.

Figure 5 Change in Cash Flows due to Demand Response Customer and DRSP Combined – Proposed Arrangements



Source: Marsden Jacob Associates

4 Example - DRSP Cash Flows and associated Risk

A key reason for the DRSP was to increase DR, by providing players other the FRMP / retailer to promote and arrange DR.

This section presents an example to illustrate the different spot revenues that would be associated with providing DR via the WDRM for the different participant "configurations" presented in the previous section. This is followed by a review of the observed risks from the example.

4.1 Example

The example considers only the **change** in revenues to the customer, retailer and DRSP for the following set of assumptions:

- Tariff energy component. Two cases considered:
  - $150/MWh;
  - Retail contract is 100% spot price passthrough;
- Demand response: 1 MWh;
- Spot price during demand response: $1,000/MWh;
- Average spot price for the previous year: $100/MWh; and
- WDRM - customer share of demand response savings paid by the DRSP: 50%.

This is presented for the cases of:

A. Current arrangements with fixed tariff price. Assumes that the retail pays the customer the same as in the WDRM arrangements;

B. Current arrangements with spot price pass-through;

C. Customer, retailer, and DRSP are separate parties. The retail contract is a fixed price tariff type contract;

D. Customer, retailer, and DRSP are separate parties. The retail contract has 100% spot price passthrough;

E. Retailer and DRSP are combined; and

F. Customer and DRSP are combined.

The results of this example are shown in Table 1.

Table 1 Example Described Above: Spot market Net Revenues of Parties ($)

Case		Customer	Retailer	DRSP	Retailer/DRSP Combined	Customer/DR SP Combined
A	Current arrangements - Fixed Price Retail Contract	$650	$350			
B	Current arrangements – Spot Price Passthrough Retail Contract	$1,000	$0			
C	WDRM - All separate – Fixed Price Retail Contract	$650	-$50	$400		
D	WDRM - All separate – Spot Price Passthrough Retail Contract	$1,500	-$900	$400		
E	WDRM - Retailer/DRSP combined	$650			$350	
F	WDRM - Customer/DRSP combined		-$50			$1,050

Source: Marsden Jacob Associates

4.2 Participant Incentives and Risks

The example above illustrates the following:

- The correct economic signal is significantly higher than in all cases, except under the WDRM that has all parties separate, and the retail contract has spot price passthrough (Case D) (in which case the signal is significantly higher);
- Current arrangements (Case A) and the WDRM with the retailer and DRSP combined (Case E) have outcomes that are the same based on payments to the customer being the same. The difference may be scheduling (noting the current arrangements provide for demand to be dispatched by AEMO);
- The retailer's position is significantly reduced under the WDRM. This is because most of the value comes from the reduction in spot market purchases;
- With the DRSP as separate party to the retailer, the retailer loses money. The prime reason for this is the separation of retail payments from spot price purchases;

- The retailer has high risk to a third-party DRSP arranging DR with a customer that has a spot price passthrough contract with a retailer. There are no clauses that this is not allowed; and
- A customer has large incentives to undertake to role of the DRSP. This is because the customer would then receive both the reduction in tariff energy costs and the spot purchase savings.

The outworking of the above are as follows:

- To be competitive with the customer / DRSP combined case, the retailer would need to provide the customer with 90 per cent of the spot purchase savings. However, the retailer's position is unchanged;
- For the customer to undertake the DRSP role, the benefits must be balanced by the compliance costs involved. As the customer does well in all of these cases, the customer / DRSP combined case may not be favoured;
- The key competitor to a third-party DRSP would be the retailer undertaking this role. Small retailers may not have the capability to do this; and
- However, a DRSP would be expected to be able to "outbid" a combined retailer/DRSP as the DRSP:
  - would not be incumbered by having the reduction in tariff being higher than the reimbursement payment; and
  - may be better placed to undertake the information requirements of the WDRM as this would be its score business.

In summary, the example illustrates that severing the spot prices signal as currently exists for DR presents a complex dynamic and introduces substantial risks to the retailer. This is usually a recipe for increased retail costs.

5 Contracting – Retailers, DRSPs and the Reliability Obligation

5.1 DRSP and Retailer Risks

A principle of the WDRM is that DRSPs be treated, to the extent possible, the same as generators. This is reflected in the compliance requirements including information provision and central dispatch obligations.

DRSPs have no inherent risk. They are similar to an uncontracted generator. This is different than a retailer which, with DR, would have an obligation to purchase the baseline level of demand in the spot market[10].

The rules that allow a DRSP not to bid in all dispatch intervals also reduces risk.

This lower level of inherent risk that a DRSP has compared to a retailer could result in a lower level of DR use than would otherwise be the case.

5.2 Contracts signalling Capacity Needs

A key dynamic of the NEM (and similar electricity markets) is that the signals for new development (such as peaking generation) come from its customers, and in particular, the retailers. Such signals are associated with:

[10] This introduces risk and the consequent risk management actions undertaken by retailers (such as contracting, tariff arrangements, DR arrangements);

- Contract purchases (commonly swap for energy and caps for uncertain demand peaks); and
- Vertical integration (retailers developing their own generation).

New generators can be developed on spot revenues alone, but this is not common and mostly new generators are supported by offtake / hedging contacts.

The prime signal for new generation, including new peaking generators, is spot price purchase risk by retailers.

Under the WDRM with the DRSP as a separate party to retailers, there is no recognition of the capacity provided by DR to retailers. This would act to limit long-term market benefits with the result that consumer prices would be higher.

This is because the capacity provided by DR does not result in a reduction of the spot price risk to retailers. This means that the contracting requirements of retailers are unchanged despite the demand level being less (by the level of DR).

This was recognised in the Draft Rule Determination Report[11] which states:

'This means that the retailer's exposure in the wholesale market should be approximately unchanged following the implementation of a wholesale demand response mechanism, regardless of whether or not their customer is participating in the mechanism.'

This would be changed if the retailer was also the DRSP.

5.3 Sale of Contracts from DRSPs

Like generators, DRSPs could sell peaking contracts for the purpose of obtaining additional revenue. If this was done, such contracts could be sold to retailers, providing a signal to reduced need for new peaking plant.

However, the firmness of the capacity associated with the spot price revenues that a DRSP would obtain from DR would be expected to be low. This would reflect the option to not submit bids and the uncertainty in volume introduced by baselines.

Given the nature of DR, it would be expected that these would not be equivalent to firm cap contract but may have conditions such as a period of notice, maximum duration, and an option for the DRSP to declare a reduced quantity of capacity support. Such contracts would not be liquid and may have the most value to the retailer that supplies the consumer that would provide the DR.

5.4 Retailer Reliability Obligation (RRO)

The section titled "Retailer Reliability Obligation" of Draft Rule Determination Report (page 188) states that:

- 'The intent of the RRO rules is to require retailers to enter into hedging contracts to cover their expected consumption 12 months in advance'
- 'Under the demand response mechanism, retailers will have no foresight of whether their customers may be dispatched for wholesale demand response over this period'
- 'Commission considers that the current rule appropriately provides that the baseline level of consumption for any customers that were dispatched for wholesale demand response will be used for the purposes of determining retailers' compliance obligations'

[11] Section F.5.3 "Retailer hedging"

- 'the contract between the DRSP and the customer may count as a qualifying contract where the DRSP and the retailer are the same entity.'

Based on the above, there appears to be a serious disconnect between the dynamics and signals of the contract market and the qualifying of capacity for the RRO.

Under an outlook of increased DR, this would have the potential to introduce reliability risks to the NEM. The reason for this is that the DR, external to a retailer, would have less firmness.

6 Baselines and Gaming

The Draft Rule Determination Report[12] presents a description of baselines. This was in terms of four approaches[13], the attributes that define good baselines[14], and concluded by saying that:

'Determining good baseline methodologies and good baselines is challenging, although it may become easier over time as technology evolves and new approaches are developed.'

The approach presented[15] was through a process that involved central determination of baselines, compliance testing, baseline change process, classes of loads, baseline methodology metrics, AEMO reporting on accuracy and potential manipulation.

However, no analysis or evidence was provided regarding the type and variation in error that would be expected.

Given the central role of baselines in the WDRM, the risks associated with baselines is unknown. With the best intentions of all parties, the risks include:

- Reducing the amount of DR that is currently evolving in the NEM; and
- Accuracy of demand projection in 5-minute pricing and dispatch.

The Draft Rule Determination Report does mention gaming. Given the complexity of downstream operations associated with parties providing DR (as commented by Flow Power), it would potentially be very difficult to distinguish gaming from normal variations in operations. This could make parties wary of undertaking normal operational changes for fear of this being misunderstood.

It would be expected that additional work would be required to address the sizeable risk associated with baselines before any decision, draft or otherwise, was made in relation to their use.

7 Centralised v Distributed Evolution

The Draft Rule Determination Report has the position that centrally scheduled DR has more value than DR arranged between parties without the involvement of AEMO. The reasons given for this were knowledge and certainty of such DR (i.e. capacity) by AEMO.

Executive summary paragraph 27 states that 'without scheduling, the reliability benefits associated with the mechanism would be reduced.' The paper provides no evidence to support this.

[12] See Chapter E of the Draft Rule Determination Report.

[13] Centralised / decentralised setting of baselines and centralised / decentralised settling of baselines.

[14] Accurate under a range of conditions, does not display consistent error or bias, not susceptible to manipulation, adaptable to changes in consumer characteristics.

[15] See Section Appendix E.5 of the Draft Rule Determination Report.

The basis of the NEM as an energy-only market was to have very sharp signals at the time that a response was required. The NEM has demonstrated that the generation side has responded to spot price signals and now the demand side is starting to respond to spot price signals. The latter is evidenced by the submissions of retailers that are putting such arrangements in place.

A key issue from a reliability perspective is not the certainty of response provided to AEMO through centralised scheduling, but the level of certainty that it does occur regardless of whether this is centralised or non-centralised operation.

The Draft Rule Determination Report does not recognise that the close equivalence of capacity for reliability is based on its certainty of being there, not whether it is centralised (i.e. known by AEMO the next trading period).

This leads to the issue of the assumed economic advantages of central scheduling / control over non-centralised / distributed operation. The trend is for an increasing amount of distributed response, particularly from batteries and retail demand response.

The position of the Draft Rule Determination Report in relation to the need / value of centralised scheduling could be interpreted as a mistrust of the ability of the market to respond, which does not recognise that the trend is towards decentralised markets.

Given the value ascribed to the centralised dispatch of DR in formulating the WDRM, the basis of this value needs to be demonstrated.

8 WDRM - Benefits and Risk

The Draft Rule Determination Report presented the WDRM and concluded that this mechanism provided the best balance of potential solutions. It was a 'more preferable draft electricity rule[16]'.

This paper:

- Supports the position that the development of DR and the growth of a two-sided market is most important to the least-cost transition of the NEM; and
- Reviewed the Draft Rule Determination Report and identified matters that, in the opinion of the author, needed additional explanation and support.

The sections below illustrate the complexity of the issues, the risk of outcomes that are counter to what is intended, and issues / risks that are presented by the proposed WDRM.

8.1 Potential for perverse outcomes

The risk of perverse outcomes is illustrated by the dynamics of the proposed WDRM that redirects spot price signals to a party that has different incentives than parties that supply energy to consumers:

- The WDRM provides for 3rd parties (i.e. DRSPs) to arrange DR with the customer of a retailer. This is possibly when the FRMP /retailer has not been incentivised to do so through the WDRM. There is a question of whether a customer could operate both via a retail contract with spot price passthrough and the WDRM.
- The arrangements have DRSP with obligations and services that are similar to that of a generator, and a risk profile similar to an uncontracted generator. This is lower than for retailers that have customers with a potential relationship with DRSPs.

[16] See section 4.4 of the WEMC Draft Rule Report.

- The reimbursement provided under the WDRM to retailers, associated with DR not reducing spot purchase obligations, has retailers under-recovering costs associated with third-party DRSP. This could place it at a disadvantage compared to third-party DRSP suppliers.
- Third-party DRSPs are unlikely to be able to sell peaking (i.e. cap) contracts based on the WDRM arrangements. This would be due to the lack of firmness provided by DR. The lack of firmness would reflect the uncertainty of baselines and the ability of the customer to respond in any interval. It may be that a DRSP that has many relationships to consumers may be able to sell / provide some level of firm capacity.
- The likely result of this is that third-party DRSPs obtain the spot price revenue reductions from DR but cannot use this to support the capacity required by retailers.
- This would result in the need for additional capacity that would not have been needed otherwise, a reduction in the value of DR, and the perverse outcome of a reduced level of DR.
- The above could have flow-on impacts to spot prices.
- The dynamic could also impact the transition to a two-sided market, through a reduction in incentives in the demand side.

8.2 Summary of Benefits and Risks

From this review, Table 2 presents a list of the benefits and risks and the assessment of their treatment in the Draft Rule Determination Report.

This assessment indicates that the case that the WDRM as a more preferable draft electricity rule has not been sufficiently demonstrated.

Table 2 Assessment of WDRM Ascribed Benefits

Issue	Assessment
Greater demand-side transparency	Yes. But limited to DR that is scheduled. Given that centralised DR does not need to bid each trading interval, transparency also includes the actual DR that occurs. This could be reported.
Assist with reliability	Not demonstrated that USE would be reduced through centralised versus decentralised (current) arrangements.
DR incentives	Not proven that the WDRM as presented would invoke a higher level of DR. There are submissions that suggest the contrary.
Consumer choice in relation to DR	Yes. But not demonstrated that the arrangements are economically efficient or that retailer prices may be increased by third-party cashflows.
Better facilitate automated demand response that can follow dispatch instructions from AEMO	Yes. The increased amount has not been demonstrated.
Allow aggregators to value stack different types of demand response	Value associated with this is not explained.

Minimise distortions introduced under the WDRM, particularly to the wholesale market, retailer's hedging and positions in the contract market	There are sizeable distortions introduced that may result in substantial inefficiency.
Minimise upfront costs imposed on AEMO and the market, specifically retailers	Yes, but at the expense of market efficiency.
Risks and costs introduced by baselines	Recognised, but report dismisses these as manageable. There was no basis for this conclusion.
Risk to retailers introduced by the WDRM	Significant issue. Not recognised or addressed.
Third party diluting signals to the customer	Significant issue. Not recognised or discussed.
The non-firmness of scheduled DR	Not considered in relation to reliability.
WDRM does not have capacity translated to contract market	Recognised but implications not considered necessary for further consideration.

9 AEMC Assessment Process and Stakeholder Views

The Draft Rule Determination Report has raised matters that this paper has identified as requiring additional explanation.

While we appreciate the work undertaken in developing the WDRM, there appeared to be limited consideration provided to key issues presented in a number of the submissions obtained.

An example of this was the submission by Intelligent Energy Systems (IES) to the consultation paper. This was a serious proposal that addressed many of the issues that could result in the WDRM failing.

The proposal presented by IES (based on a swap contract priced at the average price that a customer pays) eliminated the need for a baseline and provided signals for a consumer to undertaken demand response.

The response in the Draft Rule Determination Report:

- Made the comment 'Instead, the proposal incentivises arbitrage of price differentials within the swap period. Therefore, the proposal would indirectly encourage the consumer to respond to wholesale price but predominantly in periods of volatility and opposed to adjusting demand in peak conditions'; and

  This response is saying that the prime signal for DR should be a period of high demand, and not spot price volatility. The IES proposal had the consumer adjusting demand at times of high spot prices, precisely as the NEM was designed.

- Concluded that 'The Commission was not convinced that this model would not introduce additional risks for retailers in managing their exposure to the wholesale market. As such, the Commission has decided to not introduce this proposal in the draft rule.'

The AEMC did not provide any indication of what these additional risks to retailers would be, or how such risks compare to the risks introduced by the WDRM using baselines to retailers, which have been shown to be substantial.