10th June 2015

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

Dear Mr Pierce

Proposed rule change: Demand Side Obligations to Bid into Central Dispatch

The purpose of this letter is to formally request a change to the National Electricity Rules (Rules) to oblige price sensitive demand greater than 30MW to bid into central dispatch.

At present, operators of non-scheduled load have unfettered ability to curtail load in response to spot market outcomes with no obligation to inform the market of their consumption intentions with respect to price. This situation is causing material inefficiencies which are detrimental to the price discovery process.

This rule change would require operators of non-scheduled load which are greater than 30MW and sensitive to price to inform the market of their intentions by bidding into the central dispatch process. This would advance the National Electricity Objective by:

- A more efficient price discovery process resulting in:
    - The Projected Assessment of System Adequacy (PASA) and pre-dispatch processes taking into account responsive load;
    - Better price forecasting for all Participants;
- Better reserves forecasting for AEMO;
- Allowing AEMO to better formulate and manage transmission constraint equations for adequate system operation and the maintenance of the power system security; and
- More efficient contract markets as prices will be set based on more accurate forecasts of underlying supply and demand.

In summary, a Rules obligation requiring operators of price sensitive non-scheduled load to inform the market of their intentions would improve price discovery and ensure a more efficient utilisation of resources. It is self-evident that any load which is responsive to price has an impact on the price discovery process. This Rule change proposal argues that, as a matter of efficiency and equity, operators of such loads must have corresponding obligations to inform the market of their intentions. If dispatch instructions are issued to dispatch bids, non-scheduled loads must also comply with these dispatch instructions.

Should you have any queries in relation to this Rule change proposal please do not hesitate to contact Kevin Ly, Head of Wholesale Regulation on kevin.ly@snowyhydro.com.au or on (02) 9278 1888.

Yours sincerely,

Roger Whitby

Executive Officer, Trading

Demand Side Obligations to Bid into Central Dispatch

Snowy Hydro Limited Rule Change Request

June 2015

1) Name and address of rule change request Proponent

Snowy Hydro Limited
Level 37, 50 Bridge St
Sydney NSW 2000

2) Description of the proposed rule

Transparency of both supply and demand intentions is essential for efficient price discovery. This is a key finding from the AEMC's current consultation process on the good faith bidding rule change.

Generators are obligated in the Rules to be scheduled if their generating capacity is greater than 30MW. Scheduled generators are obligated to submit Offers into the central dispatch process, these Offers have to be made in good faith as per clause 3.8.22A of the National Electricity Rules (NER), and are required to conform to dispatch instructions.

Loads which are responsive to spot price or intend to be responsive to spot price have no obligation to be classified as schedule load. Non schedule market loads switch consumption which impacts on the spot market without notifying other Market Participants of their intentions to consume. This creates uncertainty for all Registered Participants, materially degrades the accuracy of the pre-dispatch prices, degrades AEMO's ability to forecast adequate reserves and manage the central dispatch process through accurate representations of constraint equations, and impedes efficient pricing of financial contracts. In summary, the lack of transparency of the non scheduled loads is materially impeding the efficient price discovery process and is thus contrary to the NEM objective.

The proposed rule seeks to amend clause 2.3.4 of the National Electricity Rules (NER) to mandate market loads greater than 30MW that are responsive to or intend to be responsive to spot price to be registered as scheduled loads. Scheduled loads as per the current Rules will be required to submit bids, conform to good faith bidding requirements, and follow dispatch instructions.

A proposed Draft Rule is shown in Appendix A.

3) Statement of issue

3.1) The nature and scope of the issue with the existing Rules

Spot prices derived from AEMO's central dispatch engine provide Market Participants with price signals to adjust their position to accommodate changes in market conditions and to respond to the supply or consumption intentions of other Participants. The dynamic process of Participants learning and reacting to other Participants actions is necessary for efficient price discovery. Access to information about supply and demand side intentions underpins the efficient price discovery process. At present only scheduled Participants have to provide this information to the Market Operator, AEMO.

In the AEMC's assessment framework to the Draft Determination to the Bidding in good faith Rule 2015, the AEMC articulates the importance of transparency of supply and demand intentions[1].

> *….the price setting process should be sufficiently transparent and robust such that market participants have confidence that these signals are generally reflective of underlying supply and demand conditions in the NEM.*
>
> *The Commission has considered the following matters in assessing whether making a change to the existing arrangements will, or is likely to, promote the NEO:*
>
> - *the impact on the efficacy of wholesale price signals, such that efficient investment decisions can be made with confidence; and*
> - *the provision of reliable and timely information to market participants, including pre-dispatch forecasts, such that efficient operational responses can be made in the short term which are in* ***line with underlying supply and demand conditions*** (emphasis added).

Scheduled loads and generators provide a structured bid/offer to the NEM central dispatch process. They are dispatched consistent with their bid/offer. Generators over 30MW capacity are obligated to become scheduled.

In contrast the registration and classification of load is a lot more flexible. An entity with a load can register as a Market Customer. They can then classify the load as a Market Load and just operate the load as a non-scheduled load or may request AEMO to classify the Market Load as a Scheduled Load or an Ancillary Service Load. Even if the Market Load is responsive to price or intends to be responsive to price, there is no obligation to classify it as a Scheduled or Ancillary Service load.

In effect the current Rules provides Market Loads with a free option to decide whether or not the load should be scheduled. This free option to Market Loads perversely imposes costs to all other Market Participants who are reliant on dispatch and pre-dispatch spot prices to be representative of underlying supply and demand.

In addition to aiding the efficiency of the price discovery process, scheduled generators and loads provide a valuable service to consumers by providing a controllable load following service which accommodates for the variability in demand load. Non-scheduled loads are capable of providing a similar service but because they are registered as non-scheduled they have no obligation to follow dispatch targets and provide a similar load following service.

[1] AEMC, Bidding in good faith Rule 2015 Draft Determination, 16 April 2015, page 6.

The AER submission[2] to the AEMC Power of Choice review – Directions Paper states, "The AER notes there appears to have been some demand side response to extreme price events in the wholesale market." The submission outlined seven (7) instances of observed demand side response ranging from 45MW to 540MW.

More recently in an article by Watt Clarity published on 18 January 2014 the author stated: "Particularly on Wednesday 15th January [2014], it's clear that we see a change in the shape of the demand curve in between the two significant spikes over this period, which might represent a reduction of 200MW-300MW in Victoria over that period." A graph was provided which highlighted the relevant demand side response (see Figure 1 below).

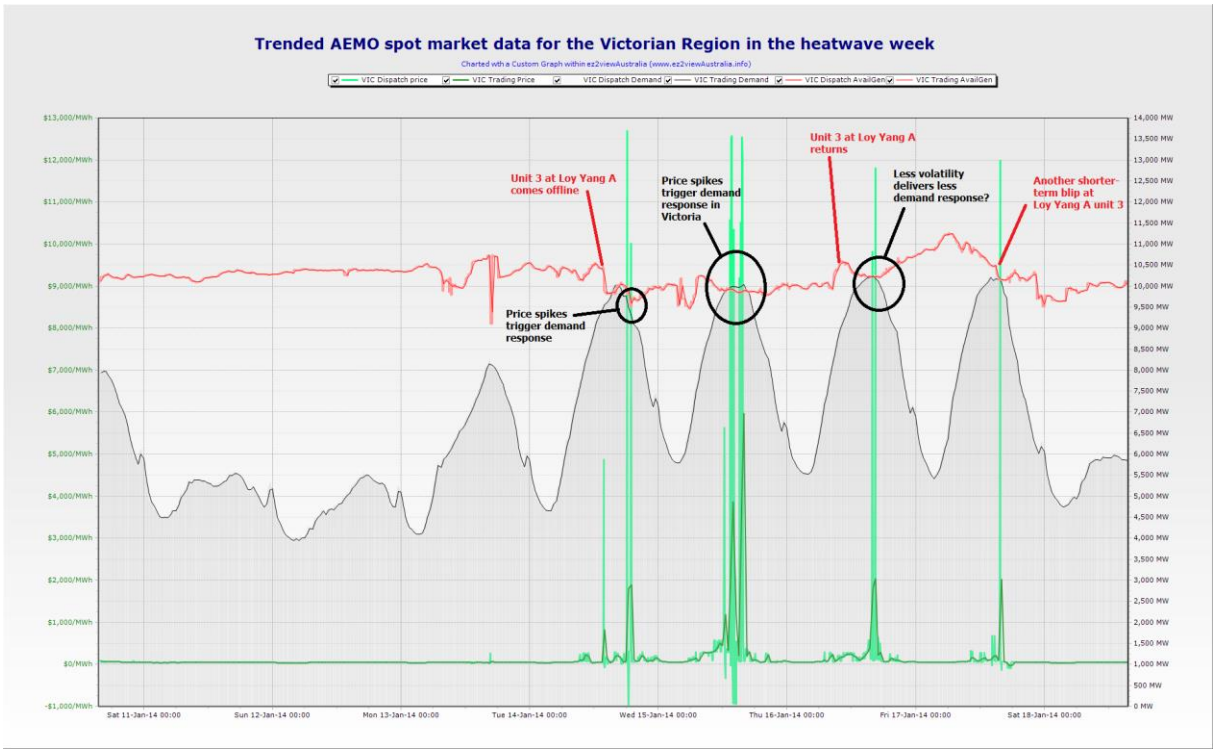

Figure 1

The AEMO (NEFR) report 2014 also confirms that all market loads (with the exception of pump storage facilities) are non-scheduled.

This different treatment between scheduled and non-scheduled Participants impedes the price setting process resulting in a number of material inefficiencies which are counter to the National Electricity Objective. These inefficiencies are:

1. Reduces confidence in Pre-dispatch prices which only reflect the supply and consumption intentions of scheduled market Participants;

2. Impedes AEMO's functions to accurately forecast reserves and manage the secure and reliable operation of the power system; and

3. Incorrect pricing of contracts in the short term and the long term.

[2] AER submission to AEMC Power of Choice – Directions paper, dated 8 May 2012.

3.1.1) Reduction in confidence of Pre-dispatch prices

Price sensitive loads which change their consumption without informing the market reduces confidence in Pre-dispatch prices which only reflect the supply and consumption intentions of scheduled market Participants. In effect, pre-dispatch prices ignores a significant portion of demand.

The following is an example of non-scheduled load participating in the Spot market and as a result materially influencing the dispatch and pre-dispatch prices.

Example: 2 July 2012

On the 2 July 2012 there was a non-scheduled load reduction of approximately 70MW which had the effect of materially changing pre-dispatch prices.

The first graph shows the information in the market at 12:40 and the second indicates the drop in 5min Pre-dispatch prices after the load shedding.

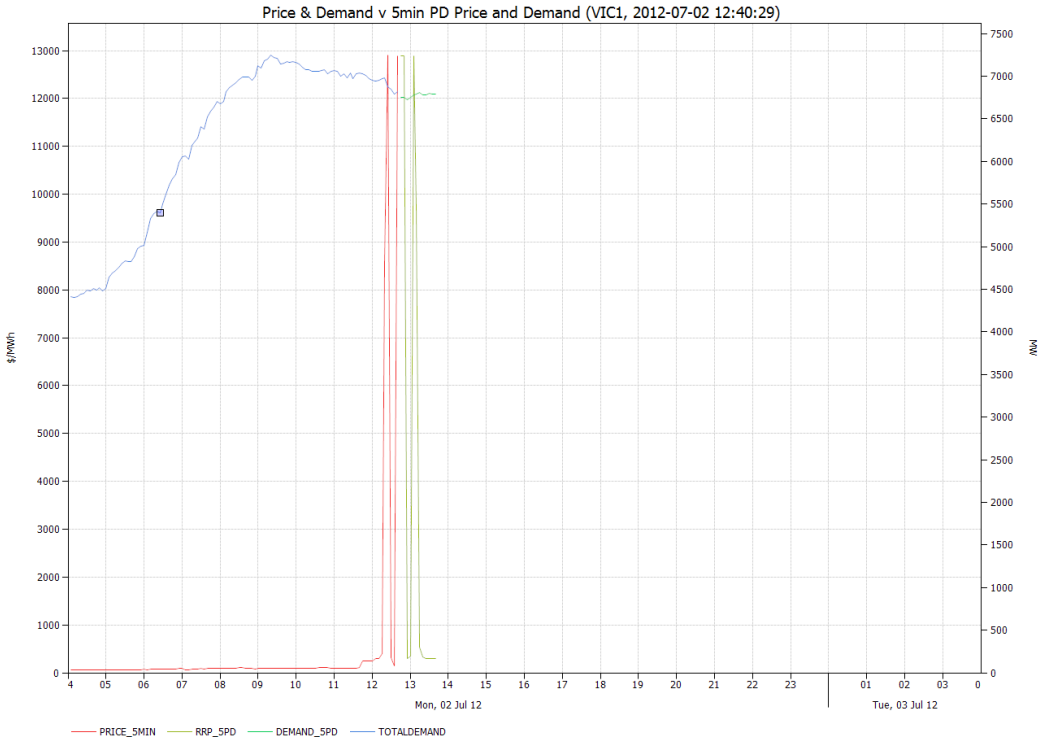

Figure 2 – Pre-dispatch prices prior to the effect of the non-scheduled load

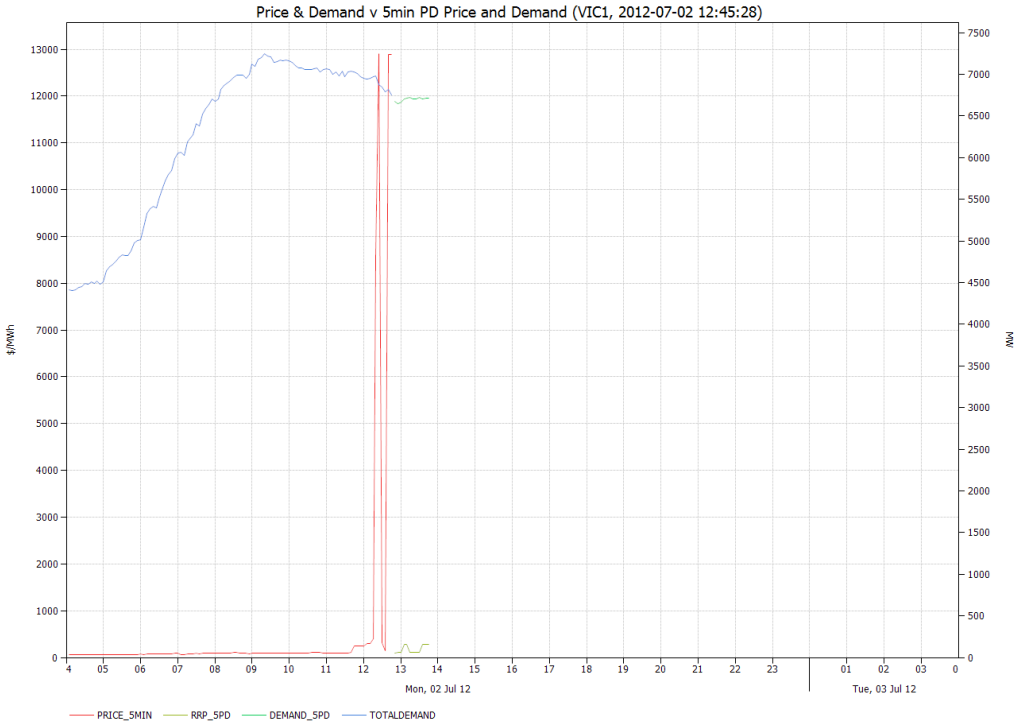

Figure 3 – Pre-dispatch prices after the effect of the non-scheduled load

From comparing Figures 2 and 3, there is a material difference in pre-dispatch prices as illustrated by the difference in pre-dispatch prices prior to and after the effect of the non-scheduled load.

The situation in this illustrative example makes it extremely difficult for Market Participants to manage their risk. Generators had inaccurate price signals to modify their existing offers to accommodate for the increased demand load or to self-commit additional generation. Market Loads would have had limited opportunity to reconfigure their consumption pattern in anticipation of the increase demand.

If peaking and fast start generators self-committed to cover the high spot prices they would have done so at the risk that Spot prices would fall due to an unforecast demand response.

3.1.2) Inaccurate reserves forecasting by AEMO

AEMO issued a Market Notice (44539) which highlighted a Lack of Reserve level 3 (LOR3) on the 15/01/2014. Supply conditions across the SA and VIC regions were extremely tight on the day. AEMO issued the LOR3 market notice as its forecasts indicated there was insufficient capacity available in the Victoria and South Australia regions to meet demand. If AEMO's forecasts were realised customers would have needed to be interrupted (load shed) to maintain system security.

The 44539 Market Notice stated:

> *"AEMO declares a LOR3 condition for the combined Victorian and South Australia Regions from 1400 hrs.to 1700 hrs Wed 15 January 2014. The* ***maximum energy deficit is 290 MW in the combined Victoria and South Australia Regions****. AEMO is seeking a market response."*

A LOR3 condition means that AEMO was forecasting inadequate capacity to meet the demand. If this situation were to prevail on the day, AEMO would have needed to instruct for some load shedding across Victoria and South Australia on the 15/01/2014 to maintain the NEM is a secure and reliable state.

The AEMO followed with another market notice 2 hours later at 10:35 (44547) that stated there had not been a sufficient market response to the LOR3 notice:

> *"RELIABILTY AND EMERGENCY RESERVE TRADER (RERT) INTERVENTION – (Vic and SA) Regions- Wednesday, 15 January 2014*
>
> *This Market Notice is to advise that* ***AEMO intends to intervene by dispatching Reliability and Emergency Reserve Trader (RERT)*** [3] ***contracts (refer NER clause 3.20) to enable AEMO to maintain the power system in a reliable operating state****.*
>
> *AEMO estimates that the intervention will apply for the following period of time, 1300 hr 15/01/2015 to 1700 hr 15/01/2015"*

The RERT contracts are outside the normal centralise dispatch arrangements and implies that there has been a market failure to procure a market response to AEMO's forecast supply deficit.

Ultimately on the day the RERT contracts were not used as noted by the AER[4] which stated:

> "……but these were not exercised as the improved capability of Basslink provided adequate capacity to meet demand."

Unscheduled load makes AEMO's function of ensuring adequate reserves for the reliable supply of electricity more difficult and prone to forecast error. The exercise of the RERT contracts should only be a last resort process where the normal market mechanism has failed to meet the demand requirements.

3.1.3) Impedes AEMO's ability to manage the central dispatch process

AEMO relies on market information to forecast loading on interconnectors, to forecast the expected loading for each scheduled generating unit, and to fulfil its general system security obligations. The impact of non-scheduled load is to reduce the effectiveness of AEMO's transmission constraint equations which set the operational boundaries for secure and reliable system operation.

3.1.4) Incorrect pricing of financial contracts

Another consequence of the current absence of bidding requirements on non-scheduled loads is incorrect pricing of financial contracts in the short term and the long term. In the short term, day ahead outage cover could be incorrectly priced and is caused by high pre-dispatch forecasts yet the outcome is lower spot prices due to demand side response that is not factored into the pre-dispatch forecasts.

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[3] The RERT is as a 'safety net' designed to allow the Australian Energy Market Operator (AEMO) to procure reserves to ensure reliability and security of supply.

[4] AER Report – Electricity spot prices above $5000/MWh – 15 January 2014 South Australia & Victoria.

In the long term financial contract prices don't reflect underlying supply and demand and hence influences the timing of new entrant decisions.

3.2) How the rule change addresses the identified issues

The Rule change would improve transparency in the NEM and as a result Market Participants would have more confidence that price signals from AEMO's Central Dispatch Process is generally reflective of underlying supply and demand conditions in the NEM.

4) How the proposed rule will or is likely to contribute to the achievement of the National Electricity Objective

As with all proposed changes to the NER, this rule change proposal must meet and support the National Electricity Objective (NEO). The NEO is stated in section 7 of the National Electricity Law:

> "... to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:
>
> a. price, quality, safety, reliability and security of supply of electricity; and
>
> b. the reliability, safety and security of the national electricity system."

The Proponent has carefully considered the benefits of the change against the NEO and is of the view the proposal supports the NEO.

As outlined in section 3.1 there are significant market inefficiencies with the existing Rule.

This situation is likely to get worse and result in further degradation of efficient price discovery with better technology that enables more demand response, more distributed generation and more non-scheduled generation which will make scheduling of generation more difficult and uncertain.

With respect to Demand Side Response, AEMO forecasts increasing demand side participation as highlighted in Figures 4 and 5.

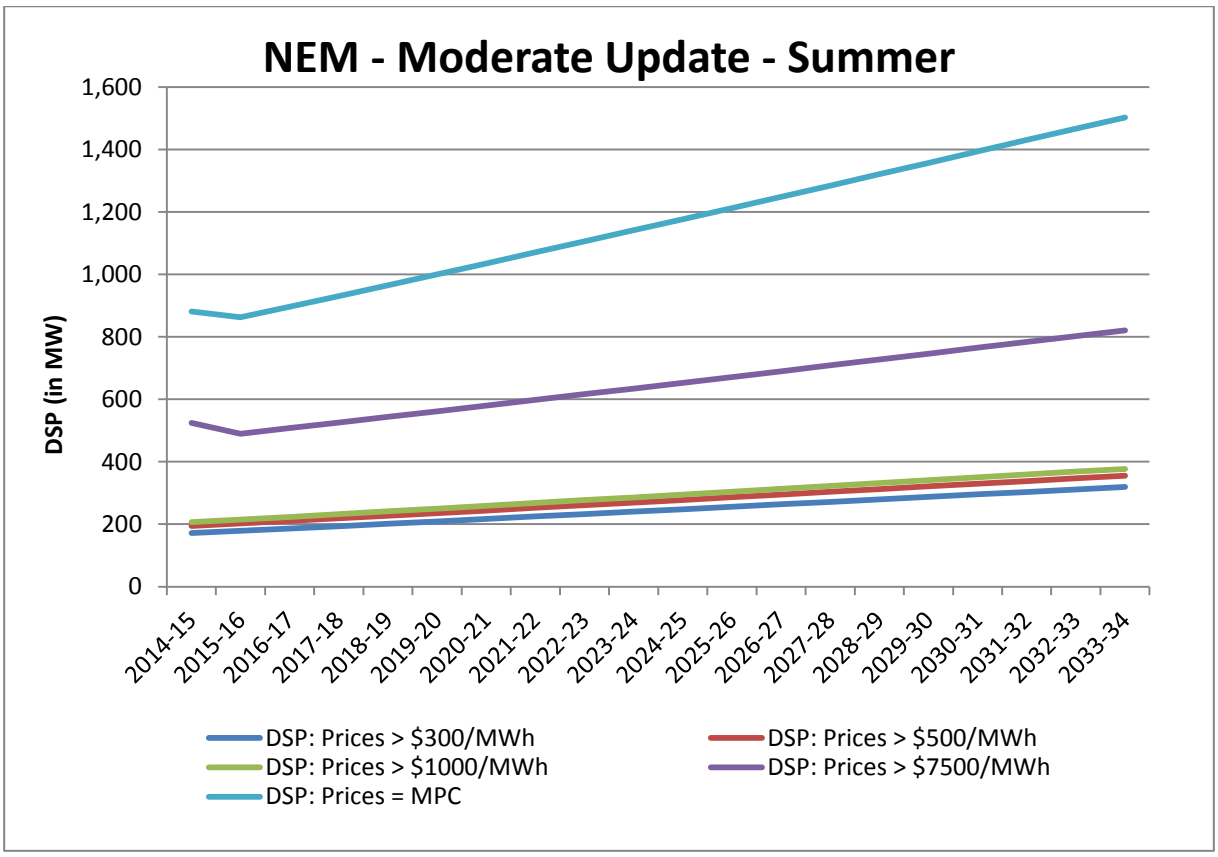

Figure 4: AEMO forecasted demand side participation in Summer

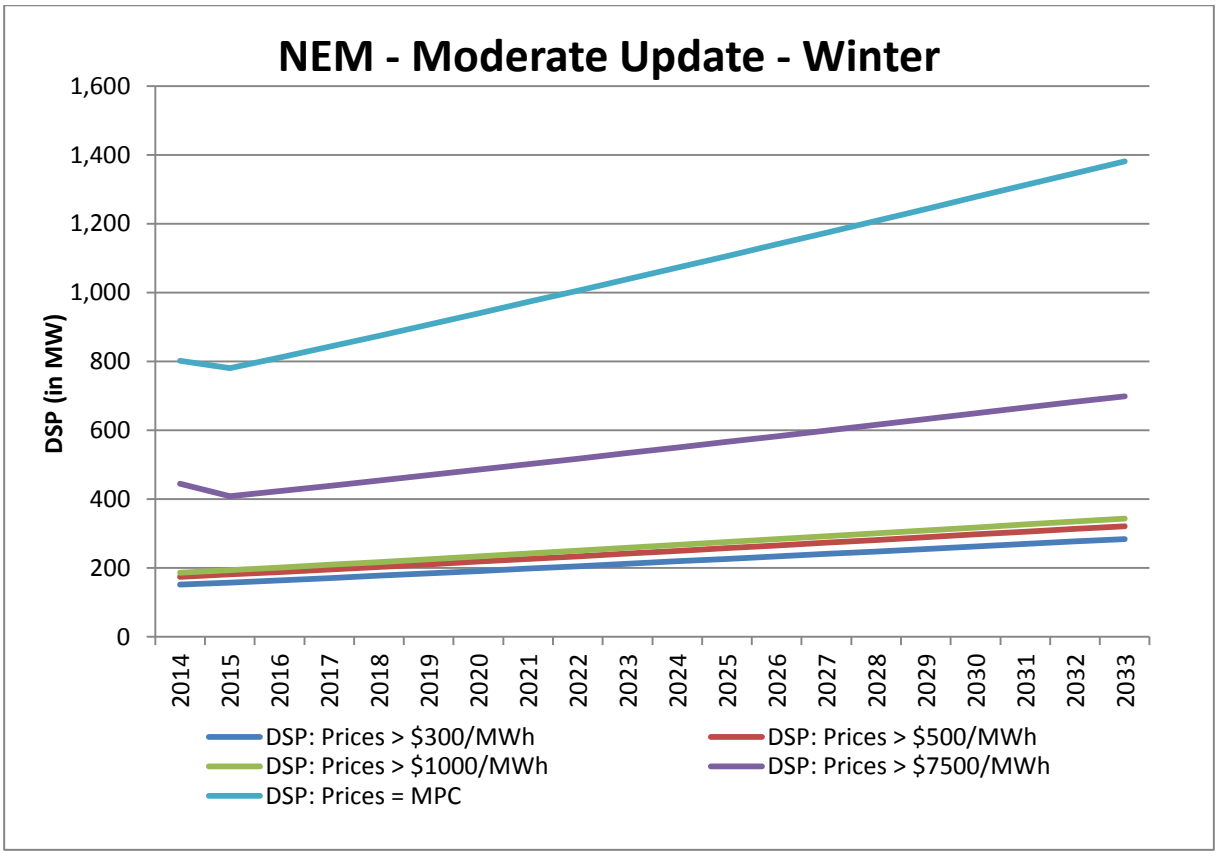

Figure 5: AEMO forecasted demand side participation in Winter

The Rule change would advance the NEO by:

1. More efficient operations;

2. More accurate forecasting of reserves and more efficient management of the central dispatch process; and

3. Improve the efficiency of the Contract market.

Each of these points is discussed below.

4.1) More efficient operations

More predictable prices will aid spot market operations.

The stylistic example below shows that if the pre-dispatch price can be relied on then all Participants can respond to this forecast price. In this example a peak generator decides to self-commit generation capacity to meet the forecast high demand period. If this Rule change was adopted, the current risk of an non-scheduled demand side response reducing overall demand and hence making the self commitment decision of the peaking generator obsolete would be avoided. This advances the NEO since the peaking generator does not have to waste resources in getting the plant ready for production (ie. increased operators, fuel arrangements etc) only to have the plant not required.

Context: In Pre-dispatch there is a forecast high price period. All Market Participants assess their position and risks in relation to this forecast high price period.

An operator of 100MW of non-scheduled load has no obligation to inform the market of its intention to avoid load consumption. If and when it does come off it impacts the market clearing price (see Figure 4)

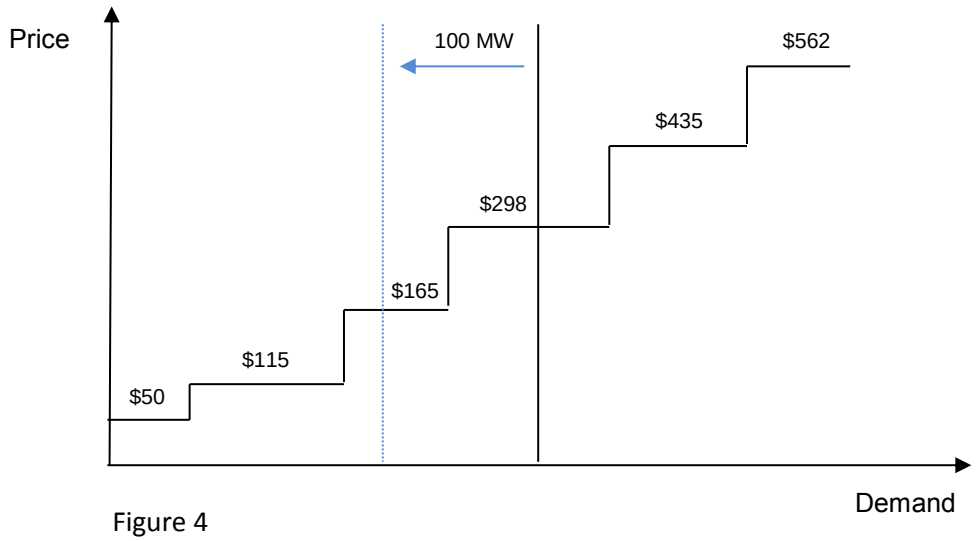

Figure 4

In Figure 4, 100MW of non-scheduled load response shifts the clearing price from $298/MWh to $165/MWh.

Alternatively, an operator of a 100MW fast start diesel generator could have offered to supply an additional 100MW at an offer price of $165/MWh and increase the overall supply curve (see Figure 5). The resultant pool price would have been the same as the non-scheduled load response (in Figure 4) of $165/Wh. However, the scheduled diesel generation incurs additional costs, risks and obligations due to the fact:

- It has explicit Rules obligations to inform the market of its intentions;
- If it self-commits but does not get dispatched it would still have incurred costs such as increasing resources to run and operate the plant and arranging for the availability of fuels etc;
- If the peaking generator gets dispatched:
    - It incurs high start-up costs;
    - It may not recover sufficient Spot revenues to cover its costs;
    - It faces additional revenue risk if non-scheduled loads decide to further curtail demand; and
    - It has dispatch and reporting obligations and faces non-compliance risks.

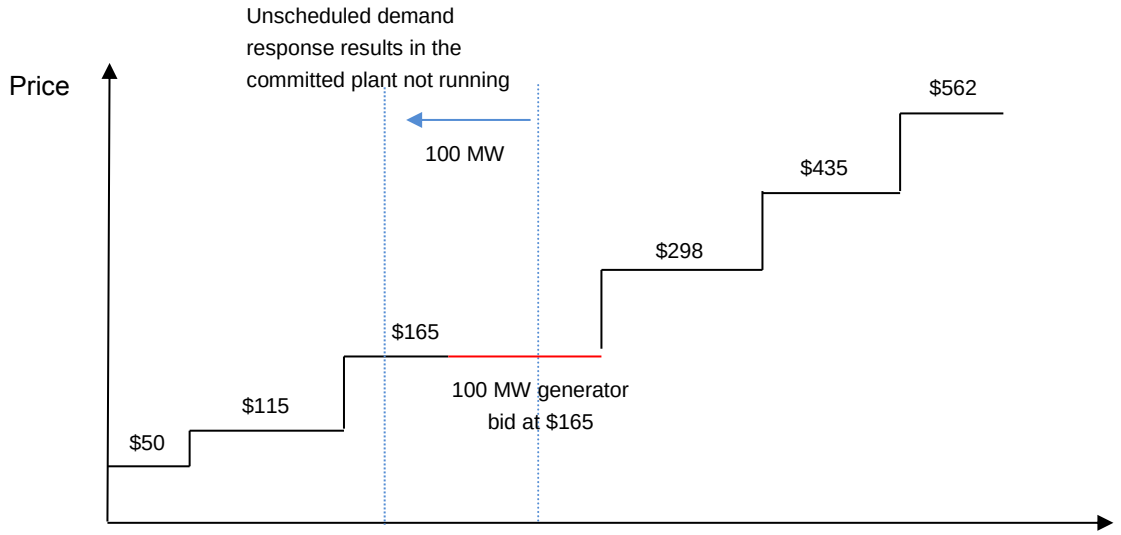

Figure 5

4.2) More accurate forecasting of reserve requirements and more efficient management of the central dispatch process

More accurate forecasting of reserve requirements helps maintain a reliable and secure system. It miminises the cost because actions such as invoking Reserve Trader are done with the knowledge of accurate forecasts of both supply and demand conditions.

The impact of non-scheduled load is to reduce the effectiveness of AEMO's transmission constraint equations which set the operational boundaries for secure and reliable system operation. The ratification of the Rule change would mean AEMO can rely on more scheduled bids and offers to more accurately forecast:

- loading on interconnectors,
- the expected loading for each scheduled generating unit, and
- to fulfil its general system security and reliability obligations.

4.3) More efficient pricing of financial products in the Contract markets

The major factor in offering (selling) derivative products in the NEM is whether market prices reflect the underlying supply and demand fundamentals. The supply and demand fundamentals are driven by:

- weather / temperate forecasts,
- forecast of new generation particularly renewable generation,
- generation maintenance cycles, mothballing and closure decisions, and
- demand side intentions through the closure of existing facilities or the curtailment of load when spot prices are high and volatile.

These fundamentals factors underwrite contract pricing decisions. These factors require that the market is transparent to understand and monitor their impact on price.

The prospect of asymmetric or non transparent information available only to some Market Participants has an adverse impact on market liquidity. Further more contracts which are offered to the market must incorporate a higher risk premium to factor in increased risk. These factors are well articulated in the RWE[5] submission to bidding in good faith. Although the RWE submission was specifically tailored to scheduled generators the arguments used can equally apply to impact of non-scheduled loads.

In the long term Spot and Contract prices which are reflective of underlying supply and demand will help inform efficient investment of capital stock.

[5] RWE submission to Bidding in good faith – Options paper, dated 6 Feb 2015.

5) Expected costs, benefits and impacts of the proposed rule

As indicated in sections 3 and 4, the rule change if implemented will have the effect of resolving a number of inefficiencies by requiring the demand side to reveal its intentions. It is inherently difficult to quantify the impact of non-scheduled load on the efficiency of the price setting process, AEMO's functions to maintain a reliable and secure power system, and the incorrect pricing of financial contracts. However, the qualitative assessment of how the Rule change would advance the NEO suggests there would be significant net benefits by aiding the efficient price discovery process.

The expected costs associated with implementing this proposal which will require loads greater than 30MW to bid their intentions into central dispatch are:

- Setting up communication channels to send telemetered (4 second) consumption information to AEMO and receive dispatch targets; and
- Setting up a trading platform to allow the submitting of bids.

Entities likely to be affected by the rule change are:

- Generators would be positively affected with greater certainty in forecast prices in pre-dispatch. This would aid in the allocation of scarce resources;

- Financial intermediaries – would be better able to price contracts with more accurate forecasts of fundamental supply and demand;

- Consumers would be beneficiaries of the rule change as better price transparency from other demand Participants would help inform their own consumption decisions;

- AEMO remains unaffected. AEMO already has the central dispatch process which can accommodate bids from price sensitive loads; and

- AER would be positively affected as the rule change would remove administration cost in investigating price spikes or price floors caused by sudden changes in non-scheduled demand.

Appendix A - Proposed Draft Rule

2.3.4 Market Customer

Omit clause 2.3.4 (d) and substitute:

(d) A *Market Customer* must classify any of its *market loads* as a *scheduled load* if:

(1) the *market load* consumes 30MW or greater or is part of a group of *market loads* at a common *connection point* with a combined consumption of 30MW or greater; and
(2) the *market load* varies, or may vary, in response to changes in the s*pot price*.

A *Market Customer which does not satisfy the requirements in subparagraphs (1) and (2) above* may request *AEMO* to classify any of its *market loads* as a *scheduled load*.

Omit clause 2.3.4 (e) and substitute

(e) A *Market Customer* whose *market load* has been classified as a *scheduled load* under clause 2.3.4(d) must:

(1) submit data in accordance with schedule 3.1;

(2) have adequate communications and/or telemetry to support the issuing of dispatch instructions and the audit of responses.

Omit clause 2.3.4 (f) and substitute:

(f) A *Market Customer* must submit *dispatch bids* in respect of *scheduled loads* in accordance with the provisions of Chapter 3.