

NEMMCO

National Electricity Market
Management Company Ltd

ABN 94 072 010 327

Melbourne

24 October 2008

Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

By email: submissions@aemc.gov.au

Dear Dr Tamblyn,

**Re: Additional Submission to Total Environment Centre (TEC) Rule Change Proposal:
Demand Management & Transmission Networks.**

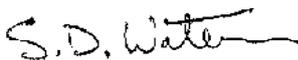
Please accept this additional submission on this Rule Change Proposal which is intended to clarify some matters regarding the management of demand response activities in the wholesale spot market of the NEM.

NEMMCO submitted in February 2008 to this rule change and raised issues regarding section 4.12.3 "A short-term and long-term price for DM" that proposed rule changes to the Market Design Principles (3.1.4) and the Spot Market Objectives (3.2.2). We submitted that the proposal for a short and long-term price for DM required further development for it to be taken forward. We note that on 7 October TEC has provided some further information in relation to this proposal.

It appears that additional clarification on the way price-responsive load operates in the NEM and the options open for it would add value to the current discussions. This paper attempts to provide information on these matters and intends to inform stakeholders in this rule change process and in the Demand-Side Participation Review. NEMMCO further suggests it may be useful for the AEMC to convene a workshop where NEMMCO could discuss these matters with a small group of representatives including the TEC and Demand-Side Participants.

In the absence of further development of the proposal, NEMMCO submits that it remains unable to be taken forward. For further information, please call Ben Skinner 03 9648 8769.

Yours sincerely,



DAVID WATERSON

General Manager
Development and Strategy

Mansfield Office
PO Box 2516
Mansfield QLD 4122
Tel: (07) 3347 3100
Fax: (07) 3347 3200

Melbourne Office
Level 12
15 William Street
Melbourne VIC 3000
Tel: (03) 9648 8777
Fax: (03) 9648 8778

Norwest Office
PO Box 7326
Baulkham Hills BC NSW 2153
Tel: (02) 8884 5000
Fax: (02) 8884 5500

Sydney Office
Level 22, Norwich House
6-10 O'Connell Street
Sydney NSW 2000
Tel: (02) 9239 9199
Fax: (02) 9233 1965

NEMMCO clarification of Demand Management (DM) operation in the NEM

1. Scope of NEMMCO activities

The TEC rule change proposal and the DSP review concerns NEMMCO only as it pertains to the operation of the National Electricity Market (NEM), our customer settlement and registration processes and our activities in the Annual National Transmission Statement (ANTS) and the emerging National Transmission Planner (NTP). The comments below refer to section 4.12 of the rule change: "Short-term and long-term price for DM".

The main focus of the broader rule change relates to the planning activities of Network Service Providers (NSPs). These are outside of NEMMCO's direct involvement (except so far as it indirectly affects the ANTS and NTP) and we have no substantive comment in relation to them. NEMMCO is not directly involved in choices that NSP's make to augment their networks with physical plant or contract with demand providers.

2. National Electricity Rules (NER) Chapter 3

Chapter 3 lays out the arrangements for the dispatch of scheduled participants in the presence of network constraints, the rules for price setting, prudentials and settling the market. Although high level Market Design Principles (NER 3.1.4) and Spot Market Objectives (3.2.2) are included, the subsequent rules are prescriptive in the processes that NEMMCO must follow in accepting bids and offers and setting prices. This means that to effect a significant change in spot market design, both the high level and prescriptive elements would need to change.

For this reason NEMMCO submitted in February 2008 that the TEC proposal to only change the high-level elements could not be taken forward. As the TEC additional information of October 2008 has not promoted additional rule changes NEMMCO's position remains unchanged.

The prescriptive nature of chapter 3 as it pertains to NEMMCO possibly contrasts with the approach to network planning and pricing in chapters 5 and 6-the bulk of the TEC rule change-that leaves matters of detail to the planning and regulatory processes between NSP's and the Australian Energy Regulator (AER).

3. Demand-Management and different services

Demand-management can have positive impacts in multiple parts of the electricity system. The disaggregation of the industry has meant that to capture its full value requires interaction with multiple entities. Demand-Management facilitators can assist as an intermediary in parcelling up the various services. See figure 1 for a diagrammatical representation of the range of benefits and entities.

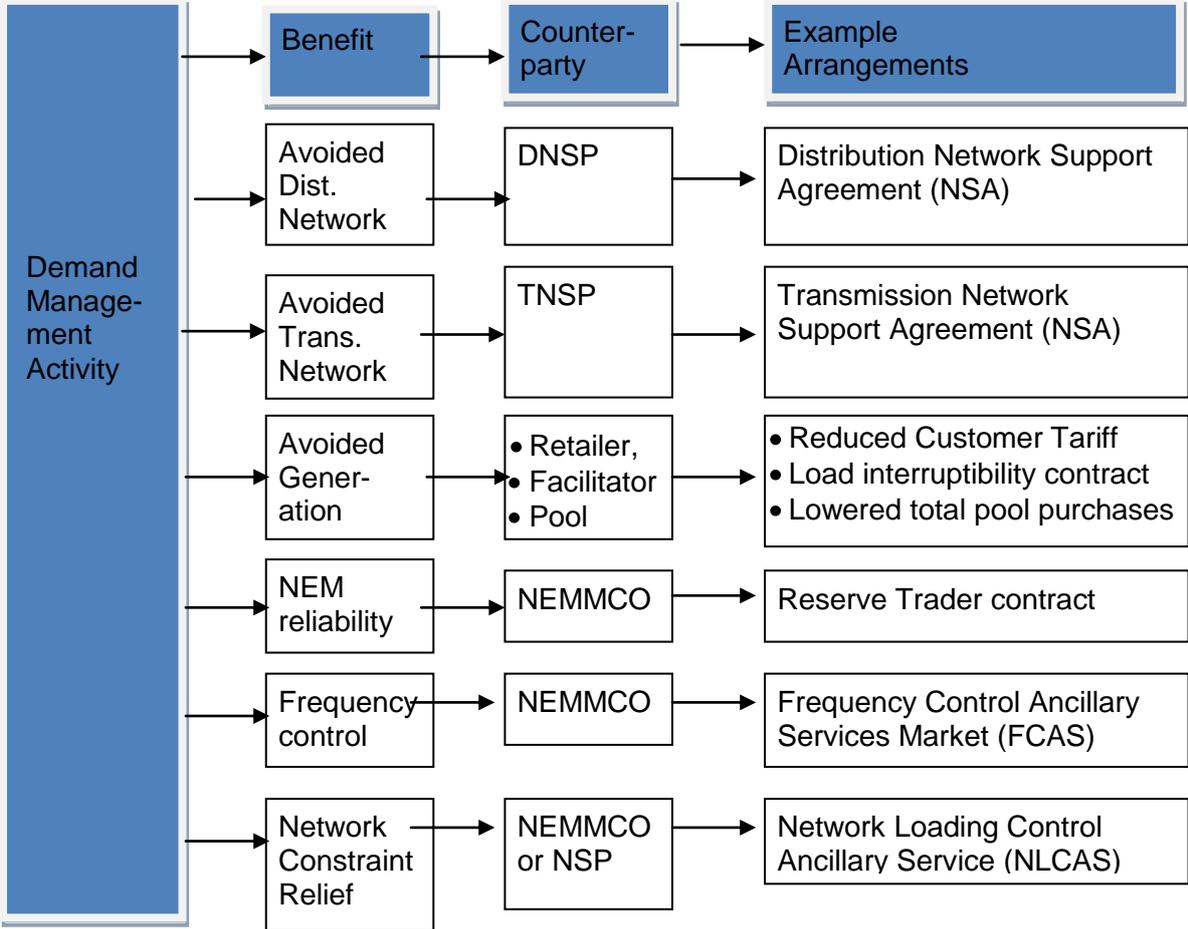


Figure 1: Diagram of the potential range of power system benefits of DM and the relevant responsible entity and arrangements.

4. Demand Management and the pool

The value that TEC is intending to capture with the “Short and Long-term Price” we believe refers to the use of DM to avoid generation. The market design attempts to pass on to all customers the price of the most expensive generator operating in that region¹ at that moment. Therefore, a customer interrupting consumption should be exposed to the same incremental incentive for doing this as the economic value of the generation that is no longer needed. It is unclear from the TEC additional information why the avoided pool price is claimed to be improper compensation.

In response to TEC additional information section 1.2, we note that the same incentive would apply whether the load is scheduled (i.e. bids directly) or is unscheduled. For more information on the distinction between scheduled and unscheduled load see section 5.

¹ Except in the unusual case of a generator being “constrained on”.

5. Operating price-responsive DM

The operator of load that has become responsive to price has a classification choice:

- It can remain **unscheduled** load. This load does not submit bids nor directly interact with NEMMCO dispatch, but it can observe dispatch prices through NEMMCO's market systems or website. By interrupting when high dispatch prices are published, its settlement cost is reduced for those trading intervals affected by the high dispatch prices.
- It can classify as **scheduled** load, which enables it to bid a price, receive dispatch instructions from NEMMCO and directly influence market price outcomes. Its operation is explained in the document published on our website: "Treatment of Dispatchable loads in the NEM"².

The following discussion relates to TEC section 1.3 "Uncertainty of Return – collapsing bid prices".

A scheduled load receives from the dispatch engine (NEMDE) a dispatch target consistent with its bid and the dispatch price³. Therefore if the dispatch price is below its bid, the scheduled load will be dispatched fully on. If the dispatch price is above its bid, it will be dispatched fully off. If it is marginal its bid will set the regional reference price for that dispatch interval.

For an unscheduled load, the NEMDE is unable to anticipate the response to price and will presume this load remains constant from the observation of the last dispatch interval. It is therefore possible for NEMDE to set a price that exceeds its point of indifference. The load may, upon seeing that high price, curtail. In the next dispatch interval, having observed a decline in load, NEMDE may set a dispatch price below this point of indifference.

In the unlikely event that a large unscheduled load remains marginal and all other inputs are constant, an oscillatory situation could develop.

At present very few price responsive loads have chosen to classify as scheduled loads. If the problem characterised as "collapsing bid price" has proved a major obstacle for some DM, we would encourage such load to consider taking up the classification. This would also have broader market benefits⁴.

TEC have also referred to the difficulty of anticipating the settlement price due to the averaging of the six dispatch prices, the "5/30 anomaly". In the initial dispatch intervals of a volatile trading intervals it is impossible for a participant to know with certainty the settlement price of that trading interval. Note NEMMCO does publish a "5 minute predispatch" that can assist in predicting the next 12 dispatch prices. This anomaly equally affects scheduled

² <http://www.nemmco.com.au/powersystemops/140-0070.pdf>

³ Except where a network constraint has caused it to be "constrained on" or "constrained off".

⁴ See NEMMCO's submissions to Demand-Side-Participation Review

load, unscheduled load and generation, and, if justified, NEMMCO would suggest approaching this matter as a broader issue than DM. In 2001-2 NEMMCO consulted on a solution but concluded its benefits did not exceed the cost. This material has since been archived from the NEMMCO website but can be made available upon request.

6. DM for Network Control Ancillary Services (NCAS)

Presently NEMMCO purchases NCAS for:

- Voltage control with Reactive Power Ancillary Service (RPAS) . Technical characteristics tend to limit providers to large, synchronous machines hence RPAS tenders are limited to generators in generation or synchronous condenser mode.
- Increasing network transfer capacity with Network Loading Control Ancillary Service (NLCAS). NEMMCO presently procures one instance of this, from a demand-side provider.

TEC's section 2.1 and "NSCS to Include DSR" in their summary table appear to refer to extending the role of NLCAS.

Between October 2007 and February 2008 NEMMCO conducted consultations on NCAS: Description, Quantity Procedure and Tender Guidelines⁵. NEMMCO's approach is to allow as broad a range of NCAS tenderers as possible, within the confines of the rules and the technical requirements of the services which we are procuring. For example, a submitter raised a concern that the tender document could inhibit NEMMCO from acquiring services from distribution connected providers. This was addressed.

It is possible that DM has been underutilised in the NEM for efficiently relieving network constraints. Responsibility in this area tends to fall between NEMMCO and NSP's, see figure 1: responsibility for Network Constraint Relief falls on both NEMMCO and NSP's. NEMMCO is presently undertaking a review of Network Support and Control Services (NSCS)⁶ which discusses these issues in detail⁷. Section 3.2 "DSP to assist in the management of network loading" of "The Wholesale Market and Financial Contracting"⁸ by Charles River Associates (CRA) to the AEMC is critical of the minor role that NSCS plays in addressing network constraints. The NSCS review and the CRA paper highlight the boundary issue between NEMMCO and NSP's and note that this may have confused detailed network planning and operation with the result that efficient options may not have been identified.

7. "Security", "Reliability", "Reserve" and "Direction" terminology

⁵ <http://www.nemmco.com.au/powersystemops/ncas.html>

⁶ <http://www.nemmco.com.au/powersystemops/168-0089.html>

⁷ The broader term, "NSCS" was used to include services procured by NSP's, whereas "NCAS" is only those services presently purchased by NEMMCO.

⁸ <http://www.aemc.gov.au/pdfs/reviews/Review%20of%20Demand-Side%20Participation%20in%20the%20National%20Electricity%20Market/aemcdocs/007Report%20on%20The%20Wholesale%20Market%20and%20Financial%20Contracting%20-%20AEMC%20Review%20of%20Demand-Side%20Participation%20in%20the%20NEM%20by%20CRA%20International.pdf>

The TEC additional information summary table has mixed these terms in reference to expanding NLCAS in section 2.1 and the summary table. The concepts have some interdependencies, but the NER and NEMMCO use them with distinct meanings.

The power system is in a secure operating state (NER 4.2.4) if it is operating within its secure technical envelope, i.e. the power system can withstand a credible contingency without a widespread failure. This is NEMMCO's primary goal, and if necessary NEMMCO will require the controlled involuntary interruption of customers to restore the power system to a secure operating state.

Reserve refers to the amount of spare generation capacity or interruptible load that is available to a region prior to involuntary load shedding.

The power system is in a reliable operating state (NER 4.2.7) when there is no involuntary load shedding occurring and there are sufficient reserves of capacity. It is possible for the power system to be in a secure operating state but not in a reliable operating state.

NLCAS allow network elements to carry a greater amount of power whilst remaining in a secure operating state. Where an NLCAS is not used, NEMMCO keeps the power system secure, by more tightly constraining dispatch, which may have the result of lower dispatch efficiency and less reserve.

A direction (NER 4.8.9) refers to NEMMCO's powers to intervene in normal market processes. These are intended to be used as a last-resort mechanism only where these processes have failed to establish a secure, satisfactory or reliable operating state. NEMMCO reports on each event⁹ and keeps a historical record of the number of directions in the Statement of Opportunities. These demonstrate that directions are uncommon and the vast majority of network constraints have been managed within normal market processes without requiring such an intervention.

⁹ <http://www.nemmco.com.au/opreports/opreports.html#Directions>