

NEMMCO

National Electricity Market
Management Company Ltd

ABN 94 072 010 327

Melbourne Office

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Mr Steve Edwell
Chairman
Australian Energy Regulator
ATTENTION: Market impact incentives
GPO Box 520J
MEMBOURNE VIC 3001

Dear Mr Edwell

AER service target performance incentive scheme: Developing incentives based on the Market Impact of Transmission Congestion – Issues Paper (June 2007)

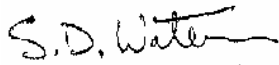
Thank you for the opportunity to respond to the above Issues Paper.

NEMMCO believes that each of the current measures of congestion cost (TCC, OCC and MCC) have substantial individual value as indicators of trends and as inputs into determining priorities in the effectiveness of the management of network congestion. However, a focus on financial measures alone may not be the most effective basis on which to construct fully effective incentive regimes, and NEMMCO suggests the AER also consider the value of developing some measure of the physical capability of transmission networks.

Attached are some specific comments on the possible interactions between the current measures of congestion cost and the value of extending incentive regimes to incorporate analysis of network capability.

If you have any questions on this matter please do not hesitate to contact Stuart James [ph: (03) 9648 8802]

Yours sincerely



David Waterson
General Manager Development & Strategy

(Enc)

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

ATTACHMENT: Current measures of congestion cost and analysis of network capability

Representation of TCC and OCC

NEMMCO believes that care needs to be taken in the interpretation of TCC and OCC measures. On p.11 of the Issues Paper, the AER indicates that the TCC measure is relatively low and, on p.27, suggests that given the low levels of TCC and OCC “a high powered incentive is not warranted at this stage”. Given the manner in which the TCC and OCC measures have been derived, the low levels of the measures do not, in NEMMCO’s view, necessarily warrant the conclusion that the impact of network congestion is relatively low.

The measures of TCC and OCC are derived from a modified version of the NEM dispatch Engine (NEMDE) that, among other modifications, excludes the effects of ramp rates and FCAS markets in reaching “optimal” dispatch solutions. The modifications are such that NEMMCO believes that, although the TCC and OCC measures have on-going value as an index (or trend) in congestion cost, the validity of using the measures as an indicator of the level of congestion or proportion of market value is uncertain. Accordingly, the fact that the TCC and OCC levels are low relative to the value of electricity traded should not necessarily support a conclusion that the impact of congestion is low and, hence, a high powered incentive is not warranted.

Measures of transmission capability

As well as pursuing \$ measures of the impact of transmission congestion (e.g. TCC, OCC and MCC), NEMMCO suggests the AER consider the opportunities to define network capability as an important input into the development of incentive mechanisms for TNSPs. Each of the measures currently being used by the AER – TCC, OCC and MCC – provide an indication of the value of additional network capability, but no indication of whether the network is actually delivering the levels of transport capability that were used to justify its construction at the times when the market needs it. NEMMCO notes that there is no common understanding within the industry as to the MW transfer capability any particular cut-set in the transmission network is expected to deliver at any time.

Consider a network cut-set whose limits of secure operation are affected by: patterns of generation and demand; availability of infrastructure; and the availability of network support and control services. At various times, the following extreme cases may apply:

- the energy flow on the cut-set is high when network limits prevent additional energy flows – that is, the cut-set happened to bind at or near to its design limit – and no amount of adjustment to network operation involving that cut-set could have improved the market outcome;

alternatively:

- the energy flow on the cut-set is low when network limits prevent additional energy flows – that is, the cut-set happened to bind at or near some notional minimum – and it

is possible that some adjustment to network operation involving that cut-set could have improved the market outcome.

It is recognised that defining cut-set capability is not necessarily simple and certainly cannot be adequately defined with a single number. However, NEMMCO contends that an important measure of the effectiveness of TNSPs' management of the network is the level of flow particular cut-sets achieve when constraints happen to bind. This is not to say that at any individual moment TNSPs can or should control all relevant parameters, but over the course of a year or in a particular situation TNSPs' actions could influence outcomes.

The following is an extract of the submission NEMMCO made to the AEMC's consultation on its *Congestion Management Review Directions Paper* released in March 2007¹:

NEMMCO supports the principle of exploring approaches to establishing accountability for network capability that is funded via network charges, but recognises that measures for network capability are yet to be defined in any consistent and comprehensive manner.

As network transfer capability for any given flow path depends on dispatch (network loading, generation and sometimes demand) conditions it cannot be adequately described by a single number. However, network capability could at least partly be described as a plot of (say): level of flow when binding; against the number of hours binding at each level of flow². Historical information of this type and flow duration curves for each interconnector are already reported in the ANTS. Information of this type for each ANTS flow path other than interconnectors could be constructed with some additional analytical tools and resources. Presentation of the above information in a targeted form would be useful addition to the process of developing more effective regulatory mechanisms.

Correlating:

- historical information on network capability;

with an understanding of:

- network loading patterns; and
- the deployment of network support & control services (NSCS),

may provide some useful clues as to the effectiveness of NSCS in influencing the network capability. Such correlations may also provide some clues as to existing headroom on network loading before congestion reaches "serious" levels. However, caution would need to be exercised before attempting to develop targets of network capability given the often complex nature of the constraint equations that underlie flow paths.

¹ pp8-9., available at: www.aemc.gov.au/pdfs/reviews/Congestion%20Management%20Review/Directions%20Paper/Submissions/007NEMMCO.pdf.

² The capability of a flow path may not be able to be accurately calculated for a particular cut-set unless the relevant constraints are binding, which occurs typically only for a small number of hours in a year. The sparsity of the data suggests that constrained flow-duration curves alone may not be sufficient to describe capability.

If practical measures of the transport capability of the transmission network were able to be developed, then incentives based around the measured \$ impact of a network limit could be given an additional dimension of meaning.

An added benefit of transparently defining expectations of network capability for key network cut-sets is that proposals to augment existing network capability can then be assessed against some benchmark to facilitate some understanding, post-augmentation, of whether or not the augmentation delivered against the level of performance that was used to justify its construction.

Linking measures of congestion value and transmission capability

In NEMMCO's view, an effective incentive regime would be one that, in some way, acknowledges the concurrent links between congestion value and transmission capability. For example:

- a TNSP that operates a network in such a way that substantial congestion costs arise at times when network limits prevent additional energy flows when a cut-set is operating at its upper design limit should be given a "tick" for effective operational practices – having got the most out of the network when the market needed it;

likewise:

- a TNSP that operates a network in such a way that little or no congestion costs arise at times when network limits prevent additional energy flows when a cut-set is operating at very low levels of flow should be given a "tick" for effective operational practices – having timed its operational non-deployment of network support and control services or taken an outage at the time when the market did not need the network capability.

NEMMCO would be happy to work with the AER to explore practical means of giving effect to proposals to define network capability and linking that capability with measures of network value.