

13 June 2017

Katherine Lowe
Senior Technical Advisor
Gas Market Reform Group

By email: enquiries@gmrg.coagenergycouncil.gov.au

10 Eagle Street
Brisbane QLD 4122
T 07 3347 3100

Dear Ms Lowe

Response to consultation paper on the Operation and Administration of the Capacity Trading Platform(s) and Day-Ahead Auction

The Australian Energy Market Operator (AEMO) welcomes the opportunity to provide a submission to the Gas Market Reform Group (GMRG) consultation paper on the operation and administration of the capacity trading platform and day-ahead auction.

AEMO is a not-for-profit, independent market operator established by the COAG Energy Council. Our members are made up of Australian governments (60%) and industry participants (40%). AEMO operates under the governance of a Chief Executive Officer and a board of nine skills-based non-Executive Directors.

AEMO runs the Victorian Declared Wholesale Gas Market (DWGM), the Short Term Trading Market (STTM) for gas in Adelaide, Brisbane and Sydney, and the Gas Supply Hub (GSH) at Wallumbilla and Moomba. AEMO also operates the National Electricity Market (NEM) and the Wholesale Electricity Market in Western Australia.

AEMO's key functions with respect to wholesale gas markets include developing and running the market clearing engines, managing prudential obligations and settlement, publishing market information and operating the Natural Gas Services Bulletin Board.

Introduction

AEMO has presented proposals to run the capacity trading platform and day-ahead auction platform through the GMRG process.

AEMO is an independent and experienced market operator. We are able to leverage established trading and auction platforms, underpinned by proven credit risk and settlement processes, to implement the Energy Council's pipeline capacity reforms. AEMO's market systems exhibit a high degree of reliability and we provide participants with access to the Information and Support Hub, which is available 24 hours for technical support.

In addition, AEMO manages a transparent and responsive change process governed by the National Gas Rules. Any interested party can raise a change to the GSH Exchange Agreement or one of AEMO's Procedures and we will undertake a public consultation process and assess the proposal against the National Gas Objective.

Capacity trading platform

AEMO's proposal is to list pipeline capacity products on the same platform used for the GSH, which would leverage an established platform and provide a central place of trade for gas and capacity. Trading on the GSH exchange is continuous, with bids and offers matched on

price throughout the trading day. The platform is flexible in that it supports products being added and removed quickly, at low cost. A screenshot of the trading screen is shown below.

Figure 1: Gas Supply Hub exchange platform screenshot

	WAL Min Price -\$100/GJ				SEQ->WAL Min Price -\$100/GJ				SEQ Min Price -\$100/GJ			
	Qty	Bid	Offer	Qty	Qty	Bid	Offer	Qty	Qty	Bid	Offer	Qty
☺ Tue 28/03/17 Non-Netted	2,000	4.00	12.00	2,000					1,000	7.00	10.00	5,000
☺ DA Wed 29/03/17 Non-Netted	2,000	7.50	10.50	5,000	2,000	-2.00	2.00	2,000	5,000	4.00	12.00	2,000
☹ DA Wed 29/03/17	3,000	7.50	11.75	1,000	3,000	-2.25	2.00	1,000	1,000	7.00	9.75	4,000
	2,000	4.00	13.00	1,000	2,000	-2.00	6.00	1,000	1,000	5.50	10.00	1,000
			15.01	1,000			2.00	2,000	5,000	4.50	12.00	2,000
			12.00	4,000								
☺ Thu 30/03/17	2,000	4.00							1,000	7.00	9.65	10,000
☺ Fri 31/03/17	2,000	4.00							5,000	4.50	10.00	1,000
☺ Sat 01/04/17	2,000	4.00	12.00	2,000								
☺ Wk 02/04 - 08/04	2,000	2.00	14.00	2,000								
☺ Wk 09/04 - 15/04												
☺ Mth 01/04/17 - 30/04/17												
☺ Mth 01/05/17 - 31/05/17												
☺ Mth 01/06/17 - 30/06/17												

From a governance perspective, AEMO has proposed the capacity platform be implemented through the GSH Exchange Agreement. The Exchange Agreement is given effect through the National Gas Law and National Gas Rules. It is a multi-lateral contract that creates a relationship between AEMO and all other GSH participants. Any interested party can submit a proposal to change the Exchange Agreement, which AEMO publicly consults on and assesses against the National Gas Objective. This process takes around three months.

Listing the pipeline capacity products on the GSH exchange allows AEMO to capture a number of synergies that will assist in minimising costs for industry. These are:

- **Settlement:** AEMO collects funds from buyers and makes payments to sellers to settle the GSH. Settlement amounts are calculated and statements issued to participants on a monthly basis.
- **Credit risk:** Participants post collateral with AEMO to cover potential settlement exposure. Prudential exposure for gas and pipeline capacity would be aggregated together, creating efficiencies for participants as some may have sufficient existing collateral with the GSH to cover their aggregate exposure.
- **Delivery reports:** AEMO would utilise the existing GSH trade confirmation and delivery obligations processes.
- **Training and guides:** Using the existing GSH platform and framework will minimise costs associated with training participants and creating industry user guides.

AEMO can implement capacity trading on the exchange platform as a partially anonymous or fully anonymous solution. Under the partially anonymous approach, AEMO would reveal names to the counterparties after a transaction has occurred so that the counterparties could separately confirm the trade with the relevant pipeline operator. Alternatively, we could

implement a fully anonymous solution where a trade is confirmed with the relevant pipeline operator directly by AEMO and counterparty names are not revealed to each other.

As shown below, the fully anonymous solution is estimated to have a higher cost due to the requirement for a data transfer link between the exchange and pipeline operator systems.

AEMO's implementation costs for the capacity trading platform are estimated as follows:

- Fully anonymous: \$120,000 - \$140,000
- Partially anonymous: \$90,000 - \$110,000

These estimates are based on the following assumptions:

- Capacity products listed on the GSH exchange under the GSH Exchange Agreement governance framework.
- No law or rule changes required.
- Capacity products developed as part of GMRG process.
- Costs of integration with STTM and DWGM not included at this stage.
- Costs of training, guides and Exchange Agreement changes not included at this stage.
- Capacity trading platform and day-ahead auction implemented concurrently to capture system development and testing synergies.

Day-ahead Auction

AEMO could facilitate a day ahead capacity auction by leveraging existing market systems to minimise cost and implementation time. We have developed a proposal to deliver a single, centrally run auction across all pipelines covered by the auction mechanism. Further detail on our proposal is below.

Leveraging the Settlement Residue Auction system to deliver a capacity auction

Based on initial analysis of the markets we run, AEMO considers the algorithm used for Settlement Residue Auctions (SRAs) in the NEM could be re-used to facilitate a day ahead capacity auction.

Inter-regional settlement residues accrue on interconnectors when power is transferred from a lower priced region to a higher priced region. AEMO does not retain these residues and they are allocated to participants in the form of units through SRAs. Units are auctioned in each direction for the interconnector and reflect the capacity of the interconnector¹. These units entitle the holder to a share of the inter-regional settlement residue that accrues on the interconnector. Participants provide bids in price bands for a quantity of units. The SRA algorithm uses these bids to determine a clearing price and allocate the units to participants, consistent with the fundamental objective of maximising revenue.

Conceptually, the mechanisms that make-up the SRA are similar to those that would be required to deliver a pipeline capacity auction. The interconnectors in the SRA, which 'transport' electricity between regions, are analogous to pipelines, which transport gas

¹ Note that where there is a pair of interconnectors between regions for the purpose of SRA these are grouped together. This functionality would not be required for a pipeline capacity auction.

between 'zones', and the SRA units are equivalent to the transportation capacity of those pipelines. In the pipeline capacity auction the SRA algorithm would determine a clearing price for each transportation direction on each pipeline that is included in the process and allocate the transportation capacity to the successful bidders.

SRAs also allow participants to make 'linked bids'. Linked bids allow a participant to bid for units across multiple interconnectors. The SRA algorithm will clear the auction in a way that ensures that these linked bids are either allocated their full quantity or that the ratio between the linked bid quantities remains fixed. For a pipeline capacity auction, this mechanism would enable contingent bidding (also known as combinatorial bidding) – allowing participants to bid for capacity across multiple pipeline legs without the risk of only acquiring one pipeline leg and having stranded capacity. The linked bid functionality is optional but is likely to be of increased value to participants in an auction for a physical service like capacity.

Assumptions and Cost

We have estimated that the costs of cloning the SRA system to deliver a capacity auction would be approximately \$350,000 - \$450,000. This estimate is contingent on the following assumptions:

- Single day-ahead auction between key points or zones on the east coast.
- The auction is delivered utilising the existing SRA solver without substantial modification (this in turn will be contingent on the auction product and auction design).
- Backhaul is not incorporated in the auction algorithm.
- Bid and offer interface is adapted from SRA solution.
- The auction utilises the existing GSH settlement, invoicing, prudential and registration framework.
- Integration of auction results with pipeline nominations not included.
- Costs of integration with STTM and DWGM not included at this stage.
- Development of auction rules and costs of training and guides not included at this stage.
- Capacity trading platform and day-ahead auction implemented concurrently to capture system development and testing synergies.

If you have any questions regarding this submission please contact Daniel Hamel or Nicholas Pope on (03) 9609 8000.

Yours sincerely



Peter Geers
Executive General Manager, Markets