Significant Price Variations in the STTM

Reporting Trigger Issues Paper

November 2012

AUSTRALIAN ENERGY REGULATOR

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Background

Under Rule 498(1)(b) of the National Gas Rules (**Gas Rules**), the AER is required to identify and report on any significant price variations in the Short Term Trading Market (**STTM**).

The AER is required to develop and publish guidelines as to what constitutes a significant price variation for reporting (**reporting triggers**). The AER is releasing this issues paper for consultation on what should constitute a significant price variation for reporting.

In deciding which prices and payments to apply triggers to, the AER considers that particular regard should be given to triggers which reflect market events where there is a significant financial impact on market participants and triggers which assist the AER to analyse participants' compliance with the Gas Rules.[1]

Interested parties are invited to make written submissions to the AER by the close of business **30 November 2012**.

Submissions can be sent electronically to: Jeremy.Llewellyn@aer.gov.au.

Structure of this paper

Section 1 provides background information on the STTM, highlighting key prices and payments. Section 2 discusses the nature of reporting triggers under rule 498. Section 3 analyses significant variations in prices and significant payments since 1 September 2010.[2] Section 4 presents trigger options and invites discussion.

[1] Rule 498(1)(a) of the Gas Rules requires the AER to monitor that trading activity, which includes offers, bids and nominations of gas, complies with Part 20 of the Gas Rules.

[2] The Sydney and Adelaide STTM hubs commenced operation on 1 September 2010 and the Brisbane STTM hub commenced operation on 1 December 2011.

1 STTM prices and payments

The STTM is the primary market used for the daily trade of natural gas at defined STTM hubs in Sydney, Adelaide and Brisbane. At each hub, volumes of natural gas are bought and sold daily based on Trading Participants' offers and bids.

There is also a 'secondary' balancing market used to ensure the physical demand and pressure on STTM pipelines and in the STTM distribution systems is met. This is better known as Market Operator Service (**MOS**) and is settled daily with MOS service payments made to Trading Participants who provide the balancing service.

Under certain market conditions other market payments are made as noted below.

1.1 Primary market prices

The settlement of gas in the STTM is largely based on two prices; ex ante and ex post. The ex ante/ex post price for each gas day is forecast through provisional schedules. A table of various prices and volumes for the 22 June 2012 in the Sydney hub is shown below. This date was chosen as an example of a gas day which might be of interest for reporting as the ex ante price was substantially greater than the D-2 (two day ahead) and D-3 (three day ahead) prices, and the ex post price was greater than the ex ante price.

Figure 1.1 Provisional, ex ante and ex post prices and quantities for 22 June 2012

	D-3	D-2	Ex ante	Ex post
Price ($/GJ)	5.00	7.10	13.98	18.30
Quantity (TJ)	305	321	308	+1.7 (short) *Imbalance quantity*

Provisional prices

AEMO publishes a D-3 and D-2 schedule which forecasts gas prices and quantities based on the most current offers and bids from Trading Participants. These schedules do not form part of the calculation of payments or charges for the gas day.

Ex ante prices

The ex ante schedule is used for settlement purposes. Participants' final offers (to supply) and bids (to withdraw) are scheduled in price merit order. The ex ante price and quantity may vary from the D-3 and D-2 provisional schedules. The ex ante price was higher than provisional prices for the gas day in figure 1. Following reoffering and rebidding, gas was sold and bought before the gas day at $13.98/GJ, a price almost $7/GJ higher than the forecast price which was only $7.10/GJ (D-2).

Ex post prices

After the gas day, an ex post price is calculated. The price reflects the net impact of network or hub deviations on the gas day on the overall supply and demand. This is done by adding an imbalance quantity to the ex ante schedule. In the example above, hub demand was higher than forecast and there was a 1.7 TJ 'short' imbalance. In other words, 1.7 TJ more gas supply than nominated to the

hub had to be delivered to meet actual demand. When the imbalance quantity was added to the ex ante schedule this resulted in an ex post price of $18.30/GJ, over $4/GJ higher than the ex ante price.

Ex post prices are relevant to deviation payments and charges which are used to offset (in part) the cost of MOS gas used to physically balance the hub (MOS is discussed below). To incentivise accurate demand forecasts, deviation payments and charges will always be less attractive than if they were settled at the ex ante schedule. In the example above, under-users of gas in the hub would be paid for their deviation at the lower ex ante price. Over-users of gas in the hub would have to pay for their deviation at the higher ex post price. The extra payments from parties who deviated and over-used gas in the hub, fund the MOS services.[3]

Offer and bids and provisional/Ex ante/ Ex post prices

Part 20 of the Gas Rules requires Trading Participants' bids and offers to be made in good faith and to represent Trading Participants' best estimates at the time they were made. This requirement is aimed at ensuring efficient dispatch. Actions to deliberately over-forecast demand or to always change offers from provisional schedules are examples of conduct that may not be in good faith.

1.2 Market Operator Service (MOS) payments

MOS is the mechanism in the STTM for balancing actual supply and demand at each hub on a daily basis. Any shippers that have the capability to increase or decrease the gas flow on a gas day are able to offer MOS to the market. On 22 June, as the market was short by 1.7 TJ, this gas was supplied to the market through MOS services to increase the supply of gas beyond what was nominated on pipelines. The participant(s) who provided this service was paid MOS payments.

Part 20 of the Gas Rules prohibits nominations or actions being taken which are designed to cause or increase MOS requirements. This may include, for example, deliberately under-forecasting demand or deliberately shipping more gas to the hub than required.

1.3 Other market payments

Capacity payments

Capacity payments may be made when a pipeline has its capacity constrained in the STTM. Shippers with non-firm trading rights on a pipeline may be required to pay shippers with firm trading rights. Only one capacity payment has been made in the STTM to date. This was for $5373 and occurred at the Sydney hub on 4 November 2011.

Contingency gas payments

Under Part 20 of the Gas Rules, a contingency gas event may be invoked if there is a forecast gas supply issue in an STTM hub, in accordance with contingency gas event definitions (for example, if there is a forecast gas shortage). In these circumstances AEMO will call for confirmation of contingency gas offers and bids as applicable to the event—for example bids to reduce gas usage.

[3] There is a daily settlement surplus/shortfall because in part deviation payments are often insufficient to pay for MOS services.

2 The nature of reporting triggers

2.1 Changes to reporting triggers over time

The AER notes that should market conditions change over time, it may be necessary to refine or change the reporting triggers proposed in this document. For example, discussion on potential changes to the MOS mechanism are being considered as part of AEMO's 'STTM Phase 2 review - review of within-day market' consultation.[4] Should the MOS design change, this may impact on potential MOS reporting triggers explained and discussed in this paper.

2.2 General AER monitoring and reporting

The AER will monitor the STTMs on an ongoing basis and will report all market events it considers significant in its gas weekly report and other ad-hoc event reports irrespective of the significant price variation (**SPV**) triggers[5].

In particular, the AER will continue to monitor for specific forms of gaming or market manipulation in the STTM, including:

- Over bidding/bumping (**OBB**)—where firm access shippers on a pipeline may effectively 'bump' as available shippers from the market schedule (an issue discussed in some detail at STTM forums prior to STTM commencement). If there is frequent large deviations as a result of OBB this may raise question of whether the firm shipper has been bidding in good faith.[6]

- MOS and the 2 day ahead price—the STTM design is such that MOS providers are paid for their MOS commodity based on the gas price two days after which MOS gas was allocated. The disconnect between the day at which MOS is provided and the price at which the MOS is paid may incentivise behaviour that would influence D+2 prices.

- Over-forecasting of demand—there may also be incentivises at times to systemically over or under forecast demand. In particular, over-forecasting of demand may be a strategy employed because there is a higher financial risk associated with under-forecasting (i.e. paying a deviation charge of up to the market cap of $400/GJ) compared to over-forecasting (i.e. being paid the market floor of $0/GJ).

[4] http://www.aemo.com.au/en/Gas/Gas-Consultations/STTM-Phase-2-review_Review-of-within_day-market

[5] Examples of AER event report include the AER June 2012 Gas Market Report and the AER July 2012 Gas Market Event Report.

[6] The OBB strategy is conceptualised in a report commissioned by AEMO prior to the market available at http://www.ret.gov.au/Documents/mce/_documents/2010%20bulletins/No.%20177_Final%20STTM%20Study%20Report%2025%20March%202010.doc.pdf.

3 Historical variances between prices and payments

This section analyses price, payments and market outcomes to date for the purpose of selecting reporting triggers.

3.1 Primary market prices and payments

Variations between D-2 provisional price, ex ante price and ex post price

For each gas day, AEMO publishes four prices for each hub: two provisional prices (D-2 and D-3 prices), the ex ante price and the ex post price. A comparison of changes between these prices can reveal specific demand forecasting and rebidding patterns which influence the price level. Analysis of changes may also reveal the influence that specific Trading Participants (i.e. those that are a large player in an STTM hub) can have on price.

Figure 2 summarises variations between the ex ante price and the D-2 price. It shows the number of times for each calendar year that the ex ante price differed by certain amounts from the D-2 price. The STTM started on 1 September 2010 with only the Sydney and the Adelaide hubs. The Brisbane hub joined the market on 1 December 2011.

Figure 2: Number of daily variations between D-2 and ex ante price by price threshold

	2010*		2011			2012***		
	Syd	Adl	Syd	Adl	Bri**	Syd	Adl	Bri
between $0/GJ and $0.50/GJ	80	94	238	332	13	139	198	156
between $0.50/GJ - $1/GJ	11	18	73	31	13	53	33	41
between $1/GJ - $5/GJ	29	10	54	2	5	48	12	46
between $5/GJ - $10 /GJ	0	0	0	0	0	3	1	1
>$7/GJ	2	0	0	0	0	1	0	1
>$10/GJ	2	0	0	0	0	1	0	0
more than 50% above or below D-2 price	42	11	19	1	3	13	2	11
more than 75% above or below D-2 price	28	5	14	0	0	8	1	3
more than twice the D-2 price	15	2	4	0	0	0	0	0
more than three times the D-2 price	12	1	1	0	0	0	0	0

* commenced 1 September 2010

** commenced 1 December 2011

*** Period 1 Jan 2012 – 31 Aug 2012

Note: STTM commenced 1 September 2010 with Sydney and Adelaide hubs. Brisbane hub joined 1 December 2011.

Figure 3 summarises variations between the ex ante price and the ex post price. It shows the number of times for each calendar year that the ex ante price differed by certain amounts from the ex post price.

Figure 3: Count of daily variations between ex ante and ex post price by price threshold

	2010*		2011			2012***		
	Syd	**Adl**	**Syd**	**Adl**	**Bri****	**Syd**	**Adl**	**Bri**
between $0/GJ -$0.50/GJ	80	77	231	322	17	138	227	154
between $0.50/GJ - $1/GJ	15	36	77	38	9	45	13	46
between $1/GJ - $5/GJ	24	9	57	5	5	55	4	44
between $5/GJ - $10/GJ	1	0	0	0	0	6	0	0
>$7/GJ	3	0	0	0	0	4	0	0
>$10/GJ	2	0	0	0	0	0	0	0
more than 50% above or below ex ante price	47	11	13	0	3	16	1	7
more than 75% above or below ex ante price	32	4	7	0	3	5	0	3
more than twice the ex ante price	18	0	3	0	0	0	0	0
more than three times the ex ante price	12	0	1	0	0	0	0	0

* commenced 1 September 2010

** commenced 1 December 2011

*** Period 1 Jan 2012 – 31 Aug 2012

Note: STTM commenced 1 September 2010 with Sydney and Adelaide hubs. Brisbane hub joined 1 December 2011.

Significant ex ante and ex post prices

AEMO publishes ex ante and ex post prices for each gas day (as explained earlier). Figure 4 shows the number of times for each calendar year that the ex ante and ex post price on a gas day exceeded certain price levels.

Figure 4: Significant ex ante and ex post prices

		2010*		2011			2012***		
		SYD	**ADL**	**SYD**	**ADL**	**BRI****	**SYD**	**ADL**	**BRI**
Ex ante	Count if >$5/GJ	2	0	0	0	0	84	80	39
Ex ante	Count if >$10/GJ	1	0	0	0	0	3	2	0
Ex ante	Count if >$15/GJ	1	0	0	0	0	1	0	0
Ex ante	Count if >$20/GJ	1	0	0	0	0	0	0	0
Ex ante	Count if >$100/GJ	1	0	0	0	0	0	0	0
Ex post	Count if >$5/GJ	9	0	0	1	0	80	82	26
Ex post	Count if >$10/GJ	2	0	0	0	0	9	2	0

Ex post	Count if >$15/GJ	2	0	0	0	0	3	1	0
Ex post	Count if >$20/GJ	2	0	0	0	0	0	0	0
Ex post	Count if >$100/GJ	2	0	0	0	0	0	0	0

* commenced 1 September 2010

** commenced 1 December 2011

*** Period 1 Jan 2012 – 31 Aug 2012

Note: STTM commenced 1 September 2010 with Sydney and Adelaide hubs. Brisbane hub joined 1 December 2011.

3.2 Secondary market payments

MOS

AEMO publishes MOS payments for each gas day. Figure 5 shows the number of occurrences of MOS payments over certain thresholds.

Figure 5: Significant MOS payments

	2010*		2011			2012***		
Thresholds	**Syd**	**Adl**	**Syd**	**Adl**	**Bri****	**Syd**	**Adl**	**Bri**
>$100 000	2	3	30	10	0	11	0	0
>$250 000	0	0	4	1	0	1	0	0
>$500 000	0	0	1	0	0	1	0	0
>$1 Million	0	0	1	0	0	0	0	0

* commenced 1 September 2010

** commenced 1 December 2011

*** Period 1 Jan 2012 – 31 Aug 2012

Note: STTM commenced 1 September 2010 with Sydney and Adelaide hubs. Brisbane hub joined 1 December 2011

3.3 Other market payments

As noted in Section 1 there have been no contingency gas events to date in any STTM hub. There has been one capacity payment of $5373 made since the market started, for the Sydney STTM hub on 4 November 2011.

4 Options for Price Triggers

4.1 General considerations

In deciding which prices and payments to apply triggers to, the AER considers that particular regard should be had to those prices and payments which are influenced by:

- Trading Participants' compliance with part 20 of the Gas Rules—including whether offers and bids were good faith, best estimates; and whether any actions taken were for the prohibited purpose of creating MOS
- market concentration issues and
- physical system issues.

Other factors relevant to determining the level at which the SPV trigger should be set include:

- the benefits from increased transparency of gas day outcomes
- greater weight should be given to events where there are significant financial impacts on market participants and end users, which effect their ability to manage financial risks
- addressing areas of key market behaviour concerns
- the costs to the AER of reporting on events;[7] and
- SPV guideline reporting is only one means by which the AER will analyse market behaviour and test rule compliance.

Consultation topic #1

The AER seeks comments on the factors the AER should have regard to in setting the triggers. In particular, the AER is interested in understanding which price variations have the greatest impact on Trading Participants' ability to manage financial risks (i.e. MOS variations vs. variations in the primary market).

4.2 Trigger options—primary market

Variations between the D-2 price, ex ante price and ex post price

Clause 410(1) of the Gas Rules requires Trading Participants to ensure that ex ante offers, ex ante bids and price taker bids (demand forecasts) are made in good faith and are best estimates. Rule 413 deems those offers and bids to be in good faith where there is a genuine intention to honour those bids and offers if there are no changes to material conditions and circumstances on which those bids and offers are based.

[7] The AER may choose to report on multiple gas days in one report

The ex post price will vary from the ex ante price when actual gas usage in the distribution system at the hub varies from Trading Participants' demand forecasts. The ex ante price may vary from the D-2 price when there is a revision to ex ante offers, ex ante bids or price taker bids (demand forecasts).

The AER considers that significant variations in either the ex ante price against the ex post price or the ex ante price against the D-2 price are both appropriate triggers for reporting.

With reference to figures 2 and 3, the AER considers that the ex ante price varying by more than $7/GJ from the D-2 price **or** the ex post price varying by more than $7/GJ from the ex ante price. This would have equated to a total of 5 reports in 2010, 0 reports in 2011 and 6 reports for 2012 (for the period of 1 January – 31 August 2012). Triggers below this level significantly increase the number of reports.

Consultation topic #2

The AER seeks comment on what constitutes a significant variation between D-2, ex ante and ex post prices, and whether the selected price triggers would be an appropriate threshold for reporting.

Variations in gas day prices

Currently in the Victorian Gas Market, the AER reports on events when the price exceeds three times the average price for the previous 30 days and the price is equal to or greater than $15/GJ. The AER is considering only using the latter price threshold (i.e the price is greater than $15/GJ or $20/GJ for the STTM) as a trigger for reporting. The AER considers this to be a simple and transparent measure.

According the 2012 Queensland Gas Market Review[8], the ex-field domestic gas prices are forecast to range from $8-$12/GJ (2012$) by 2020. The AER considers that a price exceeding $20/GJ (see figure 4) is a reasonable threshold (a price around two times the projected long term average gas price for 2020). This would have resulted in 3 reports in 2010, 0 in 2011 and 0 reports in 2012[9] (for the period 1 January – 31 August 2012).

Consultation topic #3

The AER seeks comment on whether a trigger for ex ante, ex post based price reporting should be based on:

- a daily price;
- a price compared to a rolling average reference price; or
- a combination of both.

The AER also seeks comment on appropriateness of the $20/GJ trigger threshold.

[8] Department of Energy and Water Supply, *2012 Queensland Gas Market Review,* 2012

[9] On some of these days both the ex ante and ex post price exceeded $15/GJ. This is counted as one report.

4.3 Trigger options—secondary market (MOS service payments)

Variance between MOS service payments

The AER considers a trigger based on MOS payments will assist in identifying events where pipeline nominations have differed from scheduled gas. This would not have been captured by the above triggers as pipeline nominations do not affect ex ante and ex post prices.

The AER considers that a threshold of MOS payments (figure 5) greater than $250 000 is an appropriate threshold for reporting, triggering a reasonable number of events historically (6 counts over the three years). A lower threshold of greater than $100 000 would have triggered 56 events over three years.

Consultation topic #4

The AER seeks comment on an appropriate level of the threshold for reporting on MOS service payments.

4.4 Trigger options—other market events

AEMO is required to report on a contingency gas trigger event as a reviewable event under rule 497 of the National Gas Rules. It is to report on the operation of the STTM and how contingency gas provisions worked amongst other things.

As noted previously a capacity payment of $5373 for the Sydney hub is the only occurrence of a capacity payment in any hub to date and there have been no contingency gas events.

The AER is of the preliminary view that the occurrence of a contingency gas trigger event or a capacity payment should not be made a significant price variation reporting trigger. The AER considers mandatory reporting of high price days or high MOS service payment days would be more conducive to indentifying any Trading Participant behavioural issues and market power issues which should be the AER's focus.

Consultation topic #5

The AER seeks comment on whether any other triggers should be adopted.

November 2012