

# Review of the Gas Market Parameters for the DWGM and STTM

Draft Determination

**Published: 1 December 2022**

[aemo.com.au](https://aemo.com.au)

New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia

Australian Energy Market Operator Ltd ABN 94 072 010 327

## Explanatory statement and consultation notice

This consultation paper commences the second stage of the consultation conducted by AEMO to review the STTM market parameters as required by National Gas Rules (NGR) 492, in accordance with the standard consultative procedure requirements detailed in Rule 8 of the NGR.

AEMO is required to complete this review, as required by NGR 492(1)(g), by no later than 6 months after the completion of the Reliability Standard and Settings Review under clause 3.9.3A of the National Electricity Rules (NER). The AEMC's *2022 Review of the Reliability Standard and Settings*<sup>1</sup> was published on 1 September 2022, triggering AEMO's review which must be completed by 1 March 2023.

AEMO split this review into parameters modelled by Market Reform (where the parameter could be more effective, or could be subject to changes in cost structure) and parameters that were reviewed by AEMO (where the parameter is unlikely to become more effective, or are not subject to significant changes in cost structure).

### AEMO draft determination on Market Parameters

AEMO has accepted Market Reforms recommendation that the existing modelled parameters remain appropriate, noting:

- Existing market parameters are appropriate as they are protecting market participants profitability while also allowing for an investment incentive.
- Market Reform has assumed an average price of approximately \$10/GJ in its analysis of the market parameters.<sup>2</sup> These prices, as per Market Reform's report, represent the average market price prior to covid and the gas price used in AEMO's 2022 Gas Statement of Opportunities (GSOO). This report enables the analysis of the impacts of changing the market parameters on participants profitability. Market Reform has outlined the expected impact of:<sup>3</sup>
  - Existing annual average prices of approximately \$20/GJ continuing during the period might require the DWGM and STTM to have a higher CPT setting.
  - Existing annual average price being only temporary before gas prices revert to the levels predicted in the 2022 GSOO, would more likely result in participant face additional days of lost profit meaning they will have less tolerance for CPT events under the existing market parameters.
  - AEMO notes Lewis Grey Advisory Gas Price forecasts are expected to be published in December 2022 for AEMO's 2023 Gas Statement of Opportunities.
- The market price risk to Participants from annual average market prices can be managed through the Cumulative Price mechanism which enables the capping of wholesale gas price risk for:
  - High annual average prices that have been experienced in 2022.
  - Short term price shocks that may result in price spikes up to the market price cap in the STTM and DWGM.

---

<sup>1</sup> AEMC. 2022 Reliability Standard and Settings Review, September 2022. At <https://www.aemc.gov.au/market-reviews-advice/2022-reliability-standard-and-settings-review>. Viewed 28 November 2022.

<sup>2</sup> Market Reform, Gas Market Parameters Review 2022: Draft Recommendations Report, 1 December 2022, pg. 54

<sup>3</sup> Market Reform, Gas Market Parameters Review 2022: Draft Recommendations Report, 1 December 2022, pg. 76

AEMO has also assessed the STTM Minimum Market Price and DWGM Minimum Bid Price along with the STTM Cumulative Price Threshold Horizon and DWGM Cumulative Price Period, and considers these reviewed parameters remain appropriate.

Market Parameters	STTM	Regulatory Reference	DWGM	Regulatory Reference	Assessment Methodology
Market Price Cap (STTM) / Value of Lost Load (DWGM)	\$400/GJ	NGR 364 – See MPC definition	\$800/GJ	NGR 200 – see VoLL definition	Modelled Parameter
Minimum Market Price (STTM) / Minimum Bid Price (DWGM)	\$0/GJ	NGR 364 – See MMP definition	\$0/GJ	NGR209(5)(a) – see minimum bid price of \$0/GJ.	Reviewed Parameter
Administered Price Cap (APC)	\$40/GJ	NGR 364 – see APC definition	\$40/GJ	Administered Pricing Procedures	Modelled Parameter
Cumulative Price Threshold (CPT)	\$440/GJ	NGR 364 – see CPT definition	\$1400/GJ	Administered Pricing Procedures	Modelled Parameter
CPT Horizon (STTM) / Cumulative price period (DWGM)	7 days	NGR 364 – see CPT Horizon definition	35 consecutive scheduling intervals (7 Days)	Administered Pricing Procedures	Reviewed Parameter

### Consultation notice

AEMO is now consulting on this proposal and invites written submissions from interested persons on the recommendations in this paper to [GWCF\\_Correspondence@aemo.com.au](mailto:GWCF_Correspondence@aemo.com.au) by 5:00pm AEST on 19 January 2023.

Please note the following important information about submissions:

- All submissions will be published on AEMO's website, other than confidential content.
- Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so. Material identified as confidential may be given less weight in the decision-making process than material that is published.
- Submissions received after the closing date and time will not be valid, and AEMO is not obliged to consider them. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

Interested persons can request a meeting with AEMO to discuss any particularly complex, sensitive or confidential matters relating to the proposal. Meeting requests must be received by the end of the submission period and include reasons for the request. We will try to accommodate reasonable meeting requests but, where appropriate, we may hold joint meetings with other stakeholders or convene a meeting with a broader industry group. Subject to confidentiality restrictions, AEMO will publish a summary of matters discussed at stakeholder meetings.

## Contents

<b>Explanatory statement and consultation notice</b>	<b>2</b>
<b>1. Stakeholder Consultation Process</b>	<b>5</b>
1.1. Scope of the market parameter review	5
1.2. NGR requirements	5
1.3. Meeting the National Gas Objective	6
1.4. Matter under Consultation	6
1.5. Standard Consultation Approach	6
1.6. Invitation to make submissions	7
1.7. Review Timetable	7
1.8. Process following the review	7
<b>2. Background</b>	<b>8</b>
2.1. AEMO's Facilitated Wholesale Gas Markets	8
2.2. Previous Gas Market Parameter Reviews	9
<b>3. Assessment of market parameters</b>	<b>12</b>
3.1. AEMO Reviewed Parameters	12
3.2. Modelled Parameters	14
<b>4. Overview of the Consultation to Date</b>	<b>16</b>
4.1. Stage 1 of Consultation – Determination of market parameter review methodology	16
4.2. Stage 2 of Consultation – Determination of Market Parameters	16
<b>5. Issues Raised in Submission</b>	<b>17</b>
5.1. Single Parameter Review process for NEM, STTM and DWGM parameters	17
5.2. Future Consultations on the Gas Market Parameters	17
5.3. Alignment of parameters across the STTM and DWGM	18
<b>6. Next Steps</b>	<b>20</b>
6.1. Submission in response to Draft Report	20
6.2. AEMO to prepare a Final Report	20
6.3. Regulatory changes to implement recommendations	20
<b>Appendix A. Market Reform – Draft Modelling Results</b>	<b>21</b>
<b>Appendix B. Submission Summary – Response to Question raised in Methodology paper</b>	<b>22</b>
<b>Appendix C. Submission Summary – General Comments</b>	<b>39</b>

# 1. Stakeholder Consultation Process

The Gas Market Parameter Review provides a review of the market parameters used in the operation of the Victorian Declared Wholesale Gas Market (DWGM) and the Short Term Trading Market (STTM) operating in the Sydney, Adelaide and Brisbane demand hubs.

## 1.1. Scope of the market parameter review

The outcome of this process is to provide a recommendation on the value of the DWGM and STTM market parameters. The following table provides information on the current DWGM and STTM market parameters:

Market Parameters	STTM	Regulatory Reference	DWGM	Regulatory Reference	Assessment Methodology
Market Price Cap (STTM) / Value of Lost Load (DWGM)	\$400/GJ	NGR 364 – See MPC definition	\$800/GJ	NGR 200 – see VoLL definition	Modelled Parameter
Minimum Market Price (STTM) / Minimum Bid Price (DWGM)	\$0/GJ	NGR 364 – See MMP definition	\$0/GJ	NGR209(5)(a) – see minimum bid price of \$0/GJ.	Reviewed Parameter
Administered Price Cap (APC)	\$40/GJ	NGR 364 – see APC definition	\$40/GJ	Administered Pricing Procedures	Modelled Parameter
Cumulative Price Threshold (CPT)	\$440/GJ	NGR 364 – see CPT definition	\$1400/GJ	Administered Pricing Procedures	Modelled Parameter
CPT Horizon (STTM) / Cumulative price period (DWGM)	7 days	NGR 364 – see CPT Horizon definition	35 consecutive scheduling intervals (7 Days)	Administered Pricing Procedures	Reviewed Parameter

There are two other parameters that currently operate in the STTM:

- Market operator service (MOS) cost cap—currently set at \$50/GJ, the MOS cost cap is the maximum price for MOS increase and decrease offers covering the MOS service component of market settlements. The MOS cost cap must be sufficient to cover the cost of holding capacity, while limiting MOS costs on the market.
- Settlement surplus cap—currently set at \$0.14/GJ, the settlement surplus cap is the maximum settlement surplus payment rate to be allocated based on deviations.

Neither the MOS cost cap nor the settlement surplus cap are required to be reviewed.

## 1.2. NGR requirements

AEMO is required to undertake a review of the STTM market parameters under NGR492(1)(g) no later than 6 months after the completion of the AEMC’s reliability standard and settings review under clause 3.9.3A of the NER which was completed on 1 September 2022. Therefore this review must be completed by 1 March 2023.

There is no rule requirement for the review of the DWGM market parameters, however, AEMO has undertaken a review of the DWGM market parameters in conjunction with the STTM market parameters.

### 1.3. Meeting the National Gas Objective

Within the specific requirements of the NGR applicable to this proposal, AEMO will seek to make a determination that is consistent with the *National Gas Objective* (NGO) and, where considering options, to select the one best aligned with the NGO.

The NGO is expressed in section 23 of the *National Gas Law* (NGL) as:

*The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.*

AEMO considers that the NGO is best met by the efficient operation of the STTM and DWGM. AEMO has assessed the STTM and DWGM gas market parameters via a modelling approach using relevant scenarios that can be expected to occur in the next 5 years.

### 1.4. Matter under Consultation

The matters for this consultation are:

- The market parameters to be reviewed without modelling by AEMO, which include:  
Minimum Market Price (STTM) / Minimum Bid Price (DWGM);  
CPT Horizon (STTM) / Cumulative price period (DWGM)
- The market parameters to be reviewed using the modelling methodology proposed by Market Reform in the Gas Market Parameter Review initial consultation which include:  
Market Price Cap (STTM) / VoLL (DWGM)  
Administered Price Cap (APC) (STTM / DWGM)  
Cumulative Price Threshold Horizon (STTM) / Cumulative Price Period (DWGM)

AEMO provided an overview of the modelling methodology to the Gas Wholesale Consultative Forum on 5 September 2022.

### 1.5. Standard Consultation Approach

The Consultation is being undertaken, as required by NGR 8, using the standard consultative procedure process, requiring AEMO to:

Consultation Stage	Date
Gas Market Parameter Workshop – Draft Methodology	5 September 2022
Publish Notice of Consultation	15 September 2022
Submissions on Consultation Notice due**	10 October 2022
Draft Decision on GMPR Recommendations	1 December 2022
Gas Market Parameter Workshop – Draft Recommendations	6 December 2022
Submissions on Draft Decision due	19 January 2023
Final Decision on GMPR Recommendations	16 February 2023

\* The workshops are not required by the Rules but are hosted by AEMO using the Gas Wholesale Consultative Forum contact list. Additional attendees may request to be involved a process

\*\* Adjusted from 7 October to 10 October to account for the additional public holiday for National Day of Mourning for Her Majesty the Queen on 22 September 2022.

## 1.6. Invitation to make submissions

AEMO invites written submissions on the matter under consultation, including any alternative or additional proposals you consider may better meet the objectives of this consultation and the national gas objective in section 23 of the National Gas Law in accordance with the timetable below.

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so.

AEMO will publish any submissions that are not identified as confidential when submitted.

## 1.7. Review Timetable

Stage	Date
Gas Market Parameter Workshop – Draft Methodology	8 September 2022
Initiation of Consultation	15 September 2022
First round of feedback due	7 October 2022
Final Methodology published	2 November 2022
Draft Decision on GMPR Recommendations	1 December 2022
Gas Market Parameter Workshop – Draft Recommendation	8 December 2022
Feedback on Draft Decision due	19 January 2023
Final Decision on GMPR Recommendations	16 February 2023

## 1.8. Process following the review

Following the Gas Market Parameter Review, AEMO will provide the recommendations, if any, in the Final Decision to:

- AEMC to implement a consultation to change the market parameters listed in the Rules.
- AEMO to implement a consultation to change the market parameters defined in the Wholesale Market Procedure

For the avoidance of doubt, an additional consultation is required for the AEMC to alter the Rules and for AEMO to alter the Wholesale Market Procedure to implement any amendment to the market parameters.

## 2. Background

### 2.1. AEMO's Facilitated Wholesale Gas Markets

AEMO operates the following wholesale gas markets:

- Declared Wholesale Gas Market (DWGM) in Victoria in which AEMO is both the transmission system operator and market operator.
- Short Term Trading Market (STTM) hubs at Sydney, Adelaide and Brisbane where AEMO is the market operator.
- Gas Supply Hub (GSH) at various locations where AEMO operates a gas trading exchange.
- Shippers on the contract carriage pipelines, outside of the Victorian DTS, can trade pipeline capacity using AEMO's Pipeline Capacity Trading service which Shippers to buy and sell firm pipeline capacity for a range of future gas days. Shippers can also purchase, via AEMO's Day Ahead Auction service, firm but unnominated pipeline capacity for the next gas day to transport gas.

AEMO also operates the National Gas Services Bulletin Board in which AEMO aggregates data collected from Bulletin Board reporting entities (such as gas transmission pipeline operators, gas production and storage facilities) onto a single platform to provide transparency on gas production and flows across the interconnected Eastern Australian gas transmission system.

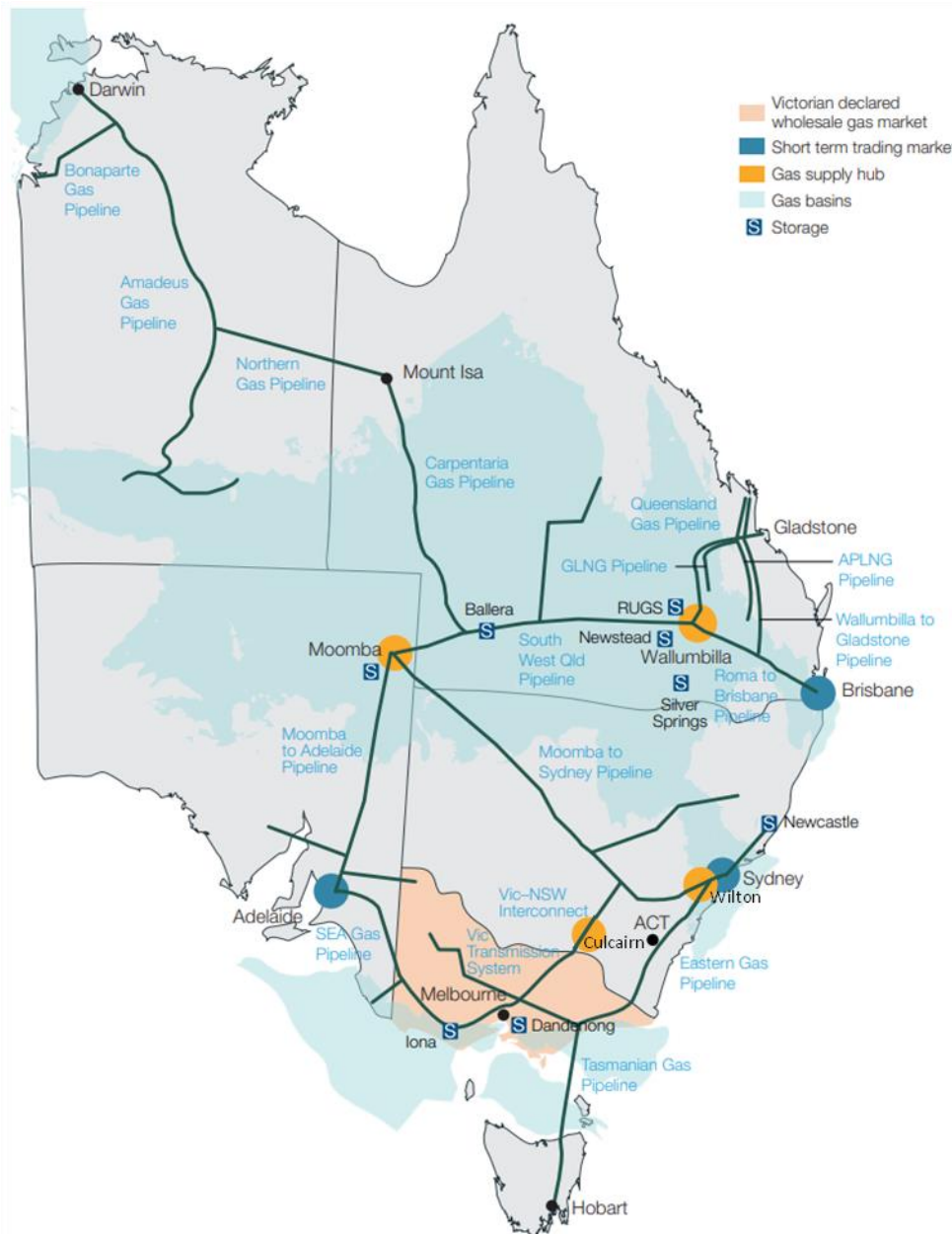
There is a gas contract market which primarily operates across Eastern Australia where Shippers purchase Gas Supply Agreements (commodity) and Gas Transportation Agreements (pipeline capacity) in order to flow gas to meet end use customers gas demand outside of AEMO's facilitated gas markets.

This review only covers a review of market parameters for the DWGM and STTM markets under Part 19 and Part 20 of the Rules.

The GSH has no equivalent to the Gas Market Parameter's administered pricing and cumulative price threshold mechanisms and is therefore out of scope of this review. Especially as the Gas Supply Hubs have no native demand and is therefore a point to trade gas domestically under a standard set of terms.

The east Australian gas transmission system and the location of these markets can be seen in the following diagram.





## 2.2. Previous Gas Market Parameter Reviews

### 2.2.1. 2018 Gas Market Parameter Review

The 2018 Gas Market Parameter Review consultation approach:

- AEMO reviewed the parameters for the:
  - STTM Cumulative Price period / DWGM Cumulative Price Threshold Horizon;
  - STTM Minimum Market Price / DWGM Minimum Bid Price.
- Market Reform was hired to assess the modelled parameter for:
  - STTM Market Price Cap (MPC) / DWGM Value of Lost Load (VoLL);
  - STTM and DWGM Administered Price Cap;

- STTM and DWGM Cumulative Price Threshold.

Market Reform's approach was to model the market's economic efficiency for a range of market parameter values across a number of scenarios. The primary difference between the 2018 Review and 2022 Review is the range of scenarios covered, as developed in consultation with participants, to meet the requirements of today's gas market.

This review recommended the DWGM cumulative price threshold be reduced from \$1800 to \$1400. The values are detailed below.

Market Parameters	STTM	Regulatory Reference	DWGM	Regulatory Reference
Market Price Cap (STTM) / Value of Lost Load (DWGM)	\$400/GJ	NGR 364 – See MPC definition	\$800/GJ	NGR 200 – see VoLL definition
Minimum Market Price (STTM) / Minimum Bid Price (DWGM)	\$0/GJ	NGR 364 – See MMP definition	\$0/GJ	NGR209(5)(a) – see minimum bid price of \$0/GJ.
Administered Price Cap (APC)	\$40/GJ	NGR 364 – see APC definition	\$40/GJ	Administered Pricing Procedures
Cumulative Price Threshold (CPT)	\$440	NGR 364 – see CPT definition	\$1400	Administered Pricing Procedures
CPT Horizon (STTM) / Cumulative price period (DWGM)	7 days	NGR 364 – see CPT Horizon definition	35 consecutive scheduling intervals (7 Days)	Administered Pricing Procedures

### 2.2.2. 2013 Gas Market Parameter Review

The 2013 Gas Market Parameter Review consultation<sup>4</sup> approach was focused on a review of the DWGM Cumulative Price Threshold.

In consultation with the GWCF, AEMO developed a set of principles to guide the analysis and findings of the review. AEMO also sought approval for a modelling approach, and for associated assumptions and input data to inform the analysis. AEMO developed two models for the review:

- An LNG revenue sufficiency model to determine a lower constraint value for the CPT. This sought to ensure that CPT recommendations did not deny the reasonable recovery of the fixed and variable costs of LNG capacity and use; and
- A retailer impact model to assess the effectiveness of alternative test settings for the CPT mechanism in mitigating wholesale market price risk from a range of agreed CPT Event scenarios. AEMO used this model to identify levels of residual risk that may be excessive or unmanageable, therefore guiding recommendations for the CPT and CPP.

AEMO also compared the risk-mitigation power of current settings of the CPT mechanisms in each of the DWGM, the Short Term Trading Market (STTM) and the National Electricity Market (NEM).

The 2013 review recommended the Cumulative Price Threshold be reduced from \$3700 to \$1800. The values are detailed below.

Market Parameters	STTM	Regulatory Reference	DWGM	Regulatory Reference
Market Price Cap (STTM) / Value of Lost Load (DWGM)	\$400/GJ	NGR 364 – See MPC definition	\$800/GJ	NGR 200 – see VoLL definition
Minimum Market Price (STTM) / Minimum Bid Price (DWGM)	\$0/GJ	NGR 364 – See MMP definition	\$0/GJ	NGR209(5)(a) – see minimum bid price of \$0/GJ.

<sup>4</sup> DWGM CPT REVIEW 2013 – FINAL REPORT, AEMO, 16 September 2013

Market Parameters	STTM	Regulatory Reference	DWGM	Regulatory Reference
Administered Price Cap (APC)	\$40/GJ	NGR 364 – see APC definition	\$40/GJ	Administered Pricing Procedures
Cumulative Price Threshold (CPT)	\$440/GJ	NGR 364 – see CPT definition	\$1800/GJ	Administered Pricing Procedures
CPT Horizon (STTM) / Cumulative price period (DWGM)	7 days	NGR 364 – see CPT Horizon definition	35 consecutive scheduling intervals (7 Days)	Administered Pricing Procedures

### 3. Assessment of market parameters

The following section discusses:

- The market parameters to be reviewed without modelling by AEMO (the AEMO Reviewed Parameters), which include:
  - Minimum Market Price (STTM) / Minimum Bid Price (DWGM);
  - CPT Horizon (STTM) / Cumulative price period (DWGM)
- The market parameters to be reviewed using the modelling methodology undertaken by Market Reform (the Modelled Parameters) in the Gas Market Parameter Review initial consultation which includes:
  - Market Price Cap (STTM) / Value of Lost Load (VoLL) (DWGM)
  - Administered Price Cap (APC) (STTM / DWGM)
  - Cumulative Price Thresholds (STTM) / Cumulative Price Period (DWGM)

#### 3.1. AEMO Reviewed Parameters

As discussed in the Gas Market Parameter Review Workshop, AEMO has undertaken the assessment of the reviewed parameters using the same methodology as applied in 2018 Review.

##### 3.1.1. Minimum Market Price (STTM) / Minimum Bid Price (DWGM)

###### Purpose of Minimum market price

Key principles in setting the minimum market price are:

- no shipper should want to supply the spot market at a price less than MMP;
- the MMP should be set sufficiently low as to not constrain a schedule.

###### Previous reviews

The initial review of the STTM market parameters during the STTM Establishment Project concluded that:

*“...a commercial or operational requirement for a negative minimum market price may not exist. Without a demonstrated need to bid below \$0/GJ there appears little justification for setting a minimum market price below this level.”<sup>5</sup>*

Although not specifically modelled in previous reviews of the DWGM, the circumstances applying to the STTM are directly applicable to the DWGM.

###### Treatment of minimum market price in the NEM

The National Electricity Market (NEM) includes a negative minimum market price to allow negatively priced offers to give greater certainty of dispatch, thus avoiding stopping and starting generators for short periods. Gas injections are treated as being uniform for:

- the balance of the gas day in the DWGM, and

---

<sup>5</sup> STTM Market Settings Analysis, June 2009, Report to VENCORP by McLennan Magasanik Associates

- for a full gas day in the STTM,

Therefore scheduling periods in gas are significantly longer than the five minute NEM dispatch interval. It is therefore unlikely that the NEM's incentive for generators to offer short periods at negative prices in the NEM will be replicated in gas markets.

### Are current minimum market prices effective?

From 1 January 2017 until 27 November 2022, there have only been 7 instances (representing 0.06% of current days schedule run during this period) where a DWGM market price has cleared at \$0/GJ. There were no \$0/GJ ex ante and ex post prices in the STTM during the period.

**Table 1 – Number of zero dollar per GJ price events**

Year	DWGM 6:00AM	DWGM 10:00AM	DWGM 2:00PM	DWGM 6:00PM	DWGM 10:00PM	STTM Ex Ante	STTM Ex Post
2017	0	0	0	0	1	0	0
2018	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0
2021	0	0	0	0	1	0	0
2022 (YTD)*	0	0	1	1	3	0	0
Total	0	0	1	1	5	0	0

\* These events occurred at 10:00 PM 22 September 2022, 2:00 PM 23 September 2022 and 24 September 2022 during the Queen's Memorial Day (22 September 2022) and Grand Final Day (23 September 2022) long weekend combined with gas demand being lower than forecast and Culcairn maintenance causing a constraint preventing export.

The STTM ex ante price accounts for the majority of trading in the STTM hubs. The STTM ex post price (and the deviation price) primarily serve as the price for deviations.

The DWGM 6:00 AM schedule accounts for the majority of imbalance payments for a gas day. The following intraday schedules in the DWGM can have a small quantity of gas traded but prices at these schedules are typically used for deviation pricing.

### Request for participant views on current minimum market prices

AEMO's assessment is that the setting for an MMP set at \$0/GJ is effective. Only 0.06% of DWGM schedules and no STTM schedules in the period assessed have resulted in the minimum market price occurring.

Therefore AEMO consider the STTM Minimum Market Price and DWGM Minimum Bid Price of \$0/GJ remain appropriate.

#### Draft Determination 1 – No Change to the minimum market price / minimum bid price

- the minimum market price in STTM; and
- the minimum bid price in DWGM remains at \$0/GJ.

### 3.1.2. CPT Horizon (STTM) / Cumulative price period (DWGM)

#### Purpose of the CPT horizon (CPTH) / Cumulative price period (CPP)

The primary purpose of the CPT is to cap price risks over a period of time. The CPTH / CPP sets the period of time for which prices are accumulated. It is aligned across the DWGM and STTM at seven gas

days (35 consecutive scheduling intervals), which corresponds with the seven days (2,016 trading intervals<sup>6</sup>) used in the NEM's CPT.

### Treatment of the CPT horizon in current Reliability Panel review

This was changed from 336 trading intervals to 2,016 five minute trading intervals with the introduction of five-minute settlement as noted in the NEM Reliability Panel Final Report.<sup>7</sup> There was no further consideration of the NEM CPT horizon further in the Final Report.

### Submissions on suitability of the current CPT horizon

AEMO's initial assessment is that having the settings for STTM CPT Horizon and DWGM CPP are effective at seven consecutive gas days in the STTM and 35 consecutive scheduling intervals (7 days) in the DWGM are consistent with other markets.

Therefore AEMO considers the STTM CPT Horizon and DWGM CPP remain appropriate.

#### Draft determination 2 – No change to CPT horizon / cumulative price period

- The STTM CPT Horizon should remain at 7 days.
- The DWGM Cumulative Price Period should remain at 35 scheduling intervals (7 days).

## 3.2. Modelled Parameters

### 3.2.1. Market Reform Draft Gas Market Parameter Consultation Report

Market Reform's draft gas market parameter consultation report is included in Attachment A.

### 3.2.2. AEMO's Draft Determination

AEMO has accepted Market Reforms recommendation noting the analysis suggests:

- Existing market parameters are appropriate as they are protecting market participants profitability while also allowing for an investment incentive.
- Market Reform has assumed an average price of approximately \$10/GJ in its analysis of the market parameters.<sup>8</sup> These prices, as per the Market Reform's report, represent the average market price prior to covid and the gas price used in AEMO's 2022 Gas Statement of Opportunities. Market Reform has outlined the expected impact of:<sup>9</sup>
  - Existing annual average prices of approximately \$20/GJ continuing during the period might require the DWGM and STTM to have a higher CPT setting.
  - Existing annual average price being only temporary before gas price revert to level predicted in the 2022 GSOO, would more likely result in participant face additional days of lost profit meaning they will have less tolerance for CPT events under the existing market parameters.

<sup>6</sup> This was changed from 336 30 minute trading intervals to 2,016 five minute trading intervals with the introduction of five-minute settlement on 1 October 2021. See Australian Energy Market Commission, Schedule of reliability settings, 25 February 2021 and National Electricity Amendment (Five Minute Settlement) Rule 2017 No. 15, cl 3.14.2.

<sup>7</sup> AEMC, Final Report 2022 Review of the Reliability Standard and Settings, 1 September 2022.

<sup>8</sup> Market Reform, Gas Market Parameters Review 2022: Draft Recommendations Report, 1 December 2022, pg. 54

<sup>9</sup> Market Reform, Gas Market Parameters Review 2022: Draft Recommendations Report, 1 December 2022, pg. 76

- AEMO notes Lewis Grey Advisory Gas Price forecasts are expected to be published in December 2022 for AEMO’s 2023 Gas Statement of Opportunities. This may impact the modelling outcomes and recommendations from Market Reform.
- The market price risk to participants from annual average market prices can be managed through the Cumulative Price mechanism which enables the capping of wholesale gas price risk for:
  - High annual average prices that have been experienced in 2022.
  - Short term price shocks that may result in price spikes up to the market price cap in the STTM and DWGM.

Therefore, AEMO has accepted Market Reform’s recommendations that the existing STTM and DWGM market parameters remain appropriate. AEMO has made draft determinations as follows:

**Draft Determination 3 - No change to the STTM market price cap / DWGM VoLL**

- The market price cap in the STTM \$400/GJ
- The value of VoLL in the DWGM \$800/GJ

**Draft Determination 4 - No change to the STTM and DWGM Administered Price Cap**

- The administered price cap in the STTM \$40/GJ.
- The administered price cap in the DWGM \$40/GJ.

**Draft Determination 5 - No change to the STTM and DWGM Cumulative Price Threshold**

- The cumulative price threshold in the STTM remains at \$440
- The cumulative price threshold in the DWGM Value of Lost Load (VoLL) remains at \$1,400

## 4. Overview of the Consultation to Date

An outline of the consultation has been published on AEMO's [website](#).

### 4.1. Stage 1 of Consultation – Determination of market parameter review methodology

#### 4.1.1. Gas Wholesale Consultative Forum (GWCF) Consultation

AEMO consulted the GWCF forum concerning the Gas Market Parameter Review at the March 2022 and June 2022 Gas Wholesale Consultative Forum noting the Gas Market Parameter Review had to start after the AEMC's NEM Reliability Panel review and be completed 6 months after the NEM Reliability Panel Review was completed. AEMO reports the Review will focus on price caps, cumulative price period, CPT Horizon and the minimum market price.

#### 4.1.2. Gas Market Parameter Workshop #1 – Draft Methodology

On 8 September 2022, AEMO held a workshop with the Gas Wholesale Consultative Forum about the Gas Market Parameters Review what was to be published for consultation on 14 September 2022.

At the workshop, Market Reform presented their proposed methodology for undertaking the review of the Gas Market Parameters.

#### 4.1.3. Initiation of Consultation on Assessment Methodology

On 14 September 2022, AEMO began the formal consultation on the Gas Market Parameter Review with the publication of the Market Reform Consultation Paper along with the GWCF Presentation on the Gas Market Parameter Review from 8 September 2022.

AEMO invited submissions on the proposed methodology by 10 October 2022<sup>10</sup>. AEMO published the 11 submissions received from Participants on 17 October 2022.

#### 4.1.4. Publication of Final Assessment Methodology

AEMO published an updated Market Reform Final GMPR Consultation Report v1.0 on 2 November 2022 which took onboard participant's submissions from 10 October 2022.

This methodology was used by Market Reform to perform modelling of the appropriate Gas Market Parameter recommendations.

### 4.2. Stage 2 of Consultation – Determination of Market Parameters

#### 4.2.1. Draft Determination on Gas Market Parameters

AEMO published this document detailing the draft Gas Market Parameter recommendations on 1 December 2022.

---

<sup>10</sup> The initial submission was required by 7 October 2022 but was extended due to the additional public holiday for the Queen's Memorial on 22 September 2022.



## 5. Issues Raised in Submission

In response to the draft methodology distributed to Participant at the initiation of the consultation AEMO received a number of submissions:

1. Relevant to the Gas Market Parameter Review, outlined in Appendix C, that needed to be considered by AEMO which will be discussed in this section.
2. Relevant to the draft methodology which were incorporated as per the summary of submissions provided in Appendix B.
3. That were out of scope of this review which are captured in the summary of submission in Appendix B.

### 5.1. Single Parameter Review process for NEM, STTM and DWGM parameters

Participants have raised concerns that the NEM Reliability Panel review and the DWGM and STTM Gas Market Parameter Review should be carried out by a single review panel due to the interrelated nature of these markets.

AEMO notes this is a policy issue which could be considered by the AEMC. Participants are able to raise a Rule change request with the AEMC via the AEMC's rule change process if this outcome is considered desirable.

AEMO will fulfill its functions under NGR 492 to assess the STTM market parameters and is voluntarily reviewing the DWGM market parameters.

### 5.2. Future Consultations on the Gas Market Parameters

AEMO notes Participants have raised concerns with the market parameter review consultation being undertaken by AEMO. In particular, AEMO notes concerns include:

- AEMO only consulting, via AEMO's Gas Wholesale Consultative Forum, prior to beginning the formal consultation process.
- The consultation effectively only proposed the 2018 methodology for participants consideration. AEMO notes this was due to the 2013 and 2018 Gas Market Parameter Reviews being non-controversial.

AEMO would appreciate Participant's views on future market parameter review consultation processes. In particular whether the current consultation framework is appropriate or whether a different consultation approach, such as having two distinct separate consultation stages, incorporating a review methodology development stage and a second market parameter recommendation stage.

#### Draft Determination 6 - Views on consultation process to be followed in future reviews

- AEMO requests participant views on how to optimise future market parameter consultation processes and market parameter review methodology development processes.

### 5.3. Alignment of parameters across the STTM and DWGM

AEMO notes that the National Electricity Market (NEM) is a single market that operates across Eastern Australia. However the gas markets, as per the discussion in section 2.1, are much more fragmented and diverse with different market structures and requirements for:

- The Victorian Declared Wholesale Gas Market (DWGM) covers the Declared Transmission System (DTS) using an intraday market with an imbalance mechanism.
- The Short Term Trading Market (STTM) covering the Sydney, Adelaide and Brisbane hubs operating as a day ahead imbalance market.
- The Gas Supply Hub operating at Wallumbilla, Moomba, Culcairn and Wilton for trading of gas at these locations (there being no gas demand at the trade point).
- The gas contract market which operates using Gas Supply Agreements, Gas Transportation agreements and Distribution contracts to move gas from production facilities to end users outside of the markets listed above.
- The LNG export market which is operated out of Gladstone where the LNG producers export gas via LNG tankers to the international gas market.

In this review, AEMO can only consider the operation of the DWGM and STTM market parameters in the context of the operation of these separate gas markets and their interactions with each other and the NEM.

AEMO notes that Participant submissions have raised alignment of the various Gas Market Parameters. The parameters that are noticeably different are:

- The STTM Market Price Cap of \$400/GJ and the DWGM Value of Lost Load (VoLL) of \$800/GJ.
  - AEMO notes Market Reform has considered the alignment of STTM Market Price Cap (by increasing the value) and the DWGM VoLL by decreasing the value.
- The STTM Cumulative Price Threshold of \$440 and the DWGM Cumulative Price Threshold of \$1400.
  - The primary purpose of the cumulative price threshold is to limit participants market price risk in the STTM and DWGM. The mechanism does this by accounting for marginal imbalance and deviation prices in both markets and capping them through the application of the Administered Price Cap.
  - Therefore one of the key differences is the maximum market price in the STTM and DWGM that needs to be accounted for in the calculation of CPT.
  - The difference in the calculation of Cumulative Price are generally a factor of the market design. Both calculations account and seek to cap the imbalance price and the deviation price in each market. Therefore they are broadly in alignment accounting for differences in market design.

Market Reform has considered the alignment of these parameters at some length and concluded that due to the different market designs that it may not be possible or appropriate to align STTM and DWGM gas market parameters.

This is reinforced by Market Reform's conclusion that the rate of decline in market efficiency was substantially different for the DWGM compared to the STTM, as Market Reform noted:

*In addition, the range of parameters over which the main decline in efficiency happens is greater for the DWGM than the STTM. The level of efficiency decrease, as described in*

*Section 4.2, reflects reduced volumes of price responsive demand clearing (priced at less than the price cap) as the allowed clearing price declines and price responsive supply withdraws from the market. The DWGM bid and offer curves exhibit gradual changes in price over a great quantity range than is the case in the STTM. Away from the point where the market typically clears, the demand curves in the STTM are closer to vertical than those in the DWGM, and the STTM supply curves are closer to horizontal than those in the DWGM. This means that parameters need to be more restrictive for the STTM to show significant decreases in efficiency than is the case for the DWGM.<sup>11</sup>*

Market Reform did propose that:

*There have been suggestions of aligning parameters between the DWGM and STTM. The goal of this would be to reduce the risk of one market being in an administered state earlier than another, creating distortions in flow between them. No single set of all three parameters was found that could be applied across both the DWGM and STTM. This result reflects the quite different market designs, including different frequencies and timeframes of scheduling. We instead recommend consideration of a new administered state trigger mechanism that would allow simultaneous administering or two or more markets from the DWGM and the three STTM supply and demand hubs. This should be in addition to the existing trigger mechanisms, and should be applied to mitigate detrimental impacts on inter-market gas flows when some markets are administered while others are not... The specific markets impacted would need to be determined as part of the event. The trigger would have to be a measure that reflects reduced supply to those markets where a rational response to the issue requires consistency of administered pricing between them.<sup>12</sup>*

AEMO agrees with Market Reform's view that the market design of the STTM and DWGM are fundamentally different. Therefore, instead of aligning fundamentally different markets it may instead be appropriate to account for a need for alignment by optimising the Administered Price Cap trigger.

AEMO requests Participant views on the proposal to have a Administered Price Cap trigger when more than one market

#### Draft Determination 7 - Proposed new Administered Price Cap trigger event

- Proposal for a new Administered Price Cap trigger event for the DWGM and STTM hubs that would allow simultaneous administering of two or more markets for the DWGM and STTM hubs.

<sup>11</sup> Market Reform, Gas Market Parameters Review 2022: Draft Recommendations Report, 1 December 2022, pg. 71

<sup>12</sup> Market Reform, Gas Market Parameters Review 2022: Draft Recommendations Report, 1 December 2022, pg. 77

## 6. Next Steps

### 6.1. Submission in response to Draft Report

AEMO invites submissions from interested parties in response to any aspect of the draft determinations in this paper and in “Attachment 1 Gas Market Parameters Review 2022: Draft Recommendations Report - Market Reform Pty Ltd”.

Interested parties should respond by email to [gwcf\\_correspondence@aemo.com.au](mailto:gwcf_correspondence@aemo.com.au), with '[company name] Submission to Draft Report – Gas Market Parameter Review 2022' in the subject to be received no later than 5:00PM AEST on Thursday 19 January 2023.

### 6.2. AEMO to prepare a Final Report

AEMO will consider submissions received, and will publish the Gas Market Parameter Review 2022 - Final Report by no later than Thursday 16 February 2023.

### 6.3. Regulatory changes to implement recommendations

AEMO's considers, in line with Market Reforms recommendations, that the existing DWGM and STTM market parameters remain appropriate.

The proposal to develop a new Administered Price Cap trigger event for the STTM and DWGM that would allow simultaneous administering of two or more markets for the DWGM and STTM hubs would need to be undertaken through a parallel AEMC Rule consultation process for the STTM and an AEMO Procedure consultation process for the DWGM in a coordinated process.

## Appendix A. Market Reform – Draft Modelling Results

Market Reform, Gas Market Parameters Review 2022: Draft Recommendations Report, 1 December 2022

## Appendix B. Submission Summary – Response to Question raised in Methodology paper

Summary of submission to the draft Methodology presented by Market Reform on 8 September 2022 to the Gas Market Parameter Workshop. The final Methodology Consultation Report was published on 2 November 2022.

### **Question1: Do you have any comments on the appropriateness of the calculation of acceptable risk?**

Submitter	Submission Details	Initial AEMO comments
AEC	<p>The Consultation Report (p. 38) describes a method based on 500 days of lost profit by a participant to establish the maximum level of risk that the market settings are allowed to permit. However, the Consultation Report it does not provide any detail on assumed hedging levels. Nor, is there any description of assumptions relating to what hedging options participants are assumed to use to manage their risks (i.e., contracts, storage, LNG storage, curtailments and demand response). If it is just contracting, then the modelling will be based on unrealistically elevated levels of risk for participants. In light of the above, it is not possible to provide an opinion on the Consultation Paper's approach.</p>	<p>Noted. Market Reform's Final GMPR Consultation Report V1.0 was updated to include: See section 5.6 of methodology stating there are 60 participant types being assessed. . See section 5.9 of methodology which discusses hedging assumptions.</p>
Brickworks	<p>Risks also include: LNG exporters failing to meet their commitment to the Heads of Agreement Government or AEMO intervention preventing gas from being exported from another state into the STTM region. The APC applies in the STTM region, incentivising one or more market participants to reduce gas injections or increase gas withdrawals to move gas to a higher-priced Gas Market. For this reason, we suggest the AEMO consider raising a rule change request seeking:</p> <ul style="list-style-type: none"> <li>- the APC to apply in all Gas Markets if the CPT is triggered in at least one of the Gas Markets, and</li> <li>- for the APC to continue to apply until the accumulative price is below the CPT in all Gas Markets.</li> </ul>	<p>Noted.</p>

Submitter	Submission Details	Initial AEMO comments
<b>CSR</b>	<p>The paper assumes that participants will be protected by long term arrangements that fix the price paid on the contracted portion of their gas consumption. The calculation should consider the scenario where an interruption impacts on a number of participants resulting in those participants being exposed to spot prices for the duration of the scenario.</p> <p>It's possible that a level of risk defined as 500 days lost profit is no longer suitable given the large increases in underlying prices since this was defined in 2013.</p>	<p>Noted. Market Reform's Final GMPR Consultation Report V1.0 was updated to include: See section 5.9 of methodology.</p>
<b>EnergyAustralia</b>	<p>The brief outline of the concept of acceptable risk on page 38 of the paper is inadequate to elicit any meaningful stakeholder response. It presumes prior knowledge and comfort around an approach developed in 2013. Given the passage of time and the critical importance of this measure for AEMO's review, we recommend further 'deep dive' or similar focused consultation on the method, assumptions and data underlying this approach. In briefly reviewing the analysis underlying the 2013 review, it is not clear, for example, how days of operating profit equate to a measure of insolvency risk given the many factors affecting an entity's ability to withstand discrete or event-driven losses. The 500 day threshold also appears to be based on the tolerance of a new entrant retailer, and the relevance of other participants (including large users that are trade exposed) is unclear. The modelling of participant risk exposures should also factor in cash-flow impacts associated with different market price settings, including as they affect prudential requirements.</p>	<p>Noted. Market Reform's Final GMPR Consultation Report V1.0 was updated to include: Section 5.6 of the methodology details there are 60 participant types modelled as part of the assessment of market parameters.</p>
<b>Shell Energy</b>	<p>Shell Energy considers that markets operate most efficiently when price dynamics provide sufficient flexibility for participants to responsibly manage their risk exposure. Targeting a level of risk by participant type may unnecessarily constrain market price settings and restrict the market from providing efficient resource allocation and levels of investment. In particular, the 500 days of profit risk measure proposed in the consultation document does little to accommodate the assessment of investment needs against the highest marginal value of gas usage. Constraining the market by this measure across a range of</p>	<p>Noted. Market Reform's Final GMPR Consultation Report V1.0 was updated to include: See section 5.6 of methodology stating there are 60 participant types being assessed. . See section 5.9 of methodology which discusses hiding assumptions.</p>

Submitter	Submission Details	Initial AEMO comments
	<p>participants is more likely to ensure that the investment signals provided in the model can only be matched to lower value gas consumption. This is unlikely to lead to efficient outcomes in the long term.</p> <p>The 500 days of lost profit approach leads to further assumptions by participant type that are not detailed in the information provided for consultation. The modelling team needs to assume levels and type of contracting by participant type. It is unclear what these levels or types of contracting will be or whether the historical basis that will be used is appropriate for the expected future market environment. Participant contracting approaches change in response to market outcomes over time and it is unclear how this dynamic will be considered in the modelling.</p> <p>Another major assumption is the profitability of each participant type for various parameter levels. The proposed approach to use aggregate ABS data by industry will result in major generalisations about profitability and therefore the acceptable level of risk in the gas markets. Shell Energy sees this as a major weakness of the proposed risk measure.</p> <p>Shell Energy suggests that a second round of consultation be conducted prior to the modelling being undertaken. This second round would set out the details of all assumptions being made by the modelling team to ensure that stakeholders are comfortable with the approach being taken. The modelling and market parameter outcomes would benefit from this approach as a second round of consultation would allow market participants to provide feedback on specific inputs rather than just the high level modelling approach.</p>	

**Question 2: A range of scenarios to be studied are listed in Appendix A. Do you think any major scenarios are missing, or that any scenarios proposed are not relevant?**

Submitter	Submission Details	AEMO Response
AEC	The range and types of scenarios broadly appears to be reasonable. While Scenarios 12 and 13 have some of the	Noted. Market Reform’s Final GMPR Consultation Report V1.0 was updated to include:



Submitter	Submission Details	AEMO Response
	<p>characteristics of the 2022 energy crisis, consideration could be given to having the actual events of that crisis as a scenario. That is, low variable renewable energy (VRE) output, flood impaired coal mines, low coal stockpiles, extreme global coal gas and oil prices, cold winter (particularly in Queensland), etc. and all leading to a shortage of megawatt hours.</p> <p>With respect to Scenario 5, the AEC is unsure if there ever have been three consecutive days of one in 20 gas and would be interested to know if it has ever occurred or at the least come close to that.</p>	<ol style="list-style-type: none"> <li>1. Scenario 12 and 13 have been amended slightly to reflect the outcome.</li> <li>2. Scenario 5 has been updated to reflect comments.</li> </ol>
<p><b>Brickworks</b></p>	<p>We strongly oppose any linking of the APC to other indexes. Further, we do not support any linkage assumptions in the gas parameter modelling to international LNG spot prices, given there is no correlation to domestic gas market spot prices or forward contract prices. If there were a direct correlation, domestic gas consumers would have been able to buy gas as low as \$2.29/GJ during the COVID lockdowns. However, this did not occur.</p> <p>We disagree that the gas market parameters could increase compensation claims. Most market participants inject gas into Gas Markets to hedge against their financial price exposure for their withdrawals. This occurs irrespective of what contract price a market participant has paid for the gas it injects. Under such circumstances, there are no grounds for compensation because the market participant was injecting gas into a Gas Market to protect its financial exposure. This may also occur if the party injecting gas into a market is hedging against a short derivative position. In this situation, any compensation claims should consider all physical and financial hedging positions when assessing whether the claimant has incurred an actual loss.</p> <p>Brickworks strongly disagrees with any suggestion that the APC should increase. Any potential increase of the APC will not increase the net contribution of gas supply into Gas Markets.</p>	<p>Noted. AEMO notes that the methodology does not propose a linked APC but instead considers the feasibility of one while noting it is out of scope. See pg. 30 of Market Reform’s Final GMPR Consultation Report V1.0:</p> <p><i>“While our analysis considers scenarios with linkage to the world LNG market, we do <b>not</b> propose to explore a dynamic APC value as that is beyond the scope of this review which is focused on setting single values. Further, as we discuss, a dynamic APC value is challenging with respect to consumer cost exposure. This section does however provide some discussion of the issue.”</i></p>

Submitter	Submission Details	AEMO Response
CSR	<p>Scenario 5C should be in the Progressive Change and not the Step Change given it is proposed for 2023 and we are not yet in a Step Change scenario.</p> <p>Scenario 6A and B are better suited to Progressive Change otherwise the scenarios are too unlikely to occur (i.e., Step Change and High levels of LNG are both low likelihood scenarios).</p>	<p>Noted. Market Reform's Final GMPR Consultation Report V1.0 was updated to include</p> <p>See updated Scenario 5C</p> <p>See Scenario 6A and 6B were considered to be more appropriately assessed under the progressive change noting there was not a sufficiently large difference in the two in the change scenarios.</p>
EnergyAustralia	<p>The paper notes the APC is intended to protect participants against short term events rather than address sustained increases in commodity prices, with the assumption that there is an underlying (stable) market equilibrium and associated 'typical' price levels. This review should, however, explore the risk of the APC being insufficient to recover persistently high commodity prices and so inform discussion of whether and how to deal with atypical cost drivers. Proposed scenarios 4 and 13 appear to be particularly relevant in this regard and we would further suggest that there be some combination of these risk drivers (i.e. high international prices, winter demands and coal outages) in a single scenario. Current international price pressures could persist or form part of new equilibrium price levels. The ACCC's current netback series suggests pricing above \$40/GJ well into 2024, which is within AEMO's forecast horizon for this review (i.e. from July 2023). The underlying gas prices in the 2022 GSOO Progressive and Step Change datasets may be worth revisiting across all the proposed scenarios in light of the higher values that are projected in current futures trading.</p> <p>The paper states that participant behaviour will be modified as part of a "truncated variation" in situations where supply costs are above the APC. In scenarios where this situation arises, the assumptions and calculations for these adjustments should be published and appropriately justified, for example by reference to observed market outcomes. There are also longer-term implications for a persistent or expected misalignment between the APC and commodity costs</p>	<p>Noted. Market Reform's Final GMPR Consultation Report V1.0 was updated to include:</p> <ol style="list-style-type: none"> <li>1. Scenarios 12 and 13 reflect high GPG demand and low coal and VRE assumptions.</li> <li>2. In regard to truncation, it has been clarified that this means that the supply of gas that would otherwise be offered at a price above the value APC is assumed not to be available to the market.</li> </ol>

Submitter	Submission Details	AEMO Response
	<p>in the form of contracting effects, which could precipitate issues with physical gas flows. We expect these behaviours and potential market effects to also be explored.</p>	
<p><b>EUAA</b></p>	<p>We would suggest consideration of an expansion in Scenario 13 and a new scenario 14.</p> <p>The event description of Scenario 13 is - ‘External events cause rapid rise in international commodity prices driving high prices in Australia coinciding with high gas demand.’ starting from 2026. That external shock is happening now so it should start now. Do not understand why it is assumed electricity prices are uncapped.</p> <p>It could consider an option where industrial demand collapses</p> <p>A suggested Scenario 14 would cover the situation where AEMO exercises its direction powers as the ‘event’ with that happening from Winter 2022.</p>	<p>Noted. Please see section 2.3.5 of Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a>.</p> <p>AEMO does have direction powers in the DWGM and these are for responding to Threats to System Security in the Victorian DTS.</p> <p>The proposed AEMO direction powers are still under development. Therefore they have not been incorporated into the Review methodology.</p>
<p><b>Shell Energy</b></p>	<p>A key market development predicted by AEMO’s Integrated System Plan step change scenario is the rapid retirement of coal fired generation within this decade. Shell Energy expects this to result in increased periods of high gas demand as a result of increased reliance on dispatchable gas powered generation (GPG). For the period under examination by this review it will be important to ensure that the gas markets can operate efficiently with the removal of substantial coal fired plant from the electricity market. We therefore support the range of scenarios that incorporate high GPG demand early in the period to ensure that investment needs are tested in an appropriate timeframe.</p> <p>However, we do have some questions regarding scenarios 5A, 5B and 5C where demand is expected to exceed the 1:20 demand forecast for three consecutive days. We seek clarity to understand if such an outcome has occurred historically in any of the gas markets. We also note that in these scenarios the consultation document indicates that demand may also exceed normal contract/hedge limits. Shell Energy’s considers that the types of</p>	<p>Noted. Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a> was updated to include:</p> <ol style="list-style-type: none"> <li>1. Scenarios 12 and 13 reflect high GPG demand and low coal and VRE assumptions.</li> <li>2. Scenario 5 has been updated to reflect comments.</li> <li>3. See section 5.2 which states there is no weighting to the scenarios:</li> </ol> <p>“The goal is to find those parameter settings which perform best in terms of minimising the reduction in market efficiency while maintaining acceptable risk. Effectively, we seek those combinations of gas market parameters that perform best across all scenarios.”</p>

Submitter	Submission Details	AEMO Response
	<p>contracting used by participants should also be carefully considered and documented. In our view contracting types should not be limited to simple fixed volume gas contracts.</p> <p>Another factor driving increased gas fired generation will be the intermittency of wind and solar resources. We support the examination of a scenario in which low variable renewable energy (VRE) output in the NEM drives demand for gas through dispatch of GPG. Due to the interconnected nature of the NEM and the reasonably high correlation of VRE output across the NEM this scenario is likely to apply across all gas markets simultaneously and should therefore be examined as an interlinked market scenario.</p> <p>Shell Energy would also like to better understand the relative weighting of the scenarios outlined in the appendix. It is not clear what approach is being used to differentiate between the least likely market outcomes and the more central sets of assumptions that might be expected to eventuate more often in the period under examination. Further detail and discussion with stakeholders in this area would be helpful.</p>	

**Question 3: Are there any artefacts of the modelling approach that need to be further considered or are causing concern?**

Submitter	Submission Details	AEMO Response
AEC	It is difficult to comment on modelling artefacts without more detail on the modelling. The AEC would like to see more transparency with respect to the model	Noted. Market Reform's Final GMPR Consultation Report V1.0 had updates made throughout to provide additional detail.
Brickworks	<p>We disagree with the inclusion of the below assumption on the basis that GPGs can source gas from the Gas Supply Hub or could fuel switch, and do not have to rely on the DWGM or STTMs to source gas:</p> <ul style="list-style-type: none"> <li>- "APC should not be set so low as to exacerbate issues by having supply withdrawn from the gas market or creating bigger issues in</li> </ul>	Noted.

Submitter	Submission Details	AEMO Response
	<p>other markets (e.g., due to APC being too low for GPGs to be able to source gas).”</p> <p>As per our comments for 2.4.7 and 2.5.1 above, AEMO should consider the need to raise a rule change request to change how the APC operates across the Gas Markets.</p>	
CSR	<p>The modelling approach should consider AEMO’s powers and the likely scenario that interventions similar to 2022 will occur. Given the proposed expansion of AEMO’s powers (contracting storage rule change and the broader regulatory package to increase AEMO’s functions), these new powers should be included with appropriate assumptions.</p>	<p>Noted. Please see section 2.3.5 of Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a>.</p>
EnergyAustralia	<p>As noted above, all assumptions and modelling of contracting behaviour (e.g. as described in section 5.3) should be transparent and published alongside modelling outputs.</p> <p>It is not clear why the revenue adequacy of the LNG import terminal will be used to assess the lower bound of the CPT. An alternative approach would be to calculate returns accruing to the terminal as an output of the modelling of all price parameters, in a similar way to the assessment of acceptable total market risk exposure. Specifically, the MPC value is also relevant to investment returns and should be included in any revenue adequacy assessment.</p> <p>The discussion in section 2.3.5 suggests that market reforms are not critical given the scenarios are designed to trigger administered pricing. However, prospects of AEMO interventions (including those that might be imposed for winter 2023) have implications on investment needs to ensure secure supply, and also the business cases for such investment.</p>	<p>Noted. Please see updates to sections 5.9 and 6.6 of Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a>.</p>
Shell Energy	<p>The consultation paper identifies the importance of constructing appropriate GPG bids but provides little detail. We note that bids will have a maximum price linked to what would be viable in the NEM but this highlights an important interaction that we don’t believe has been sufficiently clarified by the modelling team. Are the NEM price levels assumed to be up to the NEM market price cap in all scenarios, or are assumptions made regarding the application of</p>	<p>Noted. Please see updates to sections 5.6 and 5.9 of Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a>.</p>

Submitter	Submission Details	AEMO Response
	<p>the NEM administered price cap? Is the treatment of NEM prices, and therefore GPG bids, different for different scenarios? Further detail on these questions and the assumed interaction between gas and electricity markets would be helpful for stakeholders seeking to better understand the modelling approach and potential outcomes.</p> <p>The level of contracting by participant type will be a crucial set of assumptions for the modelling. We understand that this information is constructed from historical bidding behaviours. We note the difficulty this approach poses in accurately reflecting the market conditions to be examined in each scenario, particularly where the exact circumstances may not have occurred previously and are therefore not reflected in the historical data. Additional information about the approach to contract level construction would be helpful for participants and stakeholders to help assess the modelling approach.</p> <p>We also note that the modelling holds contracting levels and potentially contracting types constant across all cases. This appears to be an inappropriate assumption given the historical responsiveness of participants to the market environment. The likely outcome from this approach is that the market settings are over-constrained due to the inflexibility of contracting between scenarios.</p> <p>We consider the set of participant types to be included in the modelling to be broadly appropriate. However, the contribution of each customer type and their relative influence on the modelling outcomes over time is not clear. For example the small market customer type is assumed by Market Reform to have a “less sophisticated approach to risk management”. Shell Energy believes this type of market participant will be strongly incentivised to evolve their risk management approach over time if the market becomes increasingly risky. This dynamic does not appear to be captured by the modelling approach. We consider this a shortcoming of the model and note that it would be very likely to play a role in modelling results that inappropriately shield</p>	

Submitter	Submission Details	AEMO Response
	participants from risk and under-incentivise investment in the industry.	

**Question 4: Do you agree that the cost of investment should be based on an LNG import terminal or some other option?**

Submitter	Submission Details	AEMO Response
<b>AEC</b>	<p>The AEC agrees with an LNG import terminal being the marginal new entrant as it is the only way to introduce an external source of supply into the system in a relatively short period of time. The Consultation Paper appears to base its analysis on a proposed LNG import terminal at Port Kembla. There are critical aspects of this approach which are not discussed in the Consultation Paper including:</p> <ul style="list-style-type: none"> <li>- The assumed capacity factor noting that the next question in Consultation Paper states that it will be operated infrequently.</li> <li>- Will it be a merchant facility or will its cashflows be underpinned by contracts with market participants. Alternatively, a hybrid of the two. Whatever of these assumptions are applied will also influence some of the WACC parameters such as gearing, equity beta and credit spread.</li> </ul>	Noted. Please see updates to sections 6.6 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .
<b>CSR</b>	<p>It's not unreasonable to use an LNG import terminal based on the historical assumption. The limitation is that any type of high-cost investment is not likely to occur, and therefore it might be more appropriate to look at the level of sustained high prices and the potential for demand destruction in determining the cost of investment (i.e., it is likely that gas users will fuel switch or cease to operate).</p> <p>Prices are significantly higher, resulting in high levels of profits to gas producers, and these prices would normally be enough to bring additional gas to market if the regulatory environment allowed for it.</p>	Noted.

Submitter	Submission Details	AEMO Response
<b>EnergyAustralia</b>	Assessment with respect to the LNG terminal seems reasonable.	Noted
<b>EUAA</b>	We doubt the use of an import LNG facility as a guide as we do not see it ever occurring. A number of our members have been approached to sign offtake deals with the Port Kembla LNG plant. None have been completed simply because the proposed price is uneconomic for our members. In the absence of some form of Government offtake guarantee LNG import projects will not proceed.	Noted. AEMO notes the majority of other submissions agreed that an LNG import terminal was appropriate.
<b>Shell Energy</b>	<p>Shell Energy supports the use of an LNG import terminal as the most likely marginal investment to provide additional supply and address any potential supply shortfalls at peak demand times. We note that the consultation paper proposes assessing other income streams available to the facility as a contribution to its viability under various market parameters. It would be helpful for stakeholders to understand the value streams to be assessed and the assumptions to be made about their relative revenue contributions to the project being modelled.</p> <p>Shell Energy also notes that the selection of capacity factor allocated to the LNG import terminal will be a critical assumption with regards to recovery of capital, yet the modelling paper contains little in the way of detail regarding this. We consider this to be a significant shortcoming in the modelling and further detail and discussion with stakeholders in this area is warranted.</p> <p>Shell Energy supports the use of an LNG import terminal as the most likely marginal investment to provide additional supply and address any potential supply shortfalls at peak demand times. We note that the consultation paper proposes assessing other income streams available to the facility as a contribution to its viability under various market parameters. It would be helpful for stakeholders to understand the value streams to be assessed and the assumptions to be made about their relative revenue contributions to the project being modelled.</p> <p>Shell Energy also notes that the selection of capacity factor allocated to the LNG import terminal will be a critical assumption</p>	Noted. Please see updates to sections 6.6 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .



Submitter	Submission Details	AEMO Response
	with regards to recovery of capital, yet the modelling paper contains little in the way of detail regarding this. We consider this to be a significant shortcoming in the modelling and further detail and discussion with stakeholders in this area is warranted.	

**Question 5: Are the investment costs and operating life reasonable estimates with respect to investment in an LNG receipt facility?**

Submitter	Submission Details	AEMO Response
<b>AEC</b>	We are unsure on the operating costs. With respect to the life of the asset, the AEC considers a 20-25 year asset life would be more appropriate. With net zero by 2050 and plans by state governments and territories to progressively replace natural gas with electrification of households and businesses, investors may balk at a 30-year life assumption for an LNG import terminal.	Noted. Please see updates to sections 6.6 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .
<b>Brickworks</b>	We strongly disagree that the assumptions reflect reality. Gas parameters do not influence LNG exporters supplying gas or developing new gas projects. Refer to our comments on this issue in our cover letter.  We strongly disagree with incorporating a possible LNG import terminal without a single consumer signed to the project into the modelling. The modelling should incorporate the cost of developing gas within Australia for domestic consumers. We suggest the proposed Santos Narrabri Gas Project or new QLD CSG projects (e.g. Senex has announced intentions to develop new projects) are the appropriate reference point for investment costs and long-term contract gas prices.	Noted. AEMO notes the majority of other submissions agreed that an LNG import terminal was appropriate.
<b>EnergyAustralia</b>	The use of published information seems to be a reasonable approach. Some sensitivities could be applied to project cost and expected operating life. To the extent the investment case is presumed to be made on the basis of forward contracting as well as spot revenue, any such assumptions should be made clear and justified	Noted. Please see updates to sections 6.6 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .

Submitter	Submission Details	AEMO Response
Shell Energy	<p>The investment costs outlined in the consultation document appear to align with market expectations for such a project. However, the investment revenue assessment for an LNG import facility is proposed to consider 1 in 10 year events for return purposes. We note that this does not align to the high demand day assumptions in the scenarios being modelled. The 1 in 10 year assumption for events under an investment assessment should be aligned with the 1 in 20 assumption being used for high demand days in the modelling.</p> <p>The consultation document allocates an expected facility life of 30 years to the LNG import facility. We consider that the 30 year period is too long given the forecasts of future gas usage and consider that 20 years should be the maximum expected facility life.</p>	Noted. Please see updates to sections 6.6 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .

**Question 6: Recognising that that the Investment Cost Data presented above must apply across a range of industries and participant types, the investment under consideration is anticipated to be used infrequently and primarily for the purpose of addressing transitory gas market events rather than long term re-equilibration, and investors will consider long term funding costs:**

- **Does the equity market risk premium for the sector (6.80%) represent a reasonable long term average?**
- **Does the combination of the risk-free rate (3.01%) and the debt margin (2%) adequately reflect the average cost of debt (5.0%) expected to apply over the project life?**
- **Is the overall estimate of post-tax real WACC (4.72%) reasonable bearing in mind it is applicable to a facility anticipated to be used infrequently?**

Submitter	Submission Details	AEMO Response
AEC	It is unclear why different types of participants and industries are mentioned in this question. When valuing an asset for the purposes it is to be used here, one would generally assume a stand-alone asset with a assumed credit rating based on the type and size of cashflows it generates relative to its costs. As an example, the AER regulates electricity networks on the assumption that they are stand-alone, 60 per cent geared business with the type (i.e.,	Noted. Please see updates to sections 6.6 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .

Submitter	Submission Details	AEMO Response
	<p>regulated) and size of cash flows relative to its costs to result in a business that can sustain an investment grade BBB+ credit rating. Hence, the AEC considers it should be assumed to be a stand-alone asset.</p> <p>The AEC is of the view that:</p> <p>The equity market risk premium should be 6 per cent.</p> <p>The risk-free rate should be the prevailing yield on a 10-year Australian Government Bond (AGB), which is currently 3.79 per cent.</p> <p>The credit spread to AGB (i.e., debt margin) will be a function of the credit rating assumption of the facility, which in itself will be dependent on the business model of the plant alluded to in our response to Question 4 and the gearing assumption. The Consultation Report states a debt margin of 2 per cent but there is no mention of the credit rating of the assumed facility. If the credit rating is BBB- and the tenor of debt is 10 years, then as at 31 August the spread would have been 3.23 per cent.<sup>1</sup> If the venture has a sub investment grade rating it will be significantly higher.</p> <p>The equity beta needs to reflect the systemic risk of the business. An equity beta of one is the same as that of the market. Whether the plant is purely merchant, is underpinned by contracts or some mix of the two will determine the stability of its cash flows and hence influence its systemic risk (i.e., equity beta). Consideration also needs to be given to the gearing assumption and deleveraged beta and leveraged beta.</p> <p>Other valuation metrics such as internal rate of return and EBITDA multiples for this type of asset should be considered as well as the proposed discounted cash flow analysis. Overall, the AEC would like to see much more rigor applied to the assessment of the financial (e.g., WACC parameters) and business model of the LNG import terminal because the Consultation Report is seriously lacking in this respect. As with other aspects of the modelling, the AEC would like to see more transparency.</p>	

Submitter	Submission Details	AEMO Response
EnergyAustralia	We support adoption of market-wide parameters from the AER's Rate of Return Instrument. The risk of asset stranding and declining utilisation, for example via electrification and longer-term emissions reductions targets, should be explored through sensitivities with higher investment hurdle rates and/ or a shorter economic life.	Noted
Shell Energy	Shell Energy's view is that the investment project being considered should be assessed as a standalone project. It is unclear therefore why the investment parameters need to apply across a range of industries and participant types. As a standalone project we would expect the equity risk premium and debt margin to be substantially higher given the risk profile of such a project. A post-tax real WACC of 4.72% is very closely aligned to the 4.7% proposed by Transgrid in its 2023-28 revenue proposal. We do not believe a commercially developed floating LNG terminal should be assessed on comparable cost of capital terms to regulated transmission investments.	Noted. Please see updates to sections 6.6 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .

#### **Question 7: Do the range of grid points seem reasonable**

Submitter	Submission Details	AEMO Response
Brickworks	<p>The current grid of gas market parameters is biased towards only increases to the existing levels. The grid should include scenarios on decreasing the existing levels.</p> <p>Lower parameter values should be included, specifically:</p> <p>DWGM MPC \$200/GJ, \$300/GJ, \$400/GJ. We do not agree with \$800 or \$1000 being modelled.</p> <p>APC \$20/GJ, \$25/GJ, \$30/GJ, \$35/GJ We do not agree with \$60 or \$80 being modelled</p> <p>CPT each APC scenario x 35 intervals STTMs</p>	Noted. Please see updates to sections 6.7 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a> .

Submitter	Submission Details	AEMO Response
	<p>MPC \$200/GJ, \$300/GJ</p> <p>We do not agree with \$800 being modelled.</p> <p>APC \$20/GJ, \$25/GJ, \$30/GJ, \$35/GJ</p> <p>We do not agree with \$60 or \$80 being modelled</p> <p>CPT each APC scenario x 7 days</p>	
<b>CSR</b>	<p>An aligned CPT should be considered, e.g., \$280 in the STTM with \$1400 in the DWGM (i.e., average price of \$40 across the time horizon). Given the lack of flexibility/diversity in contracting options, and limited ability to hedge against a supply interruption, it is appropriate to set the CPT at a lower level.</p> <p>Administered prices in excess of the proposed NEM administered pricing should not be considered given the distortion that can occur.</p> <p>The role of the maximum price in gas markets plays a role in how much risk a buyer of gas needs to manage, and high underlying prices would support investment for a producer of gas. Given this, lower maximum prices should be considered.</p> <p>It isn't necessary for gas price parameters to be aligned to the international markets, separate measures should be in place for this such as the ADGSM and GSG.</p>	<p>Noted. Please see updates to sections 6.7 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a>.</p>
<b>EnergyAustralia</b>	<p>The paper indicates that MPC values will be determined as modelling inputs rather than as parameters of interest in the same way as the CPT and APC. Similarly, evaluation of the LNG import terminal investment case will be explored by reference to the CPT only.</p> <p>We question whether there should be an explicit consideration of the MPC by references to surveys or other data. For example, the gas MPC could be cross-checked against the values of customer reliability (VCR) estimated by the AER in electricity, or the NEM MPC. There may be further correlations in the maximum value of risk exposure used in the gas market, in terms of business customers' maximum willingness to pay or insolvency thresholds, where modelled events in gas or electricity markets cause similar spikes in energy input costs and hence profit impacts.</p>	<p>Noted. Please see updates to sections 6.7 of Market Reform's <a href="#">Final GMPR Consultation Report V1.0</a>.</p>

Submitter	Submission Details	AEMO Response
<p><b>Shell Energy</b></p>	<p>Shell Energy supports a wide range of grid points being examined by the modelling. We note that under high international pricing conditions the upper bound for the APC may be close to the LNG netback cost in some circumstances. It may therefore be appropriate to examine an APC above the proposed upper bound to assess market risk and efficiency in unconstrained circumstances. Similarly, the \$1000 MPC level assessed in previous reviews may now be relevant despite being found “far from acceptable” in previous reviews.</p> <p>With regards to the values set out in Table 4, we note that it retains the inconsistency of values between the DWGM and the STTM. Shell Energy considers that the levels for the MPC and CPT between the various gas markets must be consistent and if a different calculation methodology is to be used for calculating the CPT in the DWGM, then the level of CPT for the DWGM must be consistent with the CPT proposed for the STTM.</p> <p>We also note that the granularity of the grid points to be examined is limited. To ensure that market efficiency can be maximised within appropriate risk bounds we suggest that granularity be increased. More appropriate settings could be: APC intervals of \$5/GJ across the proposed range, CPT intervals of \$100 and, MPC intervals of \$100 in both markets.</p> <p>With regard to the NEM APC to be used, Shell Energy supports assessing the proposed \$500/MWh but notes that it may be necessary to undertake the modelling with a range of levels given the uncertainty in this parameter. A range of APC levels have been proposed under a NEM rule change which is currently being considered by the AEMC. Assessing a range of NEM APC levels from \$300/MWh to \$800/MWh would provide insight into the impact of the final determination and enable this review to respond to the outcome of the AEMC review.</p>	<p>Noted. Please see updates to sections 6.7 of Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a>.</p>

## Appendix C. Submission Summary – General Comments

### General Comments

Submitter	Submission Details	AEMO Response
<b>AEC - Align market parameters</b>	<p>The AEC believes that the market price settings for the DWGM and STTMs should be aligned. As recently demonstrated earlier this year, the lack of alignment between the markets created distortions in the east coast gas market.</p>	<p>Noted.</p>
<b>AER - Align market parameters</b>	<p>The AER notes that the current cumulative price threshold (CPT) setting is different across the STTM and the DWGM, respectively \$440/GJ across 7 days and \$1,400/GJ over 35 periods. This equates to an average price of approximately \$63/GJ to reach the CPT in the STTM in comparison to the lower \$40/GJ to reach the CPT in the DWGM.</p> <p>The AER considers that the alignment of CPT settings across the STTM and the DWGM is required to reduce market inefficiency and improve spot market functionality during administered pricing periods. We support any changes to the relevant market parameters that are consistent with managing east coast supply and market risks for participants.</p> <p>Overall, the AER considers there is a strong case that the different price caps are likely to have led to an inefficient distribution of supply across the east coast over the period.</p>	
<b>Alinta – Align market parameters</b>	<p>Finally, Alinta Energy is concerned that the different price caps and operation of these across east coast gas markets (STTM and DWGM) can lead to inefficient market outcomes, as seen in the June 2022 market events where gas flowed out of the capped price markets to uncapped or higher price nodes. This has the potential to further exacerbate potential security of supply issues. Given this market inefficiency, Alinta Energy strongly considers that this review should ensure that the DWGM and STTM market parameters and price setting arrangements are sufficiently aligned to avoid these perverse outcomes.</p>	

Submitter	Submission Details	AEMO Response
<p><b>Origin - Align market parameters</b></p>	<p>Origin is strongly supportive of applying a modelling / assessment approach that explicitly considers interactions between the individual facilitated gas markets, and between each of those markets and the National Electricity Market (NEM). As identified in the Consultation Paper, administered pricing parameters have historically been set based on consideration of each market in isolation. The events of winter 2022, particularly in the Declared Wholesale Gas Market (DWGM), have highlighted the potential limitations with that approach and need for greater (relative) alignment across markets. To this end, we consider there is a risk that current administered price parameters in the DWGM may not support efficient market operations going forward given underlying changes in east coast energy market dynamics.</p> <p>The progressive reduction of the DWGM CPT from \$3,700 in 2014 to \$1,400 (currently) is problematic in this respect. It has resulted in an increased likelihood of the DWGM entering an administered pricing period relative to the STTM (i.e. an average price of \$40/GJ will breach the DWGM CPT, compared with \$63 in the STTM). Should this occur at a time when prevailing prices in the STTM and / or NEM are high, incentives for market participants to supply the DWGM are likely to be reduced.</p>	
<p><b>SnowyHydro – Align market parameters</b></p>	<p>AEMO’s decision to conduct a review of market parameter settings in both the Short Term Trading Market (STTM) and the Declared Wholesale Gas Market (DWGM) is critical. Alignment across markets is important for the operation of the east coast gas market.</p>	
<p><b>AEC – Single review process for NEM, DWGM and STTM.</b></p>	<p>Due to the linkages between gas and electricity markets consideration should be given to moving responsibility for gas market parameter reviews to the AEMC’s Reliability Panel.</p> <p>The Reliability Panel could also look to establishing a reliability standard for gas because without a standard it is difficult to determine the trade-offs between reliability, risk and cost.</p>	<p>Noted.</p>
<p><b>AFMA – Single review process</b></p>	<p>AFMA considers AEMO should coordinate its review with the AEMC’s work on the electricity APC rule change and any rule changes coming out of the Reliability Panel’s Final Report.</p>	



Submitter	Submission Details	AEMO Response
<b>for NEM, DWGM and STTM.</b>	Additionally, we suggest AEMO should initiate discussions with policy makers to develop a mechanism to allow future reviews to be conducted in a single process covering all markets.	
<b>Alinta – Single review process for NEM, DWGM and STTM.</b>	<p>Over the longer term, Alinta Energy considers that regulatory change is required to vest the review of electricity and gas market parameters in one market body to:</p> <ul style="list-style-type: none"> <li>• better coordinate the timing of each review,</li> <li>• ensure alignment of inputs and assumptions, and</li> <li>• provide for robust consultation processes.</li> </ul> <p>This reform is necessary to ensure both the national gas objective and the national electricity objective can be met at least cost to consumers.</p>	
<b>EnergyAustralia – Single review process for NEM, DWGM and STTM.</b>	<p>AEMO’s scheduled review of gas market pricing parameters is timely in the wake of recent administered price events across east coast gas and electricity markets. These events have highlighted important interactions across the STTM, DWGM and NEM and hence the need to consider price parameters across all markets in tandem. We therefore support cross-market alignment being one of the major areas to be explored in AEMO’s review.</p> <p>While outside of AEMO’s responsibility, we question whether it remains appropriate for AEMO to conduct a separate review of gas market parameters, moreover after completion of the Reliability Panel’s review for the NEM. With the Panel’s recommendations for 2025-28 soon to be submitted as a rule change proposal, AEMO and the AEMC should liaise on their respective review timings and analyses, and ideally accommodate joint or at least mutually consistent recommendations. Since gas reflects a fuel source for electricity generation, gas price parameters (particularly the APC) should be reviewed and decided on first, and used as inputs to electricity price setting reviews, not vice versa as per the operation of rule 492 of the National Gas Rules. If AEMO finds a need to change gas price parameters before July 2025, this will materially</p>	

Submitter	Submission Details	AEMO Response
	<p>impact the AEMC’s intention to lift the electricity APC to \$600/MWh from as early as December 2022.</p>	
<p><b>Origin Energy – Single review process for NEM, DWGM and STTM.</b></p>	<p>Consideration should be given to providing a single body like the Reliability Panel with oversight of both electricity and gas market parameters. This is not to disparage the work of AEMO in undertaking parameter reviews to date. However, providing the Panel with oversight of both areas would enable a consolidated review to be undertaken, which would likely provide efficiency benefits and potentially allow for the interaction of settings across markets to be better considered. Where this isn’t achieved, it would still be prudent to consider the timing of the gas market parameter review, noting it may be preferable for the review to be undertaken ahead of the NEM Reliability Standard and Settings Review to the extent gas prices are a key input into the Panels assessment.</p>	
<p><b>Shell Energy – Single review process for NEM, DWGM and STTM.</b></p>	<p>Harmonising the market parameters and ensuring they remain effective in the context of a highly dynamic international energy market is a difficult task the we don’t believe can be fully achieved by the current review. However, we are supportive of work towards this goal. Ultimately we believe that the market reliability (price) setting for the NEM and the market parameter settings of the DWGM and STTM need to be considered together under a robust consultation approach carried out by an independent body such as the Reliability Panel. This would ensure that market settings are co-optimised to maximise the benefits for consumers across the energy value chain.</p>	
<p><b>SnowyHydro - Single review process for NEM, DWGM and STTM.</b></p>	<p>With the growing integration between gas and electricity it is important that AEMO’s review aligns the market parameters between gas and electricity where the NEM should also be considered. The parameter review should recognise the current and growing relationship between the gas and electricity markets in Australia, The work currently being undertaken by the Reliability Panel for changes to the market settings post 2025 should be aligned with the gas market parameter review.</p>	

Submitter	Submission Details	AEMO Response
<b>AEC – Transparency in modelling</b>	The AEC would like to see more transparency in regards to modelling.	Noted. See updates to Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a> .
<b>AER – CPT Calculation</b>	<p>The calculation of the CPT across all five schedules in the DWGM potentially introduces the possibility of gaming of the CPT. The AER has not identified this type of behaviour occurring over Winter 2022 when prices across all schedules were frequently \$800/GJ due to ongoing scarcity issues.</p> <p>Alternative approaches such as a volume weighted averaged traded price could be considered, noting that typically most trade occurs at the 6 am price.</p>	<p>Noted. The calculation of the CPT threshold for the review is being done based on the current Procedures. AEMO considers this an issue for consideration of the Wholesale Market Administered Pricing Procedure consultation.</p> <p>AEMO notes the current approach in both the STTM and DWGM provide price protection for gas trades and for gas deviations (accounting for the difference in market design).</p>
<b>Shell Energy – CPT Calculation</b>	In assessing the alignment between markets, we encourage AEMO to not only look at price levels but to consider how the settings are calculated and applied. For example, the use of more frequent pricing intervals in the CPT calculation for the DWGM allows for harmonisation of the CPT through variation in the calculation period based on the daily average price while keeping the CPT level fixed. Alternatively, the current calculation method could be retained whilst adjusting the CPT to reflect its use of the cumulative sum of five pricing outcomes. Whatever method is chosen there must be consistency between the market parameter setting across all of the gas markets.	
<b>AFMA – Interrelated DWGM, STTM and NEM market outcomes</b>	<p>The events of May and June this year demonstrated the interrelatedness of the gas and electricity markets. This was shown in the gas market when gas flowed from markets where price caps were in place to markets without caps and other demand outside the regulated markets. In the NEM the interaction between gas and electricity price caps resulted in many gas generators being unable to run economically under the price caps and was a key contributor to AEMO’s decision to suspend the NEM.</p> <p>AFMA therefore considers that it is critical to the success of both gas and electricity markets that the interaction between market parameters in all markets are considered holistically.</p>	Noted

Submitter	Submission Details	AEMO Response
<p><b>Alinta – Interrelated DWGM, STTM and NEM market outcomes</b></p>	<p>The recent, and impending, closure of coal fired generation capacity has driven a greater need for gas-fired generation in the NEM, particularly during periods of high electricity demand. As a result, electricity and gas markets are now more interrelated than ever. Therefore, it is essential to ensure that price settings are appropriately aligned across these markets.</p> <p>However, Alinta Energy is concerned that the draft consultation report does not sufficiently consider the interlinkage between gas and electricity. We therefore recommend AEMO, and its consultant undertake sufficient modelling and analysis ensure that the outworkings of this review don't lead to perverse or unanticipated outcomes and further electricity market dysfunction.</p>	<p>Noted.</p>
<p><b>Alinta – Support Review</b></p>	<p>Alinta Energy is broadly supportive of undertaking a review of gas market parameters and price setting arrangements in the STTM and DWGM. Collectively, these market settings play an important role in limiting financial risk for market participants while simultaneously allowing the market to send appropriate price signals to support orderly market operation and reliability of supply. It is therefore important they remain fit for purpose over time.</p>	<p>Noted</p>
<p><b>Brickworks – Gas Market Parameter Increases</b></p>	<p>The gas market parameters are critical settings that can directly impact consumer gas costs due to the potential to interact with forward contract prices. The gas market parameters also affect the financial price exposure of gas market participants. For these reasons, Brickworks strongly opposes any potential increase of any of the gas market parameters and does not believe that the current dysfunctional state of the east coast gas market can be modelled at this time.</p> <p>Attempts to model theoretical assumptions will not represent the real world because the supply/demand balance depends on LNG exporters supplying sufficient gas to avoid a potential gas supply shortfall under their commitment to the Federal Government under the Gas Heads of Agreement. As LNG exporters primarily supply balancing gas outside the Gas Markets, the gas supply/demand balance is unaffected by the gas market parameters.</p>	<p>Noted.</p>

Submitter	Submission Details	AEMO Response
	<p>Similarly, the gas market parameters do not drive new gas supply projects. Long-term contract pricing currently supports new gas supply projects; however, significant regulatory red tape is unnecessarily delaying new gas supply projects commencing. In the context of the current east coast gas crisis, increasing any of the gas market parameters will only lead to increased costs to gas consumers for no benefit, as it simply does not drive a net increase in domestic gas supply.</p> <p>Large gas consumer demand is sensitive to price and, as evidenced by the mass demand destruction currently occurring in Europe, gas demand will significantly decrease if extreme gas costs are passed through (either by direct spot market price exposure or from increased forward contract prices). Any modelling must consider that prices above the current APC would lead to significant gas demand destruction (possibly permanently).</p> <p>As described in our cover letter, the APC has no impact on the net gas supply contribution to the Gas Markets. LNG exporters have made commitments to the Federal Government under the Heads of Agreement that they will supply the Gas Markets and the APC is irrelevant to new gas supply projects. The current gas supply crisis necessitates a long-term solution to urgently develop new gas supply projects to supply the domestic market.</p> <p>500 days seems to be an artificial number that is not justified in the discussion paper. We suggest modelling include a range of loss profit days that are lower than 500 days, given the extreme market outcomes and the collapse of several small energy retailers during winter 2022.</p>	
<p><b>Brickworks – Infeasible to model gas markets</b></p>	<p>We do not believe any modelling can be conducted while the east coast is experiencing a gas crisis. The LNG exporters have made commitments to the Federal Government under the Heads of Agreement to supply gas to prevent a shortfall in the Gas Markets. While the current state of the market exists, the gas parameters do nothing to influence the overall gas supply/demand balance. Any market simulation is purely theoretical and does not represent real-world outcomes because the gas supply response does not occur</p>	<p>Noted.</p>

Submitter	Submission Details	AEMO Response
	<p>as simplistically assumed in the methodology. The results of any of the proposed scenario modelling is meaningless.</p> <p>The modelling does not accurately reflect the potential for significant demand destruction of large gas consumers, and no attempt is proposed to source this information for large gas users under a range of contracted status scenarios (e.g. fully contracted to maximum load, contracted to average load, partially contracted, uncontracted).</p>	
<b>Brickworks – Market simulation</b>	<p>LNG exporters have made a commitment to the Federal Government under the Heads of Agreement to supply gas to Gas Markets to avoid any supply shortfall. Therefore, the export demand curve is irrelevant as including it in the modelling implies that the LNG exporters will not fulfil their domestic supply commitment.</p> <p>Further, all supply curves should assume that balancing gas to the Gas Markets is supplied by LNG exporters as per their supply commitment LNG imports should not be included in the modelling. There is not a single buyer currently signed to any proposed LNG import terminal.</p> <p>No export or import bids should be included in the modelling, as LNG exporters have commitment to supply the domestic gas for sufficient gas to avoid any potential gas shortfall.</p>	Noted.
<b>Brickworks - Representative market participants</b>	<p>The inclusion of GPG should also consider their ability to fuel switch to alternate fuels during a short-term gas shortfall scenario.</p> <p>Industrial users exposed to extreme market prices should be assumed to voluntarily curtail demand or fuel switch as an economically rational response to avoid incurring extreme business losses.</p>	Noted
<b>Brickworks – Sensitivity Analysis</b>	<p>Given that LNG exporters have committed to the Federal Government to supply sufficient gas to the domestic market to avoid any potential shortfall, a reduction in the supply curve will not occur because domestic supply from LNG exporters will increase to offset any reduction by a domestic gas producer. The proposed reduced supply curve scenario should not be considered.</p>	Noted

Submitter	Submission Details	AEMO Response
<p><b>Brickworks – Calculating Market Efficiency</b></p>	<p>Further clarification on this logic needs to be provided by AEMO, specifically the interaction AEMO is assuming between a contract price and the market price. Market participants are only exposed to high spot prices to the extent that their injections are lower than their withdrawals. Where injections are equal to withdrawals, the market participant is indifferent to spot price outcome. Where injections are higher than withdrawals, the market participant favours high spot prices to the extent that they have market power to achieve this outcome. If the market participant is a large consumer, they can voluntarily curtail their demand or fuel switch to physically manage exposure to extreme spot price outcomes.</p>	<p>Noted</p>
<p><b>CSR – Market Price Caps</b></p>	<p>The market price caps are already at levels that are well above efficient levels, and other external factors are key reasons restricting investment. The reduced gas supply available to the market (not a reluctance of buyers to purchase) further increases the risk to buyers as they are forced to be exposed to higher spot prices.</p>	<p>Noted.</p>
<p><b>CSR – Adverse flows during an administered market period</b></p>	<p>At times of stress in the domestic gas markets, more focus must be on ensuring that gas is made available and additional pressure is not placed on these markets. To the extent that unrealistic volumes can be sourced from the domestic markets this reflects a flaw in the design and highlights the mechanisms aren't working. Gas sold outside of the STTM and DWGM is not at a capped price, meaning there can be incentives to purchase gas from an administered market to sell to counterparties willing to pay more for it. While these types of shortcomings of the current arrangements might be beyond the scope of the parameter review, they should be highlighted by the review for further consideration.</p> <p>The role of administered prices should not just consider the efficiency of market outcomes. Energy markets are heavily regulated given the important strategic role they play in supporting the domestic economy. Broadly speaking, the gas markets are mechanisms that allow competition to exist for the benefit of consumers. These markets have been distorted due to the impact</p>	<p>Noted.</p>

Submitter	Submission Details	AEMO Response
	of linkages to international markets, where the domestic market now represents a relatively small proportion of the gas supply.	
<b>CSR – Additional items for consideration.</b>	<p>There are some elements of the parameter review that can assist in addressing the current shortcomings to limit distortions in the regulated markets:</p> <ul style="list-style-type: none"> <li>• The Gas Supply Hub should be in scope of the review;</li> <li>• Lower price points for the MPC, APC and CPT should all be considered;</li> <li>• Alignment of administered states and CPT triggers.</li> </ul> <p>Separate to this review additional measures are required, and this review has an opportunity to highlight some of the potential measures that require further assessment.</p>	Noted.
<b>EnergyAustralia – Support Review</b>	The discussion of recent events and scope of scenarios to be modelled is appropriately focused on testing and resolving any inconsistencies between gas markets, and with the NEM.	Noted
<b>EnergyAustralia – New AEMO direction powers</b>	The more recent proposals by energy ministers to extend AEMO’s intervention powers in the east coast gas market, to identify and address threats to reliability and security, will also have interactions with the calibration of pricing parameters. The proposed powers to be implemented by winter 2023 create de facto reliability standards and market price caps, stemming from AEMO’s risk tolerances and actions to address supply threats. Ministers propose that some of these aspects be formalised through eventual rule changes to be consulted on from 2023. Any process for jointly considering new gas reliability frameworks and revisiting price settings needs to be clarified and communicated to stakeholders, given the long lead times associated with contract positions and related market impacts.	<p>Noted. Please see section 2.3.5 of Market Reform’s <a href="#">Final GMPR Consultation Report V1.0</a>.</p> <p>AEMO does have direction powers in the DWGM and these are for responding to Threats to System Security in the Victorian DTS.</p> <p>The proposed AEMO direction powers are still under development. Therefore they have not been incorporated into the Review methodology.</p>
<b>EUAA – new AEMO direction powers</b>	The Report refers to these at p.20, though it was prepared prior to the release of details of the proposed changes <sup>2</sup> . After mentioning a couple of AEMC changes, the Report says that:	



Submitter	Submission Details	AEMO Response
	<p>“We have not identified any need to specifically account for these changes in the gas parameter review which focuses on market clearing prices.”</p> <p>We would submit that the detail of the proposed AEMO powers around directions means that it could have significant impacts on the various parameter settings. AEMO is to have wide ranging powers that enable it, in the absence of market action, to direct the market in any way it thinks is required to ensure gas system reliability and supply security. This suggests this review should consider what the exercise of these powers might have on the setting of the parameters. For example, given AEMO’s directions powers, what is the NGO benefit of setting the APC at any level above the price at which most producers cover their short run cost.</p> <p>This is the methodology used by the AEMC in its decision on the Alinta rule change – what electricity APC means that most gas generators cover their gas costs at \$40/GJ. It seems perverse that the APC would be set at a level where producers (which in practice would be dominated by LNG producers given the rundown in Bass Strait production) would supply the domestic market rather than the LNG spot market i.e. some estimate of the forward LNG netback price given the APC ‘acts to limit the financial risk of consumer’ (p.36)? If the market does not respond to an AEMO efforts to produce a market response, then AEMO simply directs producers to supply at an APC that covers their short run cost.</p>	
<p><b>EUAA – Winter 2022 outcomes</b></p>	<p>Our membership covers most of the major electricity and gas users in the east coast gas market who all rely on reliable and competitively priced electricity and gas for their business sustainability. We are interested in the gas market parameters for their impact on both the gas and electricity markets, particularly as it played out during June. There the gas market parameters allowed a significant wealth transfer from electricity consumers to gas producers and this was cemented in the rules with the recently released AEMC’s Draft Decision on the NEM APC. The timing for the review of the gas cap is unfortunately after the electricity APC, rather than before.</p>	<p>Noted.</p>

Submitter	Submission Details	AEMO Response
<b>EUAA – inefficient gas market</b>	<p>Our members have had firsthand experience of the dysfunctional east coast gas market that has been highlighted by many recent ACCC gas reports e.g. dramatically rising prices particularly in the last 12 months, lack of competition for supply, significant fall in the availability of supply from Bass Strait, various State government restrictions on new gas development and pipeline owners potentially exercising monopoly power. We are also well aware of the need to decarbonise the energy supply chains and the impact of policies like the Victorian Gas Substitution Roadmap.</p>	Noted
<b>EUAA – demand destruction</b>	<p>Only a few of our members are active in the spot gas markets because they cannot rely on its supply security and volatile pricing. The same uncompetitive behaviour by producers in the contract market also influences the spot market. We are concerned that the recent significant increase in prices driven by external events and the behaviour of producers during June, will lead to a rise in the level of the market parameters based on a modelling methodology that seems to assume a competitive gas market. The huge wealth transfer that occurred in June and July from consumers to producers will only increase and inevitably lead to demand destruction.</p>	Noted.
<b>EUAA – Uncompetitive East Coast Gas Markets.</b>	<p>Perhaps the most surprising aspect of the Report is the lack of discussion of the uncompetitive east coast gas market. The ACCC has been highlighting this in all of its Gas Market reports since 2015. For example, the latest (August 2022) concluded:</p> <p>Recent events across the east coast gas and electricity markets have shown the consequences of having insufficient gas supply to meet domestic demand and ineffective upstream competition.</p> <p>Supply conditions are expected to deteriorate further in 2023, with a shortfall of 56 PJ now expected. This is expected to occur against the backdrop of a highly concentrated upstream market, with competition posing little constraint on the behaviour of producers.</p> <p>Ensuring there is sufficient supply in the east coast gas market both immediately, and over the longer term, is critically dependent on</p>	Noted.

Submitter	Submission Details	AEMO Response
	<p>measures to improve competition and encourage the timely supply of gas.</p> <p>This is a result of a combination of factors – State Government policy restricting development of new gas sources which has supported the ability of existing producers to exercise market power.</p>	
<p><b>Origin Energy – Implementation of new Parameters</b></p>	<p>We understand the gas market parameters under review are intended to be applied from 1 July 2025. However, we are supportive of Market Reform considering the implications of parameters that could be applied from 1 July 2023, as requested by AEMO. Noting a process is underway to establish a temporary increase in the NEM APC to address an identified operational risk, it is prudent to explore whether equivalent changes are required to mitigate the risks identified above and reduce the need for any AEMO-led interventions.</p>	<p>Noted. AEMO notes NGR492(2) and NGR492(3) dictate the potential timing of the implementation of any new STTM Parameters resulting from the recommendation in this Review.</p>
<p><b>SnowyHydro – Implementation of new Parameters</b></p>	<p>AEMO’s review of the market parameters is warranted. However, given the role of gas as an input fuel in the contracting strategies of gas-fired generators in the National Electricity Market (NEM) it is important that any changes in gas market parameters be implemented with sufficient lead time and remain in force for long enough to allow market participants to adjust their forward contracting strategies. Snowy Hydro therefore supports an implementation time of 1 July 2025 to allow adjustments to electricity market contracts.</p> <p>The current gas price settings were taken into account by owners of gas-fired generators in their existing forward contract arrangements. The majority of those contracts extend up to 1 July 2025. Should AEMO seek to implement changes any earlier, for example 1 July 2024 (i.e. while existing contracts remain on-foot) it will create unnecessary risks. Not only will it impair generators’ ability to meet their forward contract obligations, reducing liquidity, it is likely to have an unintended consequence of creating price risk for consumers. It is for these reasons we do not support early implementation of any changes made to the market parameters.</p>	

Submitter	Submission Details	AEMO Response
	<p>The current gas price settings were taken into account by owners of gas-fired generators in their existing forward contract arrangements. The majority of those contracts extend up to 1 July 2025.</p> <p>Should AEMO seek to implement changes any earlier, for example 1 July 2024 (i.e. while existing contracts remain on-foot) it will create unnecessary risks. Not only will it impair generators' ability to meet their forward contract obligations, reducing liquidity, it is likely to have an unintended consequence of creating price risk for consumers. It is for these reasons we do not support early implementation of any changes made to the market parameters.</p>	
<p><b>AFMA – STTM administered settlement and scheduling states</b></p>	<p>The May and June market disruptions gave the market a demonstration of how the administered states operated in the various gas markets. This included the first application of an administered settlement and scheduling states in the STTM following a major ROLR event in Sydney.</p> <p>AFMA recommends that this review should consider the experience of different administered states applying across the gas markets. The different administered states meant that the market parameters (particularly APC) applied differently between gas markets. This resulted in different pricing outcomes in the markets which complicated the supply of gas and ultimately led to government intervention in the Sydney STTM hub. Particularly AEMO should consider if it is necessary to have different administered states for minor and major ROLR events in the STTM.</p>	<p>Noted. This issue is outside of the scope of this review on Gas Market Parameters.</p> <p>AEMO notes that the STTM Procedures and the DWGM Wholesale Market Administered Pricing Procedures set the RoLR thresholds for minor and major events.</p> <p>The operation of STTM Administered Market States is determined by the NGR and any changes should be instigated via the AEMC's Rule change process.</p>
<p><b>Origin Energy – Review of ROLR thresholds</b></p>	<p>While not the subject of this specific process, we recommend AEMO review the threshold used to distinguish between major and minor RoLR events; and the merit of applying the APC rather than a rolling average of recent prices where a major RoLR event is triggered.</p>	
<p><b>Shell Energy – Retailer of Last Resort</b></p>	<p>An important issue indirectly encompassed by the consultation is the disparate market outcomes following the triggering of retailer of last resort (RoLR) in one or more of the gas markets. Currently difference provisions apply between the different gas markets leading to inefficient market outcomes. Shell Energy supported</p>	

Submitter	Submission Details	AEMO Response
	<p>AEMO reconsidering these outcomes. It is our view that consideration should be given to whether any specific provision should apply at all, noting that no provisions currently apply in the electricity market when a RoLR event occurs.</p> <p>We note that changes to the provisions regarding RoLR event in the DWGM will require changes to AEMO's Wholesale Market Administered Pricing Procedures (Victoria) and as the market parameters form part of the Procedure, changes could be facilitated as part of this consultation. However, we note that changes in this area for the STTM will be subject to a rule change to Part 20 of the National Gas Rules to remove subclause 428(d), we consider that AEMO is best placed to commence consultation in the area with stakeholders and submit any rule changes arising from this consultation.</p>	