

Attachment 1 - Scope of Works

Market parameters in the Short Term Trading Market and Victorian Declared Wholesale Gas Market

The Consultant is required to provide a quote and proposal for modelling and proposing changes to the following market parameters:

STTM	DWGM
Market Price Cap (MPC)	Value of Lost Load (VoLL)
Administered Price Cap (APC)	Administered Price Cap (APC)
Cumulative Price Threshold (CPT)	Cumulative Price Threshold (CPT)

As part of its proposal, the Consultant is to briefly outline the approach and methodology it intends to take to determine each of the above, and the rationale for the intended approaches.

The Consultant should confirm in its proposal that it will be able to satisfy the deliverables in accordance with the desired timings, identify any impediments that may arise to place these timings at risk, and if required suggest alternatives to meet these requirements.

Contents

- Attachment 1 - Scope of Works..... 1
- Market parameters in the Short Term Trading Market and Victorian Declared Wholesale Gas Market. 1
- Contents 2
- Introduction 3
- Parameters for review 4
- Advice Sought 6
- Modelling approach 9
- Deliverables and Indicative Timing..... 10

Introduction

The Short Term Trading Market (STTM) and Victorian Declared Wholesale Gas Market (DWGM) feature a number of market parameters that manage participant risk, and convey economic price signals. These parameters have previously been derived based on extensive modelling and review. The STTM parameters were first set, based on modelling performed by MMA and a peer review by Creative Energy Consulting in 2009. The DWGM parameters were first set over 1997 and 1998, and were reviewed in 2008 based on modelling performed by MMA and reviewed by Market Reform. In 2012, AEMO performed a further review of market parameters the gas markets.¹

The gas market parameters are a fundamental aspect of each market's design required to:

- Establish the price envelope within which energy supply and demand is balanced in wholesale markets.
- Allow the markets to send price signals to market participants.
- Limit financial risk for market participants.

STTM market parameters require review at least once every five years in accordance with rule 492 of the National Gas Rules (NGR). AEMO is seeking to review both the STTM and the DWGM parameters by April 2018 to ensure that they continue to be fit for purpose. This timing allows the parameters to be assessed cognisant of the outworking of the AEMC's 'Reliability Standard and Settings Review 2018'² for the National Electricity Market (the 'NEM review') which is due to publish its final report by 30 April 2018.

The market parameters which AEMO are seeking to review are:

STTM	DWGM
Market Price Cap (MPC)	Value of Lost Load (VoLL)
Administered Price Cap (APC)	Administered Price Cap (APC)
Cumulative Price Threshold (CPT)	Cumulative Price Threshold (CPT)

This scope of work sets out the requirements for the review of the value of these parameters.

¹ Copies of the relevant reports are provided as context for this review.

² <http://www.aemc.gov.au/Markets-Reviews-Advice/Reliability-Standard-and-Settings-Review-2018>

Parameters for review

The following STTM market parameters are mandated for review as per rule 492 of the NGR.

Parameter	Description	Documented In	Value
Market Price Cap (MPC)	The maximum market price to apply for a gas day. The MPC provides economic incentives for capacity investment, compensation for involuntary curtailment, as well as mitigating against the risk of high prices.	NGR	\$400/GJ
Administered Price Cap (APC)	The cap applicable when an administered price cap state is in place. The APC mitigates the risk of high prices.	NGR	\$40/GJ
Cumulative Price Threshold (CPT)	The threshold for automatic imposition of an administered price cap state. The CPT mitigates the risk of extended periods of high prices.	NGR	110% of the MPC

The following DWGM parameters were reviewed in 2012/2013 and are to be included in the current review:

Parameter	Description	Documented In	Value
Value of Lost Load (VoLL)	The maximum market price. VoLL provides economic incentives for capacity investment, compensation for involuntary curtailment, as well as mitigating against the risk of high prices.	NGR	\$800/GJ
Administered Price Cap (APC)	The price to apply under administered price periods. The APC mitigates the risk of high prices.	Wholesale Market Administered Pricing Procedures (Victoria)	\$40/GJ
Cumulative Price Threshold (CPT)	The threshold for imposition of an administered price period. The CPT mitigates the risk of extended periods of high prices.	Wholesale Market Administered Pricing Procedures (Victoria)	\$1,800/GJ

The following parameters are not included in the Consultant's scope of work. The Consultant should use the current values in their analysis.

Parameter	Description	Market	Value
Cumulative Price Period (CPP)	The period over which marginal clearing prices are summed to determine whether the cumulative price threshold has been exceeded.	DWGM	35 consecutive scheduling intervals
CPT horizon	The period over which hub prices are summed to determine whether the cumulative price threshold has been exceeded.	STTM	7 consecutive gas days

Parameter	Description	Market	Value
Minimum market price	The minimum market price to apply for a gas day.	DWGM and STTM	\$0/GJ

Advice Sought

The Consultant is to determine appropriate values of the following market parameters:

STTM	DWGM
Market Price Cap (MPC)	Value of Lost Load (VoLL)
Administered Price Cap (APC)	Administered Price Cap (APC)
Cumulative Price Threshold (CPT)	Cumulative Price Threshold (CPT)

The Consultant is to perform analysis and make recommendations on updating the market parameter values effective from July 2020, which aligns with the effective date for the NEM review. This timing allows for the new market parameters to be codified through the Rule change process following completion of this review. In performing the analysis, the Consultant is to consider if any of the recommendations would be best implemented from July 2019³.

The market parameters recommended by the Consultant will inform discussion at the Gas Wholesale Consultative Forum (GWCF) and a formal consultation process conducted by AEMO under the extended consultative process in the NGR⁴, and subsequently any Rule or Procedure change proposal required to give effect to the new market parameter values. To aid in making a proposal for change, or otherwise, the Consultant must include a sensitivity study of the impact of the market parameters on market outcomes and participant risk exposures.

The Consultant is required to provide a draft report on the modelling methodology, assumptions, data to be used in its analysis and any preliminary findings. This report must clearly articulate the rationale to justify the Consultant's proposed methodology. The Consultant must present this report at a GWCF workshop in October or early November 2017. AEMO, in consultation with the GWCF, will endorse the reasonableness of the methodology, input assumptions, and the data to be used.

The Consultant is required to produce a report incorporating feedback from the GWCF workshop by late November 2017. AEMO will publish the report and seek submissions from stakeholders within 25 business days.

The Consultant is required to incorporate feedback from submissions, finalise modelling and provide a comprehensive draft report. This report will detail the Consultant's recommendation on the value of each of the market parameters, and clearly articulate the methodology applied and the rationale to justify recommendations. This is required to inform the industry and also as an input on how market parameters will be revised in the future.

The Consultant is required to present their draft report to the GWCF on 13 February 2018, and AEMO will subsequently publish the draft report and seek submissions from stakeholders within 10 business days.

The Consultant is required to incorporate feedback from submissions and provide its final report on its modelling, recommendations and rationale for the recommendations to allow AEMO to publish a final decision by 30 April 2018.

³ NGR 492(3) allows parameters to be implemented from July 2019 if "the assumptions on which that value was previously set have been shown to be incorrect in a material respect; and AEMO has given due consideration to the impact of the change to the value on Trading Participants".

⁴ NGR Part 3, Division 2, rule 9A 'Extended consultative procedure'.

In developing its recommendations, the Consultant is to have regard to the following:

1. Recognise links between markets

The analysis of the gas market parameters must recognise interactions between the STTM, DWGM and NEM, recent developments in each of these markets and the convergence of the gas and electricity markets. In particular consideration of interactions between the STTM and DWGM and between each of these markets and the NEM should recognise the activities and operations of participants across markets.

2. Recognise industry structure and future developments

Any modelling of market outcomes should represent the broad industry structure as it exists today and include foreseeable changes to industry and market design in the future. Any changes to industry structure and market design since the previous review should be taken into consideration. Modelling need not attempt to represent actual industry players, it should represent the different distributions of participant size and roles in the contract and spot markets.

The modelling needs to be cognisant that the Review of the Victorian Declared Wholesale Gas Market⁵ currently being conducted by the AEMC may impact on market parameters in the DWGM and STTM. The Consultant should design the modelling to allow for a possible extension of the scope of work to include any outcomes from this review.

3. Data to be used

The determination of the market parameters should be based on available public and market data or be reasonable and logically based estimates of data values which are not otherwise public or available. It is expected that the Consultant will be able to access information by which it can provide a reasonable basis for estimating marginal supply costs. If not, the Consultant is to advise what additional information, if any, is required to perform its task for determination of market parameters, and how it intends to meet these requirements. AEMO will provide whatever data it can in meeting these needs, however, the Consultant should attempt to minimise its reliance on detailed support from AEMO. Where historic or market data does not exist the Consultant will have to adequately justify the use of alternative information.

AEMO, in consultation with the GWCF, will have the opportunity to review the assumptions and the data before modelling commences and may request changes to data and assumptions. Where AEMO requires changes to assumptions and data the Consultant shall use that data in its modelling but will not be accountable for the assumptions and data.

4. Determination of MPC / VoLL

MPC or VoLL is to be determined with the primary focus on economic price signalling as a market clearing incentive. It is to be a value greater than the maximum short run price expected to arise in the market, recognising that the STTM prices both the gas commodity and the cost of transmission in its prices whereas DWGM prices only include gas commodity costs. The value of MPC/VoLL is to be set with the aim of maximising the opportunity for an efficient market to clear in the short run. This objective implies that longer term investment costs will be recovered over time, but does not restrict short run prices to be constrained by long run average cost.

⁵ <http://www.aemc.gov.au/Markets-Reviews-Advice/Review-of-the-Victorian-Declared-Wholesale-Gas-Mar>

In the STTM the value of MPC should be common to all hubs and across the ex ante market price, contingency gas price and the ex post market price. In the DWGM the value of VoLL should be common to all schedules.

In considering the short run cost of demand side response in each market, the appropriate measure should be the greater of the cost incurred for a rare temporary supply interruption and the cost of responding to a long term loss of reliability due to supply side under-investment.

Whilst the setting of MPC/VoLL has fundamental implications for overall risk in the market and is a primary driver of that risk, the determination of its value is to focus on achieving economic price signals rather than to limit risk. Risk is addressed by the application of an administered price cap, and accordingly will be addressed when determining that price cap.

5. Determination of APC and CPT parameters

The purpose of the administered price cap (APC) is as a last resort to address unmanageable risk in the market by limiting the impact of extreme and prolonged events. Accordingly, the APC is a balance between providing limitation of overall risk whilst maintaining appropriate incentives on individuals for prudent risk management and minimising distortion of incentives for appropriate investment.

APC will be triggered by the cumulative price threshold (CPT) or triggered as a result of events that occur on a given day, primarily force majeure type conditions.

The intent of CPT is a means of addressing unmanageable risk and distortions arising from prolonged exposure to very high prices. CPT allows for a high MPC/VoLL that meets the objectives of ensuring voluntary market clearing and at the same time allows management of risk due to high price.

The Consultant is required to determine the appropriate settings of APC and CPT.

Modelling approach

The general modelling approach to be employed is at the discretion of the Consultant. However an ability to simulate and study the market outcomes and participant risks of different market parameters in and across markets is to be developed. It is expected that a range of analysis scenarios will be developed that test and validate the market parameters. Each scenario should relate to a specific set of assumptions and methodology.

Where the Consultant's methodology differs materially from previous methodology, or clearly favours one approach over another and explanation of the favoured approach and how it pertains to the scenario(s) under analysis should be provided.

Deliverables and Indicative Timing

The Consultant is required to provide the following deliverables:

The date for delivery of each stage of the report is to be agreed between AEMO and the Consultant within the constraints of the extended consultative procedure and the high level timeline set out below.

Date	Deliverable
Late October / early November 2017	A draft consultation report and presentation to the GWCF outlining the methodology, modelling rationale and assumptions, data to be employed in setting the market parameters, and any preliminary findings.
Late November 2017	A consultation report outlining the methodology, modelling rationale and assumptions, data to be employed in setting the market parameters, and any preliminary findings.
13 February 2018	A presentation to the GWCF on the draft report's recommendations for market parameters and the rationale for the recommendations.
Mid-February 2018	A draft report on the recommendations for market parameters including the basis of any recommendation and methodology used to reach the conclusions.
Mid-April 2018.	A final report on the recommended market parameters including the basis of any recommendation and methodology used to reach the conclusions.