

National Gas Market Development Options

**Second Report to Gas Market Leaders Group
by
Gas Market Options Working Group**

8 May 2006

Table of Contents

1.	Overview.....	5
2.	Background.....	5
2.1	Terms of Reference for the Gas Market Options Working Group.....	5
2.2	Membership of the Group.....	6
2.3	Initial Report and Subsequent Tasks.....	6
3.	Definition and Scoping of Options.....	8
3.1	Option 2 – Bulletin Board	8
3.1.1.	What is a Bulletin Board?	8
3.1.2.	Bulletin Board – Objectives.....	8
3.1.3.	What information would be provided?.....	9
3.1.4.	Provision of Information.....	10
3.1.5.	Voluntary or Mandatory?	11
3.1.6.	Single or Multiple Bulletin Boards?	11
3.1.7.	Bulletin Board Administration/Maintenance	11
3.1.8.	Bulletin Board Access.....	12
3.1.9.	Legislation and Code Requirements.....	12
3.1.10.	Impact on Scheduling/Pipeline Operation.....	13
3.1.11.	Impact on Contracting Arrangements	13
3.1.12.	Consistency with NGERAC direction	13
3.1.13.	Timetable for Implementation	13
3.2	Option 3 – Short-Term Trading Market.....	14
3.2.1.	Objectives.....	15
3.2.2.	Short-Term Trading Market - Concept.....	15
3.2.3.	Information Requirements	20
3.2.4.	Voluntary or Mandatory?	20
3.2.5.	Prudential Requirements	21
3.2.6.	Impact on Pipeline Scheduling/Operation.....	21
3.2.7.	Impact on Contracting Arrangements	22
3.2.8.	Legislation and Code Requirements.....	22
3.2.9.	Consistency with NGERAC direction	22
3.2.10.	Compatibility with the Victorian Gas Spot Market	23
3.2.11.	Other Issues Considered Since Initial Report To The Gas Market Leaders Group..	23
3.2.12.	Timetable for Implementation	26
4.	Initial Assessment of Options.....	28
5.	Bulletin Board/STTM Governance	31
5.1	Functions of Bulletin Board/STTM Operator.....	31
5.2	Governance requirements.....	32
5.3	Suitability of Existing Australian Energy Market Operators/Administrators.....	33
5.4	Governance Options	35
5.5	Illustrative Governance Models	36
5.5.1.	The Jurisdictional model.....	36
5.5.2.	Jurisdictional / Industry model	37
5.5.3.	The Co-Regulatory Model.....	38
5.5.4.	Joint Government and Industry Approach	39
5.5.5.	Industry Independent Market Operator/Administrator	40
5.6	Other Governance Considerations	41
5.6.1.	Combined energy (gas and electricity) market operator options.....	41
5.6.2.	Statutory or Corporate Entity?	41

5.6.3.	Funding	41
5.6.4.	Liability	42
5.6.5.	Rule Making.....	42
5.6.6.	Rule Change Process.....	42
5.6.7.	Compliance.....	42
5.6.8.	Dispute Resolution	43
5.7	Discussion of Governance Options	44
5.7.1.	Comparison of Models.....	45
5.8	Impact on Existing Market Operators	46
Appendix 1:	Gas Market Options Working Group	48
Appendix 2:	MCE Principles for Gas Market Development	50
Appendix 3 :	Daily Operation and Settlement of STTM – Worked Example.....	51

1. Overview

On 3 February 2006, the Gas Market Options Working Group submitted an Initial Report to the Gas Market Leaders Group, which further developed and defined gas market Options 2 and 3, as initially identified in the Allen Consulting Group Report¹ to the MCE's Standing Committee of Officials, namely:

- Option 2 - a Bulletin Board; and
- Option 3 - a Short Term Trading Market model (previously referred to in the Allen Consulting Report as the "City Gate Model")

Following consideration of this Initial Report, the Gas Market Leaders Group, at its meeting on 13 February 2006, requested that the Gas Market Options Working Group undertake further work to develop the options and assist the Gas Market Leaders Group in its preparation of recommendations to the MCE on a National Gas Market Development Plan.

This second report from the Gas Market Options Working Group to the Gas Market Leaders Group supersedes the Initial Report, incorporating but updating and extending the details previously provided.

2. Background

The Gas Market Leaders Group has been established by the Ministerial Council on Energy to develop a Gas Market Development Plan which will deliver on the MCE's objectives for a competitive, reliable and secure natural gas market delivering increased transparency, promoting further efficient investment in gas infrastructure and providing efficient management of supply and demand interruptions as set out in the MCE's Expanded Gas Program.

Specifically, the Plan should provide:

- further development of Options 2 or 3 identified in the Allen Consulting Group (ACG) Report; or
- an alternative market development plan that provides equivalent benefits in terms of transparency and lowering barriers to market entry.

The Gas Market Leaders Group first met on 12 December 2005 to establish a workplan for delivering on its terms of reference and decided to establish a Gas Market Options Working Group to assist it with this task.

2.1 Terms of Reference for the Gas Market Options Working Group

The full Terms of Reference for the Gas Market Options Working Group are provided in Appendix 1, and are summarised as follows:

- Define and scope Options 2 and 3 from the Allen Consulting Group Report to a sufficient level of detail to be able to make an assessment of the feasibility and cost/benefit of the options and any variations.
- Issues to address include:

¹ The Allen Consulting Group, "*Options for the development of the Australian wholesale gas market*", June 2005

- Whether participation should be voluntary or mandatory.
- Necessary prudential requirements.
- Governance arrangements.
- Market clearing mechanisms.
- Information requirements for each option, and particularly what information would be posted on a Bulletin Board (such as system capability, supply and demand information, price etc).
- A methodology to allow a cost benefit analysis of each option (high level).
- Barriers to implementation.
- An implementation path.
- Any legislation or code requirements or amendments.
- Production of an Annual Report focusing on supply/demand projections and system constraints.
- Assessment against the MCE Gas Market Principles (in Appendix 2 as augmented by the Gas Market Leaders Group).

2.2 Membership of the Group

Current members of the Gas Market Options Working Group are as follows:

- Matt Zema, CEO VENCORP (Chair)
- Stephen Thomson, CEO REMCO
- Julian Turecek (Origin Energy), representing ERAA
- Peter Geers (AGL), representing ERAA
- Stephen Livens (Epic Energy), representing APIA
- Rod Johannessen (APT), representing APIA
- Peter Fennessy (Alinta), representing ENA
- Mark Frewin (TRUenergy) representing NGF
- Matthew Arnold (ExxonMobil), representing APPEA
- David Headberry, representing End Users
- Darren Nelson, representing NT Power and Water
- Paul Bresloff-Barry, representing SynergyEnergy(WA)
- Terry Grimwade (VENCORP)
- Marie Taylor, MCE Secretariat

2.3 Initial Report and Subsequent Tasks

In accordance with its Terms of Reference, the Gas Market Options Working Group prepared an Initial Report to the Gas Market Leaders Group on 3 February 2006. Following consideration of this Initial Report, at its meeting on 13 February 2006 the Gas Market Leaders Group requested that the Gas Market Options Working Group undertake further work in a number of areas. Table 2.1 summarises how the Working Group has addressed these issues.

Task ²	How Addressed/Reported
(i) Further definition and clarification of the market clearing mechanism for the STTM, including further consideration of interfaces between the STTM and existing pipeline transportation contracts.	GMOWG has undertaken significant work in the extension of the STTM concept, including its practical application at hubs supplied by multiple pipelines. This work has involved development of worked examples illustrating the operation and settlement of the STTM for a multiple pipeline case, and the consideration of a range of practical, contractual and risk management issues. These issues and the worked examples are presented and discussed further in this report.
(ii) Exploration of the options for an independent bulletin board/short-term trading market operator.	The functions and governance options for a Bulletin Board/STTM operator are described and discussed in Section 5 of this report.
(iii) Development of the scope for, and management of, a consultancy to undertake a cost benefit analysis of the two options.	Following a competitive tender process, McLellan Magasanik and Associates (MMA) has been engaged and has commenced a cost-benefit analysis of the Bulletin Board and STTM options. MMA is due to produce a draft report to GMLG by 10 May 2006.
(iv) Consideration of governance arrangements and the most effective use of legislation and/or Codes to implement the Options.	This issue is closely related to the choice of governance framework to apply to the Bulletin Board/STTM operator and has been considered as part of task (ii) – see Section 5 of this report.
(v) Considering the value of developing a gas Statement of Opportunities (SOO) similar to the electricity SOO.	GMOWG considers that an annual supply/demand statement, similar to the NEM SOO, would be of benefit to the gas industry and could be made available via the Bulletin Board. See section 3.2.11 (f) of this report.
(vi) Considering the potential locations for introducing the two options and over what timeframe.	The GMOWG considers that a Bulletin Board could probably be implemented within 6-12 months. Implementation of a STTM is expected to require about 2-3 years. Subject to the outcome of the cost-benefit analysis, it is envisaged that initial implementation of the STTM would be for hubs located in SA and NSW. Further implementation could proceed in ACT, Queensland, WA and NT if the cost-benefit analysis indicates it would be appropriate. Implementation of a Bulletin Board could be an interim step towards introduction of the STTM. See sections 3.1.13 and 3.2.12.
(vii) Establishing a close liaison with National Gas Emergency Advisory Committee (NGERAC).	At its meeting on 8 March 2006, NGERAC was appraised of the development of market options as set out in GMOWG's Initial Report to GMLG. The synergies between the two streams of work were noted, and ongoing liaison will be ensured by substantial common membership of NGERAC, GMLG and GMOWG, together with attendance at NGERAC meetings by the Chair of GMLG.

Table 2.1 : GMOWG Tasks Assigned at GMLG Meeting on 13 February 2006

² Tasks (i) – (vii) in Table 2.1 correspond to Tasks 1, 2, 3, 4, 9, 10 and 11, respectively, as listed under Agenda Item 8 in the Minutes from the Gas Market Leader's Group meeting on 13 February 2006.

3. Definition and Scoping of Options

Options 2 and 3 of the Allen Consulting Group Report were :

- Option 2 – “The current market with bulletin board facilities”; and
- Option 3 – “The city gate scheme”

The Allen Consulting Group Report described these options at a relatively high level, requiring significant further detail to be defined for there to be a clear and common understanding of the information and operational requirements. Further, while that report based its description of Option 3 on a concept contained in a submission to the MCE by the Energy Retailers Association of Australia (ERAA)³, it was noted that there were some key differences between the description in the Allen Consulting Group Report and the intent of the original ERAA proposal.

The Gas Market Options Working Group has, therefore, developed the following more detailed descriptions of Options 2 and 3.

The Allen Consulting Group Report referred to Option 3 as “The city gate scheme” on the basis that it would involve spot prices being set at notional nodes where transmission pipelines fed into and out of major load centres or “city gates”. However, footnote 47 of the Allen Consulting Group Report (page 46) explained that, provided there was enough liquidity, nothing precluded prices being set at other hubs, potentially even injection or interconnection points rather than demand centres; for example Iona, Moomba, Longford or Culcairn. Therefore, rather than pre-empt the choice of preferred pricing nodes at this stage, the Gas Market Options Working Group has agreed to refer to Option 3 in this report as the “Short-Term Trading Market”.

3.1 Option 2 – Bulletin Board

3.1.1. What is a Bulletin Board?

A “Bulletin Board”, in this context, refers to an electronic device (e.g. such as a web-page) for the posting of information.

Implementation of this option could involve a single Bulletin Board, which contained information pertaining to all participating pipelines, or, alternatively, a number of Bulletin Boards, each containing information specific to individual pipelines or regions.

3.1.2. Bulletin Board – Objectives

The objective of a Bulletin Board service would be to facilitate trade in gas over the relevant pipeline system through the provision of system and market information, which would be readily available to all users, potential users and other interested parties. A Bulletin Board would not provide a mechanism for setting a spot price, or clearing price, for gas, and it would not impose mandatory mechanisms for the trading of imbalances.

As such, the Bulletin Board may provide limited added value to the existing major players in the national gas market who, through their existing contractual arrangements or industry networks, already have

³ ERAA Wholesale Gas Standing Working Group, “An Australian Wholesale Gas Market – Its Justification, Framework and Governance”, September 2004

access to much of the information it would provide. Its primary purpose would be to provide readily accessible and updated information to end-users, smaller or potential new market entrants, and market observers (including Governments), on the state of the market, system constraints and market opportunities.

The MCE and GMLG have acknowledged that there is a very close relationship between the Bulletin Board option and the need for information to be provided to the NGERAC to allow informed decisions to be made in times of major supply constraint. It is therefore desirable to have a single process develop a solution that meets both needs.

3.1.3. What information would be provided?

As a minimum, the Bulletin Board should provide up to date information on the overall physical condition and capacity of the pipeline system to supply projected demand, along with contact details for key industry participants. Further details on the type of information that should be published on the Bulletin Board are provided below. The objective should be to provide up to date information to users or potential users of the pipeline as to where supply or pipeline constraints exist in real time, or may occur under certain conditions and, thus, assist them in identifying potential trading, risk mitigation or investment opportunities. It is emphasized that parties should not be encouraged to rely solely on information on the Bulletin Board as a basis for entering into commercial arrangements, but rather that the Bulletin Board information would provide a basis for interested parties to commence commercial negotiations with other appropriate parties in the gas industry⁴.

The information to be published on the Bulletin Board would be in aggregated form so as not to reveal commercially confidential contractual quantities or other details. The published information should include the following:

- (a) A "baseline" set of information on supply and pipeline capacity. This should be in the form of "nameplate ratings" of each major supply or storage facility's daily production capacity and the daily transportation capabilities of each transmission pipeline, and, where bi-directional flows are possible, in each direction. This information should be updated annually, or whenever significant changes occur.
- (b) Temporary changes to the baseline data should be reported, on an exception basis, whenever maintenance or unplanned outages result in material changes in supply capacity or constraints in transportation capacity. It would be preferable that such advice includes details of the estimated extent and duration of the resultant restriction on supply or transportation capacity. However, it is acknowledged that when plant or pipeline failures or outages occur, such estimates can be problematic and the asset operator/owners' priority will be to channel their efforts to rectifying the problem. Therefore, on occasions, it may be impractical to require detailed and frequently updated information to be posted while the fault is being rectified. Nevertheless, as a minimum, advice should be provided to the market of the existence of a problem and a qualitative statement on the impact on supply or transportation capacity, even if this impact is of uncertain magnitude and duration.

⁴ The legal status of information posted on the Bulletin Board is a matter for further advice and consideration as part of implementation. The intent is that, provided the responsible parties have used reasonable, bona-fide endeavours to provide the required information, they should not be exposed to liability for losses or damages incurred by third parties acting solely on information posted on the Bulletin Board (see also section 13.1.4).

- (c) Details of available firm and non-firm pipeline capacity, including prices⁵.
- (d) Details of forecast aggregate daily demand on the pipeline, or at major demand centres (city gates), should be provided and updated on a daily basis, for each of the next 3 days.
- (e) Key contact details for pipeline operators, producers, storage providers, shippers and retailers (this could be done through hyper-links to their individual web-sites).

While the presentation format for this information is an issue for detailed implementation rather than policy, the Gas Market Options WG considers that it would be helpful if the above information were to be presented in both schematic diagram and tabular form.

The Bulletin Board could also offer a facility for the voluntary posting of buy/sell offers for supply or transportation capacity. The Allen Consulting Group Report (section 4.2) suggested that Option 2 should also include a requirement that all short term contract trades for periods of one year or less be recorded on the Bulletin Board, regardless of whether they were traded through the Bulletin Board or not. However, the Gas Market Options WG considers that such a requirement is unlikely to be either viable or useful. The intended objective for requiring details of such trades to be published is, presumably, to provide increased price discovery and transparency. However, unless all the terms and conditions of a negotiated trade are fully known and understood, then the price and quantity involved would not be particularly meaningful to third parties.

If there were to be an objective to provide some element of price discovery through the Bulletin Board option, then the first requirement would be, as a minimum, to establish a standard contract, with standard terms and conditions. It is understood that AFMA is currently working with its members to develop a standardised contract for gas trading that may prove useful for this purpose. However, as discussed in section 3.1.5, below, it is likely that many trades would still involve negotiated variations to these standard terms and conditions to suit the specific circumstances and requirements of the parties involved.

3.1.4. Provision of Information

Producers, storage providers and pipeline operators would be required to provide baseline information regarding supply and pipeline transportation capacities, and to update the Bulletin Board by exception when these capacities change materially (permanently or temporarily).

Data to compile the daily demand forecasts for the next three days would be provided by "Users" (i.e. retailers or direct, "self-contracting", end-use customers) in the form of aggregate totals for all metered off-takes for which they are assigned responsibility, probably categorized by specified withdrawal zones or regions, which are chosen to reflect different pipeline sectors or possible points of constraints. The independent administrator/operator of the Bulletin Board (see section 3.1.7) would further aggregate the data provided by individual Users so as to protect commercially sensitive data.

Legal advice would be required to ensure that obligations to provide this information are imposed in such a way that responsible parties who use bona fide and reasonable endeavours to fulfil their obligations are not exposed to liabilities as a result of errors or omissions.

⁵ The proposal is based on details being provided by pipeline operators of spare, uncontracted, pipeline capacity and does not extend to a mandatory requirement on shippers to provide details of any unused contracted capacity. This is because to do so would only be useful to the extent that a shipper was willing to on-sell any such spare capacity, in which case the shipper could voluntarily offer such capacity for sale via the Bulletin Board. The Bulletin Board would not directly address any potential "hoarding" by shippers of unused contracted capacity.

3.1.5. Voluntary or Mandatory?

Provision of the physical system information for posting on the Bulletin Board would need to be standardised and mandatory – at least for all interconnected pipelines. This may necessitate imposing obligations (on a reasonable endeavours basis) on pipeline owners/operators, storage operators, producers and/or shippers to provide timely information in a specified, standard format. Even if there were a number of Bulletin Boards, each operated and updated by the respective pipeline owners/operators, for interconnected pipelines this information would need to be presented and updated in a consistent format and with consistent timing across the interconnected system.

If a single Bulletin Board was implemented to cover all pipelines, or all interconnected pipelines, then the content and format of the information to be provided by the various parties to the Bulletin Board “operator” would also need to be standardised to the extent possible – recognising that even with an interconnected system, individual pipelines or components of pipeline systems may have specific characteristics that may warrant the provision of specific information or specific treatment of that information.

Posting of buy/sell offers on a Bulletin Board would necessarily be voluntary.

A mandatory requirement to post buy/sell offers on the Bulletin Board, and/or details of any trades that are completed as a result, would be very difficult to monitor and enforce. Furthermore, even with standardised terms for buy/sell offers, subsequent bilateral negotiations may see such terms and conditions varied prior to completion of a trade, making price information unreliable for comparison purposes.

Consequently, it is not considered that any attempt to enforce mandatory publication of completed trades on a Bulletin Board would be successful in providing effective price discovery.

3.1.6. Single or Multiple Bulletin Boards?

There should be a single Bulletin Board for all interconnected pipelines, currently including the interconnected systems of South Australia, NSW, Tasmania and Victoria. Other pipelines in Queensland, Northern Territory and Western Australia could either have separate Bulletin Boards, or preferably separate pages on the same site.

The alternative of each pipeline owner/operator developing and administering their own bulletin boards would appear likely to add additional costs in duplication of effort, and introduce the potential for inconsistency in the format and content of the information provided. Plus, if the Bulletin Board were to provide a mechanism through which industry participants could post buy/sell offers, then a single interface would have advantages for participants who trade across multiple pipelines.

3.1.7. Bulletin Board Administration/Maintenance

The aim should be to minimise any additional work and costs imposed on those parties required to provide the required data – likely to include producers, storage providers, pipeline operators and shippers/retailers.

The preferred approach is that the Bulletin Board is developed in such a way as to enable each party responsible for providing the required information to access, input and update that data directly through an electronic and (as far as possible) automated system.

Even so, with a single, central Bulletin Board covering a number of pipelines, it is likely that an independent administrator or service provider would be required to oversee the development, maintenance and ongoing smooth operation of the Bulletin Board. This function should be provided by an entity with appropriate governance arrangements and expertise to ensure the integrity of the data and information on the Bulletin Board.

The National Gas Emergency Response Advisory Committee (NGERAC) has agreed that an independent expert support function will be required to assist in the collection, maintenance, publication and analysis of similar gas system information for the national management and coordination of gas emergencies (see section 3.1.12). NGERAC has also acknowledged that, should it be decided to proceed with either the Bulletin Board or Short Term Trading Market (STTM) options, then the synergies are such that it would likely make sense for the Bulletin Board or STTM administrator/operator to fulfil the NGERAC support function.

The possible range of options for the establishment, governance and funding arrangements for a Bulletin Board or STTM administrator/operator are presented and discussed in Section 5.

3.1.8. Bulletin Board Access

To achieve the intended transparency and availability of information, there should be public access to most, if not all, of the information referred to in section 3.1.3. Dependent on the nature of the information finally provided on the Bulletin Board it may, however, be necessary (for reasons of commercial confidentiality or security) to consider developing "public" and "restricted areas" with only registered parties having access to the restricted areas. Such a structure is in place, for example, on the Victorian Market Information Bulletin Board ("MIBB"), which provides all market participants with general access to much of the information but also has areas where confidential information is available only to the relevant individual Market Participants.

3.1.9. Legislation and Code Requirements

As stated in section 3.1.5, for the Bulletin Board to be effective, provision of the required information would need to be mandatory, which may necessitate imposing obligations on pipeline owners/operators, storage operators, producers and users, to provide timely information in a specified, standard format. Some legal protection from liabilities may also need to be provided to those entities providing the information.

Since these obligations would need to apply to both covered and uncovered pipelines, and to pipeline users as well as pipeline owners/operators, the National Gas Access Code would not be an appropriate vehicle for this purpose.

It is considered likely that it would be necessary to impose the necessary obligations through the National Gas Law. There are alternatives in the way in which this is done, either by including the detailed requirements and rules in the Law, or by the Law requiring that all users comply with an appropriate scheme approved by, and meeting requirements specified by the AEMC.

The MCE should seek legal advice and consult with industry on the most efficient and effective way of imposing these obligations on all producers, storage providers, pipeline operators and users. If the Bulletin Board were to be administered by the STTM operator, then a decision on the governance of the STTM would be closely related to the choice of governance framework for the independent Bulletin Board administrator/operator, which is further discussed in Section 5.

3.1.10. Impact on Scheduling/Pipeline Operation

The Bulletin Board would have no direct impact on pipeline operations, or the way in which gas injections and withdrawals are scheduled by the pipeline owner/operator. Production and pipeline operation would continue in accordance with the existing nominations and operational procedures as set out in the contractual arrangements that are in place.

3.1.11. Impact on Contracting Arrangements

A Bulletin Board scheme would have no direct impact on the operation of existing gas supply or pipeline transportation contracts. Future gas supply and pipeline transportation arrangements would generally continue to proceed on the basis of bilaterally negotiated contracts.

The Bulletin Board would provide historical (and short term future) information that existing and new industry participants could use either in negotiating new long-term contracts, or for short term trading around their existing contracted positions.

To the extent that participants wish to use the Bulletin Board to post buy/sell offers and details of completed trades, then such arrangements would benefit from the use of standard terms and conditions.

3.1.12. Consistency with NGERAC direction

To assist with the national coordination and management of gas emergencies, the MCE's National Gas Emergency Response Advisory Committee (NGERAC) is developing proposals in support of the National Gas Emergency Response Protocol. At its meeting on 8 March 2006, NGERAC confirmed that establishment of a single central Bulletin Board as proposed in section 3.1.6, containing the information outlined in section 3.1.3, would be consistent with, and go a long way to fulfilling, the approach currently being considered by NGERAC in terms of the publication of system supply/demand information. Further, NGERAC has acknowledged that an independent Bulletin Board operator would likely be well placed to provide it with independent expert analytical support (see section 3.1.7).

Nevertheless, the Bulletin Board as proposed would not fully meet NGERAC's requirements. The annually published supply/demand information would likely need to be supplemented with scenario analysis of the impacts of credible significant contingency outages. This information would assist parties in identifying requirements and opportunities for risk mitigation strategies. However, the Bulletin Board would provide no pricing signals for short-term trades or demand-side response and, therefore, little improvement in the market's ability to respond to shortfalls in gas supply so as to defer or avoid intervention by operators or jurisdictions with the advice of NGERAC. NGERAC also noted that the Bulletin Board would offer little assistance in providing clear and transparent triggers to initiate actions by NGERAC and/or Government intervention in the event of supply shortages.

3.1.13. Timetable for Implementation

There would not appear to be any substantive barriers to implementation of the Bulletin Board approach described above.

Subject to the appointment of an appropriate entity to oversee its establishment, a Bulletin Board could be implemented within 6–12 months, with the introduction of legislation to impose obligations for information provision likely to be on the critical path. Development of systems and any infrastructure required to support the Bulletin Board could perhaps proceed in parallel with the drafting and passing of the required legislation.

However, ideally, the development of the Bulletin Board systems and infrastructure would be undertaken or led by the Bulletin Board operator, in which case the lead-time to resolve the preferred governance framework and establish this entity would likely delay commencement of the system development work. While it would be conceivable to avoid such delays by vesting initial development of the Bulletin Board with an existing entity and then transferring responsibility to the new Bulletin Board operator once it is formed, this would have the potential disadvantage of a lack of accountability for the initial delivery of the systems.

It is understood that NGERAC is about to seek tenders for the provision of an independent support function, to collect, publish and analyse system data to underpin the National Gas Emergency Response Protocol. This could perhaps be viewed as an incomplete but interim step, pending establishment of the Bulletin Board operator and subsequent implementation of the full Bulletin Board option.

3.2 Option 3 – Short-Term Trading Market

The fundamental feature of Option 3, both as described by the Allen Consulting Group Report and in the original ERAA proposal, is the establishment and publication of a market-clearing price for gas deliveries at a notional node or “hub”, or at a number of “hubs” in an interconnected pipeline system. The details of implementation may vary, but the basic concept of hub pricing is widely used, perhaps most notably in the USA.

The Short Term Trading Market (STTM) concept has been developed on the basis that the “hubs” will initially be established as a grouping of delivery points or “city-gates” covering the main demand centres, although it is conceivable that, over time, other pricing “hubs” may develop.

The following description of the STTM reflects the considerations and progression in thinking of the Gas Market Options Working Group since submission of its Initial Report and the Gas Market Leaders Group meeting on 13 February 2006.

As proposed, the STTM would become the compulsory balancing mechanism between retailers, self-contracting users and shippers, and would replace the existing distribution system balancing arrangements where it is implemented⁶. It is noted that participants in NSW/ACT are, in any case, considering alternatives to the existing “operational balancing gas” (OBG) arrangements, and participants in SA/WA are considering alternatives to the “swing service” arrangements.

The NSW/ACT participants have deferred further work on the changes to the OBG arrangements pending clarity on the progress of the STTM. Should the STTM proceed for NSW, then this will be accepted as being the new gas balancing arrangement for NSW to replace the OBG arrangements for the sub-networks that will be incorporated in STTM hubs. However, for SA and WA there is sufficient commercial incentive to continue to pursue changes to the Swing Service arrangements, even if these are only interim changes to the gas balancing arrangements for some sub-networks that will be replaced by the STTM once it is ready to be implemented.

⁶ The proposed arrangements could apply to all pipeline systems. However, as part of any decision on whether to proceed with this Option, there is the need to consider whether there would be adequate benefits on non-interconnected pipeline systems such as (currently) WA, NT and Queensland.

3.2.1. Objectives

Rather than viewing the Bulletin Board and STTM as distinctly separate options, the Bulletin Board may effectively be viewed as a sub-set and essential component of the short-term trading market. As discussed below, the STTM would require the publication of the same information as that required for the Bulletin Board option. Whereas the Bulletin Board does not set a clearing price, provide effective price discovery or incorporate a trading mechanism, the STTM has been developed by the Gas Market Options WG to incorporate all of these features, while seeking to minimize impacts on the operation of existing contractual arrangements between producers/shippers, shippers/pipeline operators and shippers/users.

The objective of the short-term trading market is, thus, to provide a short-term trading and pricing mechanism for gas delivered at the "hubs" and variances between forecast and actual demand. The proposed STTM will not price directly, or impose obligations on any party in respect of, differences between the pipeline deliveries at the hub and the supply point injections⁷ (i.e. changes to linepack). Physical restoration of linepack will remain a matter to be dealt with through balancing obligations that exist in pipeline transmission agreements between shippers and pipeline operators.

The short-term trading market will not replace bilaterally negotiated longer-term contracts between shippers and producers, storage providers and pipeline operators, as the primary mechanism for the wholesale sale and purchase of gas, or for underpinning investment. It will, however, allow retailers and direct, self-contracting users to purchase gas on a short-term basis without contracting with producers, transmission pipeline operators or shippers for delivery, and will allow those parties who have such supply and transportation agreements to manage short-term variations to their contracted quantities as their, or their customers', usage of gas changes from day to day.

The clearing prices determined at the hubs, together with published system supply/demand information, would provide pricing signals and facilitate secondary trading between shippers and users, for gas fired power generators, for trading over interconnecting pipelines between hubs, and for demand side response, particularly at times of supply shortages or constraints.

While intended to have no (or minimal) immediate or direct impact on the operation of existing shipper-pipeline operator transportation contracts, the existence of the STTM may, over time, increase the value and provide greater incentives for parties to seek park/loan, storage or other transportation services that may increase their flexibility to manage their exposures in the short-term market.

3.2.2. Short-Term Trading Market - Concept

Figure 1 illustrates schematically a hub supplied by one or more pipelines and the terminology used in this report to describe the proposed STTM concept.

The key participants in the STTM are:

- **"Users"** - who are responsible for gas withdrawals at the hub. "Users" may be:
 - "Retailers", who purchase gas delivered at the hub from "Shippers", under contract and/or via the STTM, and then on-sell the gas to end-use customers; or

⁷ "injections" of gas into a pipeline, or "injection points" are sometimes referred to as "receipts" and "receipt points" by pipeline operators.

- “Direct end-use customers” or “Self-contracting customers”, who purchase their gas at the hub directly from “Shippers”, under contract and/or via the STTM, rather than purchasing through a retailer.
- **“Shippers”** - who contract for gas to be produced, or released from storage, and transported over transmission pipelines to the customer demand centres, or “hubs”, and sell to Users under contract and/or via the STTM.

“Users” (either “retailers” or “direct end-use customers”) may choose to enter contracts with gas producers and pipeline operators themselves and, hence, be their own “shipper”. However, for clarity, these parties are generally referred to in this paper in their separate roles.

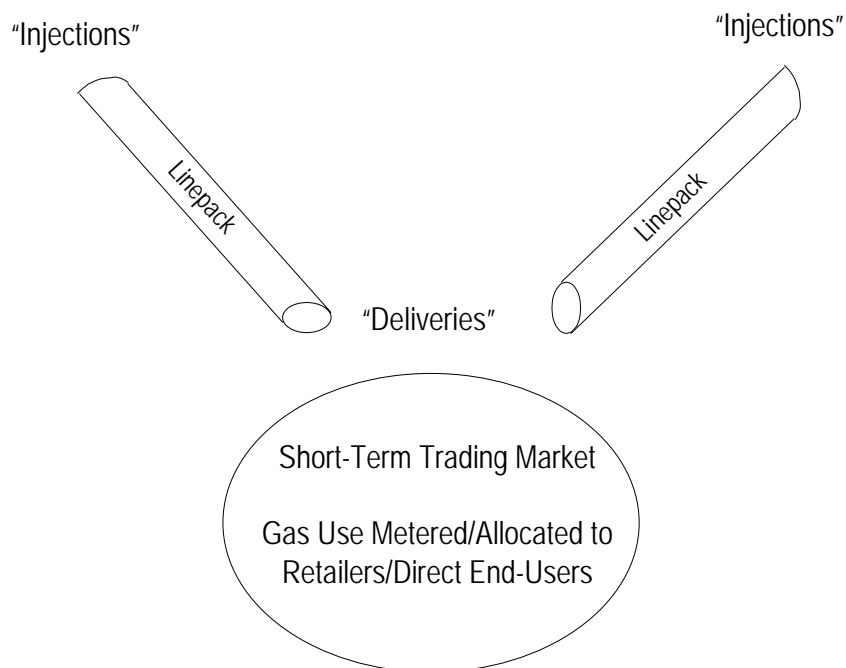


Figure 1: Short-Term Trading Market – Terminology

Pipeline Operators would not be required to participate either commercially or operationally in the STTM, other than being required to provide the Market Operator details of the allocated daily gas deliveries at the hub to the various shippers under their haulage contracts. The management of shipper imbalances on the pipeline, between the supply point and the delivery point, would remain a matter to be managed between the Pipeline Operator and Shippers under their contractual arrangements, outside of the STTM.

There would be no obligation on upstream gas producers or storage providers to submit bids/offers or otherwise be involved in trading arrangements under the STTM. However, such producers/storage providers would have the option of participation through offering gas deliveries at the hub, where they have access to transportation rights to the hub and can, therefore, act in the capacity of a shipper.

Gas “Injections” or “Receipts” are those quantities that are supplied into the pipeline upstream of the hub by the producers/storage providers, in accordance with contractual orders or nominations placed by shippers.

Gas "Deliveries" are those quantities that are delivered to a gate point that is part of the hub in accordance with contractual processes between the shippers and the pipeline operators.

At the hub, the delivered gas is supplied to directly connected gas-fired power generators or other large commercial/industrial loads and into the distribution networks to be used/burnt by end-use customers who, with the advent of retail competition, may now purchase gas directly or from a retailer of their choice.

Thus, at the hub, there are two different types of "imbalances" that may occur on any given day:

- (i) the total amount of gas used at the hub may be different to the nominated gas deliveries, because end use customers actually use more or less gas in aggregate than was arranged to be delivered by the shippers on that day; and
- (ii) the gas used by individual direct end-use customers or individual retailers' customers may be different to the deliveries that they nominated to the pipeline operator directly or via their shipper.

In the event of (i), and assuming that gas supply point injections are made in accordance with the nominated quantities for the day, the difference between nominated deliveries and total usage at the hub will result in a change in linepack on the transmission pipeline. This is because, ignoring linepack downstream of the delivery gate points at the hub, *actual* deliveries will, more or less, equal *actual* end-usage of gas. Therefore, the difference between actual and nominated deliveries will be made up either by an increase or decrease in transmission pipeline linepack. The management of this type of "imbalance" is through the transportation contracts between pipeline operators and shippers. Under these contracts, shippers typically have imbalance tolerances within which they are allowed to operate, with a requirement to physically restore linepack and return into balance within an agreed timeframe, which can be a day or two or, in the case of some pipelines, can even extend to a number of weeks. The precise arrangements will depend upon contractual negotiations, price and the physical characteristics of the pipeline.

In case (ii), assuming that the actual total hub deliveries are equal to the nominated total deliveries, then the imbalances that arise between individual user's nominated deliveries and actual usage will effectively result in some users using gas that has been delivered on behalf of other users. With the advent of retail competition and large numbers of customer transfers on a daily basis, plus increasingly unpredictable end-usage for gas fired power generation, gas users (retailers in particular) need to manage a portfolio of supply, transportation and demand contracts to deal with these daily imbalances and their commercial implications. The STTM is, thus, proposed as a transparent mechanism for pricing and trading imbalances between deliveries and actual gas usage at the hub by shippers and users.

In practice, the imbalances at the hub will almost always be a combination of (i) and (ii) above. To the extent that total usage differs from total nominated deliveries, this will have some flow-on impact on future nominated receipts and deliveries by shippers to meet users' requirements on future days and also to restore linepack as required under the shippers' transportation contracts with the pipeline operators. The extent and nature of this impact will depend upon and be driven by the flexibility provided in the transportation contracts. The actions that are required of shippers under these contracts will be reflected in the prices at which they offer gas for delivery into the STTM on subsequent days.

The model relies on there being sufficient linepack available in the pipeline system to manage imbalances of type (i), above, during the pricing period. With the exception of the Victorian principal gas

transmission system, it is considered likely that most Australian pipelines could operate a short-term trading market as described here with a daily pricing or trading period. This being the case, the STTM would price individual user imbalances on a daily basis.

The STTM clearing price would be determined from a supply/demand curve developed for the hub prior to the start of each gas day.

With the exception of the Victorian principal gas transmission system, the following is an overview of how the STTM would operate each day (discussion of the Victorian gas spot market arrangements is provided in section 3.2.10):

Before the day:

- Users would advise the Market Operator of their projected or nominated withdrawals for the day
- Users may also submit to the Market Operator volume/price bids for gas withdrawals for the day
- Shippers would submit to the Market Operator volume/price bids for gas deliveries for the day
- The Market Operator would then construct a supply/demand curve for delivered gas from the users' nominated withdrawal quantities, including those nominations with price limits, and the shippers' gas delivery bids and, hence, establish a clearing price for the day⁸
- Shippers' deliveries and users' withdrawals cleared in the bid stack become the basis for cash settlement in the STTM
- Cleared daily shipper deliveries and user withdrawals at the hub are cash settled at the clearing price, which is determined before the start of each gas day.

After the day:

- Actual withdrawals by users would be determined by the Market Operator using actual meter data, estimates for those interval metered withdrawal points for which meter data is not available and an allocation process for non-daily metered withdrawal points⁹. A process for dealing with UAFG will be required.
- Allocations of actual deliveries to the Hub by shippers would be determined by the pipeline operators, in accordance with their transmission agreements, and advised to the Market Operator
- This method provides the greatest flexibility for pipeline operators to allocate using all contractual provisions including provisions such as firm and non-firm delivery capacity.
- The Market Operator will then determine:
 - each shipper's delivery variance, which is the difference between the shipper's allocated gas deliveries, as advised by the pipeline operator, and the shipper's cleared deliveries determined before the start of the day via the bid stack
 - each user's withdrawal variance, which is the difference between the user's actual withdrawals, determined by the Market Operator, and the user's cleared withdrawals determined before the start of the day via the bid stack.
- The Market Operator would then settle each shipper's delivery variance and each user's withdrawal variance for the day, at the clearing price determined for the following day (i.e. delivery and withdrawal variances determined after the event for gas day 1, would be cash settled at the clearing

⁸ The intent is to set a single clearing price for each hub, even though it may be supplied by two or more pipelines; i.e. assumes no constraints between delivery points on multiple pipelines. This assumption may not always hold. However, there is a number of market design options to deal with the setting of prices in the event of constraints and this matter would need to be considered further and resolved as part of the detailed market design/implementation.

⁹ The allocation processes related to users' withdrawals used in current retail markets would likely be appropriate for re-use although it is anticipated that, where the STTM is implemented, the STTM operator would assume this function from the existing Retail Market Administrators.

price determined from the bid stack for gas day 2 - this reflecting any cost impacts that such imbalances have on shippers in rectifying the previous day's pipeline imbalance).

While it is acknowledged that some transportation contracts allow a number of days, or even weeks, for shippers to return to balance, the establishment of a daily clearing price for short-term market imbalances is not seen as presenting operational difficulties or significant commercial inconsistencies. Actions taken to restore physical imbalance on the pipeline would proceed in accordance with contractual requirements. If such actions are not required the following day, then there ought not to be any cost impact from the previous day's imbalance reflected in delivery prices offered to the short-term market the following day¹⁰.

A worked example of the daily operation and settlement of the STTM is provided in Appendix 3.

The above description, and the example in Appendix 3, includes discussion of the daily cash settlement of shippers' cleared deliveries, users' cleared withdrawals, shippers' delivery variances and users' withdrawal variances, at the daily clearing price. In practice, it is likely that while these amounts would be determined separately each day, actual financial settlement of the STTM would take place on a periodic, probably monthly, basis, with the single monthly financial transaction for each user or shipper reflecting its accumulated net position¹¹ over that monthly period. Prudential monitoring would also track each user or shipper's net exposure to the market.

Where a user and shipper are the same entity, (e.g. a combined retailer/shipper that arranges and manages its own supply contract with a producer and transmission agreement with the pipeline operator), the Market Operator may provide a single net settlement in respect of cleared deliveries, cleared withdrawals and delivery/withdrawal variances.

Thus, while all deliveries and withdrawals will be required to be nominated, bid or offered into the STTM separately each day, for those entities that are both shippers and users a single net settlement transaction would be required, and prudential requirements could be based on overall net exposures.

For those familiar with the Victorian gas spot market, it is important to note the difference between the Victorian gas spot market and what is proposed above for the STTM. In Victoria, the spot market is integrated with physical operation of the pipeline system such that there is no requirement for transportation contracts to include balancing obligations— this is all dealt with through the spot market. The Victorian spot market prices imbalances but, here, imbalances are calculated as the difference between a Market Participant's total daily metered or allocated injections aggregated from the various supply points and their total metered or allocated withdrawals (or end usage).

The STTM proposed above recognises that, other than the Victorian principal transmission system (PTS), pipelines operate with pipeline imbalances being managed under transportation contracts, some

¹⁰ There is some potential for market distortion if shippers are allowed to accumulate imbalances over a few days, or even weeks, as allowed under their contracts, until such time as some remedial action is required to restore linepack. Conceivably, the cost impacts of the accumulating imbalance may be seen in a high short-term market price on one day - with the possibility that this cost is not allocated to those parties who have contributed to it over a number of days, but just to those parties who incurred an imbalance on the previous day. This issue and its materiality should be considered further in the detailed design and implementation of this Option should it proceed.

¹¹ While a user's cleared withdrawals will always result in an amount that is "owed to" the market, and shippers' deliveries will always result in an amount that is "owed by" the market, withdrawal and delivery variances may be either positive or negative.

of which typically have up to ten years or so to run. The characteristics of most of these pipelines also provide greater ability than exists on the Victorian PTS for pipeline operators to manage daily imbalances through linepack and, potentially, in some cases, to offer other pipeline services such as "park and loan".

The proposed STTM has, therefore, been developed to separate and isolate, as much as possible, the physical balancing of the pipelines themselves from the "market" balancing mechanism. Thus, the management of differences between "injections" and "deliveries" is intended to remain the province of the shipper-pipeline operator contracts, while the STTM is intended to price imbalance transactions, with "imbalance" here referring to differences between "deliveries" and withdrawals or actual usage within the hub.

3.2.3. Information Requirements

There will be a requirement for the publication of system and market information. This could be met by way of web page or other electronic bulletin board format, leveraging the Bulletin Board option. As such, the information requirements set out for the Bulletin Board would be a sub-set of those for the STTM.

The physical system information that is proposed for the Bulletin Board, see section 3.1.3, would, therefore, continue to be collected and made available under this option – i.e. standing or "baseline" system data, daily information provided by way of exception reports on material changes to supply or transportation constraints. To assist shippers to manage risk in the STTM, details of forecast aggregate demand and/or aggregate nominated flows should be updated on at least a daily basis, preferably providing information for each of the next 2-3 days. The initial ERAA proposal suggested that participants be required to submit, daily, bona fide estimates of demand requirements and supply/price data for the next gas day and the following 2 gas days.

Market information, including the clearing prices at each city gate/hub would be published as soon as practical each day, along with projected clearing prices for the following two days.

In addition, market participants will require facilities to submit their daily nominations/bids/offers to the market operator and are likely to require confidential access to data on their own market positions – scheduled quantities, imbalances (in GJ/TJ), market exposures (in dollars).

While some of these functions may be split between the pipeline operators and the market operator, this would likely lead to an unnecessary duplication of effort and potentially inconsistencies in the interfaces participants will require with multiple systems. As is the case with the Bulletin Board facility, there would appear to be value in establishment of a single, central electronic bulletin board-type facility to collect, publish or distribute this information – at least for interconnected pipeline systems.

3.2.4. Voluntary or Mandatory?

Participation in the STTM and exposure to the clearing price in respect of deliveries and withdrawals from the hub would be mandatory for all shippers and users at the designated hubs. Shippers and users would be obliged to provide daily nominations or projections of deliveries and withdrawals, respectively, at the hub.

As is the case under existing gas supply and transportation contracts, all shippers would also continue to be required to provide daily nominations to their gas suppliers and pipeline operators.

The submission of price-based bids or offers to take or supply gas would, however, be voluntary.

There would be no obligation on upstream producers or storage providers to submit bids/offers or otherwise participate in the STTM arrangements. However, such producers/storage providers, who have access to transportation rights to the hub, would have the option of participation as a shipper and could, thus, offer spare capacity into the STTM on any given day, at a price of their choosing.

Pipeline operators would continue to contract their own capacity and services and be accountable for their operating practices through their transmission agreements.

3.2.5. Prudential Requirements

Participants in the STTM would be required to meet specified prudential requirements to cover their exposures or potential exposures in the market. The objective of prudential requirements is to ensure market confidence for “blind” trades between parties, such that prices can be offered on the basis that all potential counterparties meet an acceptable level of financial security. As evidenced by various arrangements that exist in a number of financial trading markets, including the NEM, and the Victorian gas market, there is a range of possible alternative frameworks for prudential requirements. These variously include requirements for lodgement of bank guarantees or other securities, margin calls by the market operator, or maintenance of an acceptable credit rating.

As discussed above, in section 3.2.2, prudential requirements and monitoring could be based on a user or shipper’s overall net exposure to the STTM, and where a user and shipper are one and the same entity, then the exposures of that entity as both user and shipper could also be netted out.

The determination of the most appropriate prudential framework for the short-term trading market is something that should be progressed in consultation with industry as part of the detailed market implementation, but should not be critical in any policy decision over whether or not a short-term trading market should be pursued or not.

3.2.6. Impact on Pipeline Scheduling/Operation

Whilst an independent *market* operator will be required to collect bids/offers, assemble bid stacks, determine the clearing prices¹², collect metering data and settle the STTM, it is anticipated that transmission pipelines can continue to be operated by the pipeline owners/operators under their transportation contracts. Therefore, it is not a requirement for the market operator to act as an independent transmission system operator, except in the case of the Victorian principal transmission system (see section 3.2.10)

While the STTM may well impact on shippers’ nominations to producers and pipeline operators, the pipeline operators should see no change in the nomination process itself. Shippers will continue to nominate according to their contracts. . While the STTM will impose no obligations on shippers to make contractual nominations to their producers or pipeline operators in accordance with the STTM cleared quantities, exposure to future STTM prices for actual deliveries that deviate from the cleared quantities will likely influence shippers in making those contractual nominations.

¹² It is not anticipated that the market operator will require a complex market clearing algorithm to determine clearing prices as, to the extent practical, the intent would be to define hubs such that there are no material constraints between different delivery points. However, should this prove impractical then the market operator may be required to be cognizant of constraints and take these into account in some manner when clearing bids/offers to determine the clearing price.

3.2.7. Impact on Contracting Arrangements

The development of the STTM has been aimed at having no direct impact on existing gas supply, transportation or retailer/shipper contracts, although further investigation and, possibly, design work may be required to confirm that the optimal outcome has been achieved in this regard.

A key issue would appear to be the need to align the allocation (both in the short-term market and by the pipeline operator for its contractual arrangements) of delivery quantities where actual deliveries do not match nominated quantities, either in total or for individual shippers.

Future gas supplies and pipeline transportation arrangements would be expected to continue largely on the basis of bilaterally negotiated contracts.

The STTM would provide a mechanism for short term (day to day) trading around longer-term contracted positions. The system and market information that is made available through the STTM arrangements may also facilitate short-term bilateral trades, and provide a basis for negotiation of new long-term contracts.

3.2.8. Legislation and Code Requirements

There will need to be a legal and/or regulatory framework to enforce the STTM arrangements. All shippers and users will need to be compelled to meet their market exposures and to meet some, yet to be determined, level of prudential requirements.

Pipeline operators and participants will also need to be compelled to meet specified information provision requirements (as they would for the Bulletin Board option).

An independent STTM operator will be required to manage the STTM arrangements. The range of possible options for the governance of the STTM, and the functions, governance and establishment of the STTM operator, are more fully discussed in Section 5.

3.2.9. Consistency with NGERAC direction

Under this Option, the physical system supply/demand information, as provided under the Bulletin Board option, would be supplemented by establishment and publication of a daily clearing price at each hub. The absence of such pricing signals is currently seen as a barrier to the ability of the market to respond adequately in a timely manner to emergencies or, at least, to partial shortages in gas supply or pipeline constraints (for example, through secondary trading over interconnecting pipelines, voluntary use of alternate fuel, or other demand side response), in order to defer, minimise or avoid the adverse commercial impacts of intervention and/or exercise of emergency powers by jurisdictions in rationing scarce gas supplies.

At its meeting on 8 March 2006, NGERAC acknowledged these features of the STTM as being likely to provide an enhancement over the Bulletin Board approach in achieving the objectives of the National Gas Emergency Response Protocol and NGERAC. In addition to the above, NGERAC noted that the STTM, through its pricing signals or its failure to clear at times of supply shortages, would provide more transparent and readily recognizable triggers for action by NGERAC or jurisdictions under the National Gas Emergency Response protocol.

3.2.10. Compatibility with the Victorian Gas Spot Market

The unique characteristics of the Victorian system, being a “meshed” network rather than a point-to-point system, and with volatile and potentially high system demand, but limited usable linepack, mean that an ex-ante pricing mechanism for daily imbalances would be problematic. This is because within day rescheduling of gas supplies is frequently required to maintain linepack within acceptable tolerances.

The Victorian gas spot market has operated since March 1999 with a daily, ex-post clearing price. However, following the recommendations from a Pricing and Balancing Review completed and endorsed by the Victorian Minister for Energy Industries in 2004¹³, VENCORP is in the process of implementing revised spot market arrangements in Victoria which, from October 2006, will see prices set on a daily ex-ante basis but with 4-hourly rebidding and rescheduling periods, and payments for deviations from the ex-ante schedule, which will be determined and published at the start of each 4-hourly scheduling period.

Nevertheless, the principles that will be used in the revised Victorian spot pricing arrangements are broadly consistent with the proposed daily STTM arrangements for other pipelines. Namely, that shippers’ “planned” or scheduled imbalances will be subject to the known ex-ante market imbalance price, and deviations from the ex-ante schedule will be exposed to a market imbalance price determined at the start of the next pricing or trading period.

As such, there is no reason to interrupt implementation of the revised Victorian gas spot market arrangements, which is well underway and on schedule for implementation in October 2006.

There is high confidence that the proposed STTM arrangements will be compatible with the Victorian spot market. The pricing signals at the hubs could be used in conjunction with the price signals from the Victorian market to enable participants to make commercial decisions on how best to use their gas supply and transportation rights across the interconnected gas markets of NSW, ACT, Victoria, South Australia and Tasmania.

3.2.11. Other Issues Considered Since Initial Report To The Gas Market Leaders Group

(a) Default Price, “VoLL”

Should the STTM fail to clear, i.e. the aggregate amount of deliveries offered in to the hub on a day is less than the aggregate of the withdrawal forecasts/bids, the working group considers that, in principle, a default price should be applied¹⁴. The application of a default price is desirable rather than suspending the market entirely because, assuming all available gas has been offered to the market, this will provide economic incentives for a demand side response. The working group has not, however, attempted to develop a value for this default price and this is work that would need to be undertaken during detailed design/implementation.

This approach also requires further consideration to ensure that the settlement process can still be made to balance over time. Unless a modified approach is taken under these circumstances (for example, “forcing” the market to clear by scaling down un-priced withdrawal nominations to a level that matches offered deliveries), the ex-ante settlement for the day would not balance, since forecast withdrawals are greater than deliveries. The extent to which this settlement imbalance is redressed on subsequent days (because, necessarily, either *actual* deliveries will be greater than

¹³ VENCORP, “Victorian Gas Market Pricing and Balancing Review, Recommendations to Government”, 30 June 2004

¹⁴ this would be similar to the “VoLL” concept in the NEM – where “VoLL” means “value of lost load”, i.e. the value of the load that cannot be supplied.

offered prior to the start of the day, or *actual* withdrawals will be less than forecast, perhaps through enforced curtailment in the extreme) will be dependent on clearing prices on subsequent days.

(b) Hub Definition

The STTM has been developed on the basis that there will be a single daily clearing price at each hub. For this to apply it would strictly be necessary to define hubs such that there are no material physical constraints between delivery gate points within the hub. Whether this is practically possible has not been fully explored. However, the Working Group has taken the view that this is not likely to be a critical issue since it can be mitigated, either by judicious designation of delivery points to the hubs, or by implementation of a number of market design options to deal with situations where, due to constraints, delivery offers may need to be cleared out of price order. It does, however, remain an issue for further consideration as part of the detailed design and implementation.

The Working Group also considered the potential issue of contractual constraints between delivery gate points, namely that shippers may not hold contracts to deliver gas at all gate points within the designated hub. However, after considerable consideration, and with the agreement of retailer/shipper representatives, the Working Group took the view that, rather than attempting to solve this through additional complications in the market design, this was an issue that could be left in the hands of shippers to manage through a combination of risk management strategies, including additional contracts, swap/hedge arrangements with other shippers, and factoring the risk of contractual penalties into their offer prices. The view was also expressed that to the extent that such constraints gave rise to STTM pricing signals or economic incentives to users/shippers to address the constraints commercially, then this would be preferable to designing the market so as to suppress such signals.

(c) Shipper Risk Management

The STTM design involves variances between actual and cleared deliveries being allocated to shippers for settlement in the STTM at the next day's clearing price. Those shippers may also be exposed to contractual overrun charges or imbalance penalties under their transmission agreements with the pipeline operator. Shippers may, therefore, need to manage a potential inter-day price differential risk. Furthermore, where a hub is supplied by a flow-controlled pipeline and a pressure-controlled pipeline then, in the absence of within-day rescheduling on the flow-controlled pipeline, all variations from projected withdrawals at the hub will be supplied using linepack from the pressure controlled pipeline, exposing shippers on that pipeline to the STTM and potential contractual overrun or imbalance charges (this is illustrated in the worked example provided in Appendix 3). While, in theory, the resultant STTM exposure and costs faced under transmission agreements should tend to offset each other, there can be no guarantee that this will be the case, or that the STTM exposure would exactly match the contract exposure.

The working group has discussed this matter at length and considered alternative STTM design options to address it. Again the view was taken that, rather than seeking specific market design solutions to these issues, participants in the market should be able to manage these risks through various contractual/STTM bidding strategies, or by otherwise seeking commercially driven solutions to these issues. The working group acknowledges, however, that further testing and trialing of the effectiveness of risk management opportunities and incentives provided by the STTM in this regard would be required in the detailed design stage prior to implementation.

(d) STTM Operational Timetable

The STTM is conceptually described in this paper on the basis of a daily clearing price, and cleared daily delivery and withdrawal quantities, being established and published prior to the start of each

gas day. The working group recognizes that there will, however, be logistical issues that arise in establishing a practical and logical timetable for market operations, for example:

- The need to receive and clear bids and offers in the STTM to enable clearing prices and cleared quantities for the day to be known prior to the cut-off times for contractual nominations by shippers to pipeline operators and producers.
- The availability of metering/allocation data to enable actual delivery and withdrawal information (and hence potential STTM price and pipeline contract exposure) to be available to shippers and users prior to submission of bids/offers and contractual nominations on subsequent days.
- Different transmission pipeline agreements may provide greater or lesser flexibility to shippers in terms of requirements to restore linepack or to address imbalances/overruns, it may not be necessary for these to be addressed on the following day.

It may not be possible, therefore, to evaluate the market on the basis of one or two consecutive days' trading activity, but rather that it should be viewed as a continuum over a longer period of time. As part of the detailed design and implementation, it is likely that further modeling would be required to test that the STTM timetable can be developed in such a way that the pricing signals provide appropriate incentives over time.

(e) System Security

Since the STTM will not directly affect the physical scheduling of gas, it is considered that the STTM should have no adverse impact on system security. Rather, due to the pricing signals it provides, the STTM should be beneficial in this regard by providing clear financial incentives for users to ensure that they have arranged for adequate deliveries of gas, or are able to limit their use of gas, on days when supply is likely to be tight.

It is understood, however, that in at least some jurisdictions there are some existing arrangements in place to mitigate the prospect of inadequate gas being made available to meet demand. The working group has not investigated these arrangements thoroughly but it is understood they include (in SA) the imposition of obligations on retailers to demonstrate that they have contracted for adequate deliveries to meet demand, or (in NSW) obligations being imposed on the network operator to deliver gas over and above start of day nominations in order to meet demand, with the cost of this being recovered through the OBG arrangements.

The incentives provided in the STTM should ensure that adequate deliveries will be arranged by users to meet demand requirements. However, to the extent that there is uncertainty in this regard, it would be possible for jurisdictions to implement other "fail safe" arrangements outside the STTM arrangements.

The extent to which such additional arrangements would impact or complicate the STTM design is unknown, although it is clear that the balancing arrangements under the NSW (AGL Gas Networks) gas distribution access arrangements will necessarily require change, and that such arrangements are currently due to run until July 2010 (review to commence by 30 June 2009).

The working group is of the view that this issue is one that could likely be resolved without material impact on the cost-benefit analysis currently being undertaken, and has confirmed this with the consultants, MMA. Nevertheless, it is an issue that would require further consultation and consideration prior to implementation.

(f) Annual Supply/Demand Statement

In addition to the publication of day-to-day market and system information, in the NEM and in the Victorian gas spot market, NEMMCO and VENCORP produce annual planning statements. In the

NEM, this is referred to as the “Statement of Opportunities” (“SOO”), and VENCORP produces an Annual Planning Review (“APR”). Both documents provide long-term outlooks, over 5-10 years, of demand forecasts and supply capabilities, highlighting where potential supply shortfalls or transmission/transportation constraints may occur in the future. These documents assist industry participants in their future planning and in making commercial decisions on investments in infrastructure or contracting to mitigate risks in the event of such constraints or supply shortages. While the larger players in the industry may have access to the necessary information and have the capacity and capabilities to undertake this analysis independently, the central collection and publication of this information is potentially valuable to small players, end-use customers, potential new entrants and other interested parties who may, as a result, be able to offer services to the industry to assist in managing energy supplies in the future, but would otherwise find it very difficult to do so.

NGERAC has reached a view that it will require compilation and publication of an annual document that provides very similar information to that contained in the SOO/APR, i.e. baseline data on demand forecasts (aggregated by major demand centres), “nameplate ratings” of production and storage capacities, pipeline capacities, and scenario analyses of significant credible contingencies.

Should it be decided to proceed with either the Bulletin Board and/or STTM, the Bulletin Board/STTM operator could assume the role of assisting NGERAC in compiling, analyzing and publishing this information, on the basis that this would likely be done at an incremental cost to the operator’s other functions.

Through such an approach, it is anticipated that an annual national gas supply/demand statement, containing similar information to the SOO/APR documents, would be produced either by NGERAC engaging an independent entity to do so, or by the Bulletin Board/STTM operator assuming this role. In either case, it is not proposed that such a document form a basis for centralised planning of gas infrastructure but, as stated above, would form a source of information to assist industry participants and other interested parties in their planning and identification of potential investment opportunities.

Final details of the scope of this annual statement and its outlook period should be finalised through consultation with Government, NGERAC and industry and would be likely to evolve over time, dependent upon whether or not a Bulletin Board or STTM are implemented at some stage.

3.2.12. Timetable for Implementation

Implementation of a STTM would be expected to take about 2-3 years.

This estimate is based on experience in initial implementation of the Victorian gas spot market, the current Victorian gas market project, the gas retail markets in Victoria, NSW, SA and WA, and would likely involve:

- establishment of an entity to oversee the market design, rule drafting, and IT system development, ideally this should be the STTM operator so that it then assumes ownership of the facilities and arrangements as implemented;
- approximately 12-18 months of work by industry working groups aided by external consultants and wider industry consultation would be required to develop and test the detailed market design and draft rules;

- this would be followed by approximately 12-18 months of IT system design, build, test and implementation (requiring both central systems to be developed by/for the STTM operator and interfacing systems to be developed by/for each of the STTM participants);
- desktop and operational trialing of the market design and systems could occur during and/or after this period, prior to “going live”;
- in parallel with the above development work, it would be necessary to put in place the necessary underpinning legal/regulatory framework in the relevant jurisdictions to support it and enforce obligations as required.

Implementation of a Bulletin Board could be programmed to proceed in parallel with this timetable and be implemented ahead of the full STTM as an interim step if it were considered worthwhile. As a minimum, it is expected that the information collection and publication requirements of NGERAC would need to be addressed as soon as practical to mitigate against the possibility of a national gas supply emergency in the meantime.

An indicative timetable for implementation of the Bulletin Board and STTM is shown in Figure 4.1.

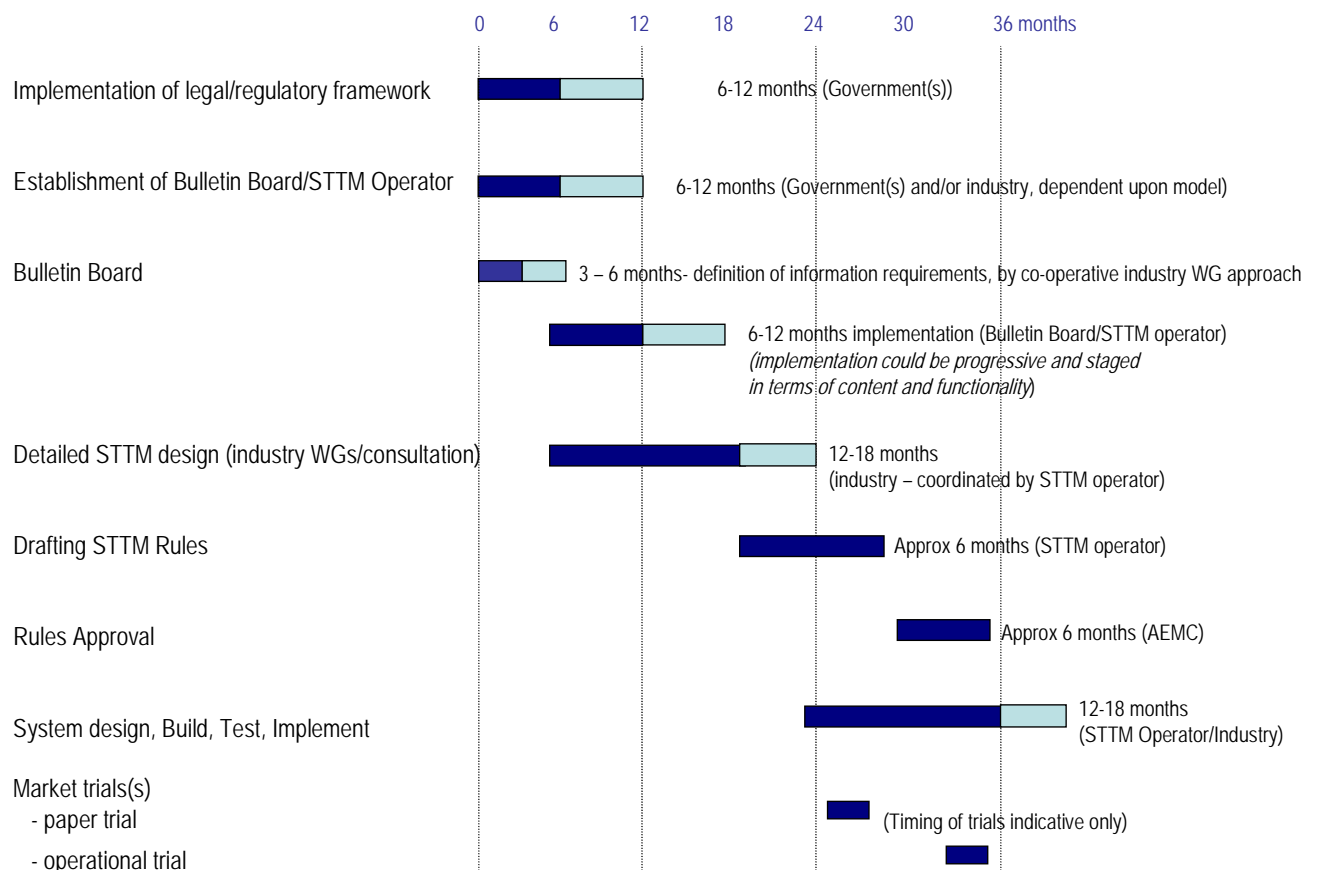


Figure 4.1 Indicative Timetable for Bulletin Board/STTM Implementation

It is envisaged that implementation of the STTM would initially proceed with hubs established in South Australia and NSW, with the result that pricing signals and market/system information would then be available for the entire interconnected gas transmission system in south-eastern Australia (even if the

STTM is not implemented initially in Tasmania or ACT, there will be effective pricing signals provided through connections to the Victorian and NSW markets).

As discussed in (b), above, the exact definition of the hubs requires further consideration. However, it is envisaged that initial hubs in South Australia and NSW would likely be based on the Adelaide and Sydney sub-networks, extended to include other large single loads or demand centres to the extent practical without introducing material market complications due to constraints within the hub.

Due to the relatively small customer base and likely low liquidity, establishment of separate STTM hubs in Tasmania and ACT may not be worthwhile. Nevertheless, should a potential need and value be identified, either now or at some stage in the future, then it would be expected that this could be done at incremental cost.

There would be the opportunity to introduce a STTM, or variant, in Queensland, NT and WA. There has not been any significant consideration given to the specific application of the STTM in these jurisdictions. However, in Queensland (for example), rather than establishing a STTM hub based on a demand centre, it may conceivably be more practical to establish a "transmission hub" based on a location such as at Wallumbilla. In this case, it may be necessary to modify the design of the STTM to some extent. It is also noted that Queensland is planning to introduce full retail competition for gas and electricity by 1 July 2007. It is possible that this planned timing for the implementation of FRC in Queensland may have some impact on the considerations for implementation of a STTM, or vice versa.

Decisions on the location and timing for the establishment of hubs in these jurisdictions should be based on an assessment of their potential value and a design that facilitates low cost implementation in a manner that best suits the location.

Other than this need to consider the applicability, adaptability and value of the STTM to each case on its own merits, there is no technical or logistical reason why the STTM could not also be implemented within the same 2-3 year time frame in other jurisdictions.

4. Initial Assessment of Options

The Gas Market Options WG has not attempted to undertake a detailed cost/benefit assessment of the Bulletin Board or STTM options.

However, Tables 4.1 and 4.2 present an initial high level and qualitative assessment of the relative "pros" and "cons" of each option (Table 4.1), and an indicative assessment of the options against each of the MCE's Gas Market principles (Table 4.2).

While a useful starting point for further consideration, these assessments should not be viewed as representing a Gas Market Options WG recommendation to the Gas Market Leaders Group on a preferred market development plan. The cost/benefit analysis being undertaken by McLennan Magasanik and Associates should provide a more robust analysis for this purpose.

Table 4.1 Relative “Pros and Cons” of Options 2 and 3

Probably the lowest cost and simplest option.	Does not establish a clearing price, does not present any reliable pricing signals, nor directly create a market.	Sets market price and directly establishes a short-term trading market.	Implementation costs would be higher than Option 2. May need partial write off of existing balancing systems in NSW/SA.
Achieves some improvement in terms of information provision and transparency. Dependent upon implementation, this could be limited to physical system information (supply/demand/delivery capability etc), or could include some pricing & trading information.	Use of Bulletin Board for posting buy/sell offers would only be useful for standardised terms and conditions and would still not provide effective price discovery.	Provides significant improvement in transparency for short-term trading– would provide the same physical system information as Option 2 PLUS much clearer pricing signals. Mandatory information requirements on participants no greater than Option 2.	Considerable effort will be required to develop and implement detailed market design and rules.
Provision of information, if regularly updated, could conceivably better facilitate trade than the status quo.	Lack of price signals, and voluntary participation and provision of trading information unlikely to result in increased market liquidity or secondary trading.	Could create trading efficiencies – “automatic” trading of imbalances. Lowers barriers to entry, facilitates trade and new entry (can enter the market without contracts).	Will need a market administrator and additional costs associated with market settlements and requirements for prudentials/credit ratings.
Provision of system information could meet NGERAC requirements, – this, together with any improvement in short term trading that results, may defer government intervention in event of major contingencies.	Due to lack of pricing signals, likely to be of only limited assistance in facilitating short-term trades to assist in managing an emergency or deferring intervention.	More overlap with NGERAC, clearer pricing signals to provide incentives for industry to “self-manage” supply shortfalls, constraints and emergencies.	
		Clearer market signals are provided to inform and influence investment, demand side management and other options for risk management.	Potentially higher risk exposure to market participants
		Creates stronger linkages between gas and electricity market and results in appropriate exposure for power generation sector	

Table 4.2 Assessment of Options against the MCE Gas Market Principles

MCE Principles (as augmented by Gas Market Leaders Group)		Option 3 : Short-Term Trading Market
Information publicly available and frequently updated	√	√√
Gas market structure to facilitate competitive market in all sectors	X	?
Participants able to trade freely between pipelines, regions and basins	X	√
Regulatory certainty/consistency across all jurisdictions	Depends on implementation by MCE	
Market design responsive to and reflective of market needs	Depends on implementation by MCE	
Minimise need for government intervention in market operation	√	√√
Minimise cost and complexity	√	? Will incur higher implementation costs than Option 2, and will replace existing balancing systems with sunk costs in some States. Ongoing operational costs will depend on detailed design, but may be offset by operational costs of existing balancing arrangements.
Respect existing commercial arrangements	√	? Changes to balancing arrangements in some States may impact existing Access Arrangements and contracts.
Take account of physical characteristics of the networks	√	√
Take account of interface with NEM	X	√√
Complement work of NGERAC	√	√√
Recognise importance of bilateral contracts in underpinning development	√	√

Key: X = doesn't meet principle; ? = don't know; √ = meets principle; √√ = meets principle better

5. *Bulletin Board/STTM Governance*

This section sets out the envisaged functions and governance options for establishment of the independent entity, which will be required to implement the operational and governance framework for the Bulletin Board/STTM. The discussion in this section is based on consideration of the governance options related to the entity itself, rule making and enforcement of compliance. The GMOWG considers that the legal and regulatory framework required to enable the bulletin board/STTM can be determined once a decision is made on the preferred governance related to the above matters.

5.1 *Functions of Bulletin Board/STTM Operator*

An independent administrator/operator would be required for either a Bulletin Board facility or the STTM.

The Bulletin Board operator's functions would include:

- the detailed specification of information requirements and protocols;
- initial development and implementation of the Bulletin Board facility;
- facilitation of interfaces with those parties required to supply and update information; and
- the ongoing maintenance, updating and operation of the Bulletin Board.

The STTM operator's functions would include:

- development and administration of the detailed trading rules;
- initial development, implementation and maintenance of STTM systems;
- facilitation of participant interfaces;
- daily collection of bids/offers and forecast withdrawals;
- construction of the daily bid-stacks;
- setting the daily clearing prices;
- notifying shippers of cleared delivery and withdrawal quantities;
- collection of metering data and/or overseeing delivery and withdrawal allocations to shippers and users;
- monitoring of market exposures and management of prudential requirements;
- financial settlement of the market;
- collection, assimilation, publication and distribution of system and market information (including aggregation of demand information where appropriate and practical to provide commercial confidentiality to single large end-users).

Further, the National Gas Emergency Response Advisory Committee (NGERAC) has agreed that an independent expert support function will be required to facilitate the collection, maintenance, publication and analysis of gas system information, to mitigate and assist in a nationally coordinated response to major gas emergencies, in accordance with the National Gas Emergency Response Protocol. NGERAC has also acknowledged that, should it be decided to proceed with either the Bulletin Board or Short Term Trading Market (STTM) options, then the synergies are such that it would likely make sense for the Bulletin Board or STTM administrator/operator to fulfill the NGERAC support function.

The Bulletin Board/STTM operator would have no role in the *physical* operation or scheduling of the gas system. Physical operation would continue in accordance with contractual arrangements between shippers, pipeline operators and producers/storage providers. Nevertheless, in the case of the STTM operator in particular, accurate and timely completion of its daily market clearing activities will become an important input to shippers in formulating their daily contractual nominations and thus, have some influence on physical outcomes.

In the event of the STTM failing to clear, or other “triggers” to be established through consultation with NGERAC, signifying “market failure” to manage supply shortages or other emergencies, then the Bulletin Board/STTM operator would likely have a role, along with NGERAC, industry and governments, in managing the transition from market-based operation to a NGERAC/jurisdictionally-activated response.

5.2 Governance requirements

A governance framework will be required to allow for Bulletin Board/STTM rules and obligations to be imposed consistently, and to ensure there is equitable consideration and treatment, across all participating jurisdictions. For the Bulletin Board, this could potentially involve all jurisdictions. For the STTM, in the first instance, the jurisdictions would likely be NSW and SA, with the possibility of ACT and Queensland, with the more remote possibility of WA and Tasmania, participating at a later date. Due to the nature of its functions in establishing and operating/administering a competitive market in the supply of an essential service to businesses and homes, the governance of the Bulletin Board/STTM operator will necessarily involve roles for Government(s) and industry:

- Government necessarily has a policy setting role in terms of competition, access, reliability and security of supply, and pricing for gas as an essential service. It is also required, from time to time, to take a more active “hands on” role in the management of emergencies (in future, with the assistance of NGERAC), when market forces alone are inadequate to ration scarce supplies and meet Government’s public policy/community service objectives. Development of the Bulletin Board and STTM options has stemmed from the MCE’s initiative to pursue an accelerated development of a national gas market through the Gas Market Leaders Group. Should it be decided to proceed with either option, direct Government involvement will be required to put in place the essential underpinning legal and regulatory framework.
- Industry has the technical and commercial expertise, funds the investment for, maintains and operates the infrastructure required to ensure the effective and reliable delivery of gas. It would also be the industry participants who would assume the commercial exposure and market risk of a STTM. It is appropriate, therefore, that industry should drive the detailed design, implementation and operation of a Bulletin Board or STTM, subject to the satisfaction of Government/MCE policies and principles.

Subject to Government having implemented an effective policy, legal and regulatory framework, then under “normal” supply and operating conditions, industry and market forces should be left largely to their own devices to ensure the optimum commercial delivery of the service (with regulation a “second best” option where there are inadequate competitive forces).

Under emergency conditions, leading to potential or actual supply shortages, Governments and industry need to work together to manage the situation for the public benefit and to minimise commercial disruption and impacts on the economy as a whole. Once it is decided that market forces alone are inadequate to stabilise the situation, then Government may be required to take the lead in implementing actions, possibly using legislated emergency powers. Nevertheless, Government intervention that takes place too early at such times can stifle commercial initiatives and investment. Through its Gas Market Leader’s Group and NGERAC initiatives, the MCE has demonstrated its willingness and desire to allow industry and market forces every opportunity to defer or, ideally, avoid Government intervention.

One of the MCE's principles for gas market development requires *"market design and institutional requirements responsive to and reflective of the needs of the market and market participants."*

The Gas Market Leaders Group has augmented the MCE's principles with a number of additional clauses (see Appendix 2) that include:

- *minimise the need for government intervention in the operation of the market;*
- *minimise cost and complexity;*
- *respect existing commercial arrangements; and*
- *take account of the physical characteristics of the networks;*
- *take account of the interface with the National Electricity Market;*
- *complement the work of the National Gas Emergency Response Advisory Committee (NGERAC); and*
- *recognize the ongoing importance of bilateral contractual arrangements which underpin gas market development.*

Consistent with these principles and the preceding discussion, the Bulletin Board/STTM operator should be a "market responsive" body, governed by an independent Board, with a governance structure that provides for:

- Government(s) to control policy outcomes through the involvement of the MCE and AEMC;
- AER/AEMC to provide independent oversight of the Bulletin Board/STTM rules and, to the extent considered necessary, the prudent costs of the Bulletin Board/STTM operator;
- Bulletin Board/STTM participants to control market design, costs incurred and the implementation of rules and systems – through the market operator's independent Board, involvement in consultative forums established by the market operator, and/or making representations to the AEMC and AER;
- Bulletin Board/STTM participants to determine the process for rule changes, which can be as dynamic and timely as necessary for a wholesale market; and
- Compliance issues and disputes to be dealt with through efficient, cost-effective processes without unnecessary involvement of the courts or Regulators.

5.3 Suitability of Existing Australian Energy Market Operators/Administrators

There are currently four independent energy market operators/administrators established in Australia:

- GMC administers the gas retail market arrangements in NSW and ACT;
- REMCo administers the gas retail markets in SA and WA;
- VENCORP is the gas market and system operator for the principal gas transmission system in Victoria; and
- NEMMCO is the national electricity market and system operator.

It is not considered that any of these existing entities, in their current form, has the appropriate combination of governance structure, resources, and expertise to assume the multi-jurisdictional role of gas STTM operator, in particular, and probably even that of Bulletin Board administrator.

In administering gas retail markets in NSW, ACT, SA and WA, and as examples of the co-regulatory approach, GMC and REMCo are currently constituted by retailers and network operators. Constitutional change would be needed to broaden their membership to reflect the wider representation of the STTM.

In doing this, the functions of the Board relating to the retail competitive market would then need to be carried out by a more diffuse Board of Directors, which may be problematic for participants in the retail market. Neither GMC nor REMCo, separately, operates across the applicable jurisdictions, although there are current processes that are expected to result in a merged entity, which will cover NSW, ACT, SA and WA.

In its role as gas system and market operator in Victoria, VENCORP has been established as a Victorian statutory entity, with a Board that is appointed and subject to direction by the Victorian Minister. As such, its current governance structure would likely be inappropriate and unacceptable as a STTM operator in other jurisdictions.

As the National Electricity Market operator, NEMMCO has a governance structure that facilitates its multi-jurisdictional operations and performs the equivalent functions of a gas Bulletin Board/STTM operator in the electricity industry. Theoretically, therefore, NEMMCO could be seen as being well placed to provide a similar service for the gas industry across multiple jurisdictions. However, in practice, there are few existing synergies between the gas and electricity market systems, interfaces and operations. NEMMCO has no experience in gas market or system operations and, while there are similarities, there are also significant differences between the gas and electricity markets in both structure and operation. NEMMCO's existing governance structure is jurisdictionally based, with its Board appointed by the participating jurisdictions. Its functions are limited primarily to the electricity market, although its member jurisdictions have recently allowed it to offer services to assist with the implementation of gas retail competition in Queensland (GMC, REMCO and VENCORP have also been involved in offering these services although, at the time of writing, Queensland has yet to make a decision in this regard). Given the relative size and current status of the national electricity and gas markets, and NEMMCO's governance structure, the gas industry would have little confidence that, in its current form, NEMMCO would meet the MCE's principle of "institutional requirements responsive to and reflective of the needs of the market and market participants" in the *gas* industry.

The Information Exchange Committee that was established under the governance umbrella of NEMMCO, to oversee development of standard transactions and protocols for electricity B2B, represents another existing and possible alternative governance model that could be considered for the Bulletin Board/STTM. This approach attempts to leverage off an existing legal governance entity while providing scope for increased direct input and control by industry participants. It also allows consideration of similar gas industry transaction protocols as a means for working towards convergence between the two industries. To implement a similar model for governance of a gas Bulletin Board/STTM operator would require statutory creation of an appropriate committee with powers to bind an existing market administrator. While this model has been approved for NEMMCO, where its powers and duties are established by statute, it may not be applicable for GMC and REMCo, which derive their powers under their own Constitution. Further, given the issues raised above with the over-arching governance structures of the existing market administrators/operators, this would appear to be very much a "second-best" alternative to creating a new "fit-for-purpose" governance entity.

Overall, it is considered more appropriate to establish a new governance entity for the STTM operator, rather than try to adapt the existing entities.

The arguments against adaptation of an existing market operator are perhaps not quite so strong in respect of the role of Bulletin Board administrator, since this is primarily a data/information collection and publication role. Nevertheless, even in this case, the requirement for some operational gas system knowledge in the analytical support role for NGERAC, and the need to overcome perceptions of a lack

of jurisdictional impartiality, would probably require at least some significant change to the governance arrangements of any of the existing bodies to make it acceptable for this role.

In either case, however, this approach need not preclude the new entity leveraging off, or using directly, systems currently in use by the existing entities, nor, at some stage, absorbing some or all of their functions. These decisions should be made on the basis of logical rationalisation and cost minimisation for gas industry participants as a whole.

5.4 Governance Options

There is a wide range of possible governance structures for the Bulletin Board/STTM market operator that could be adopted to meet the requirements and principles discussed in section 5.2, with varying degrees of control and influence by Government(s) and industry, respectively.

The governance options fall within a range between:

- A statutory body, with the Board appointed by Minister(s) of participating jurisdictions, or the MCE, subject to direction by Ministers/MCE, and with obligations/rules imposed by statute/legislation.
 - Under this model, industry input/influence would be through participation in consultative forums, working groups and responses to other consultation processes put in place and undertaken by the market operator and the regulators (AEMC/AER).
- A corporate entity, established and owned by industry members. Board members would be nominated and elected by vote of the industry members. Obligations/rules could be imposed by the Constitution of the entity, as a condition of membership.
 - Under this model, Government's influence would be through the imposition of a legal/regulatory framework that establishes minimum requirements/principles to be met by the Bulletin Board/STTM and imposes a requirement for industry participants to be members of an appropriate and approved scheme. Government control would then be exercised through its ability to legislate and/or withdraw approval for the scheme, and through the roles of the AEMC/AER in approving rule changes and dealing with rule breaches.

Within the range between these two options there are numerous possible permutations, either as a statutory or corporate entity, and with different variations on the composition of the Board, with varying combinations and numbers of Minister/MCE and industry appointees.

It is not possible to canvass all of the possible permutations. Instead, the following sections 5.5 and 5.7 provide a description of the market operator/administrator arrangements currently in place in various Australian energy markets (i.e. NEMMCO, VENCORP, REMCO and GMC), along with a number of other possible illustrative variations, and a discussion of how each of these may be applied to a national gas Bulletin Board or STTM operator.

Beneath the over-arching governance structure of the Bulletin Board/STTM operator itself, there is also a range of "sub-options" in terms of the governance structures adopted for specific Bulletin Board/STTM operator functions or characteristics, such as funding, liability, rule making, rule changes, compliance and dispute resolution processes. However, while still important, these are secondary issues, with materially similar outcomes likely to be achievable under any governance model for the entity itself. There is further discussion of the options available for governance of these functions in Section 5.6.

5.5 Illustrative Governance Models

As an illustration of the range of possible governance structures for the Bulletin Board/STTM operator, this section describes a number of options based on existing Australian energy market operator/administrator models, along with possible variations that lie within the range described in section 5.3, i.e.:

1. The Jurisdictional Model as demonstrated by NEMMCO;
2. A Jurisdictional / Industry Model, based on the VENCORP arrangement, but enhanced to operate across multiple jurisdictions;
3. The Co-Regulatory Model, as demonstrated by Gas Market Company and the Retail Energy Market Company;
4. A joint approach of government and industry, where an entity is established in which both government and industry have a stake in the appointment of the Board and the accountability of the Board; and
5. An industry independent market administrator with a majority of directors independent of, but appointed by, industry.

5.5.1 The Jurisdictional model

Overview: Could be either a statutory or corporate entity established by the jurisdictions in which the market operates, with a Board of Directors appointed by those Jurisdictions or the MCE. NEMMCO has been established as a corporate body.

Governing Entity: The participating jurisdictions would enter into a Members Agreement setting out the rights of the jurisdictions, and would establish a governance entity that could be a statutory body, or a company under the Corporations Act.

Where the governance entity is a company under the Corporations Act, the responsibilities and accountabilities of the directors are established under the rigorous governance requirements established under the Act and laws. Under this model, those obligations are to the jurisdictional governments in order to fulfil the objectives and responsibilities of the entity as required by law.

Objectives and role: The objectives and responsibilities of the company are established under law, including requirements to provide services to Industry and Market Participants

Board: The Board of Directors is constituted by directors nominated by the jurisdictions. In the case of NEMMCO, there is one independent director. The Board would consider issues with the operation of the Bulletin Board/STTM or the Corporation and make independent decisions on those matters, having regard to its obligations under the Corporations Law and consistent with its obligations for provision of services to industry.

Members: The Jurisdictional governments are the members of the company, able to vote on company resolutions.

Role of Government: Governments enter into an agreement to determine their respective rights in relation to the governance entity, and enact legislation to set out obligations and rules. Governments nominate directors. The entity is accountable to Jurisdictional bodies to perform their roles and responsibilities.

5.5.2. Jurisdictional / Industry model

Overview: Could be a corporate entity, but in the current example of VENCORP is a statutory entity with an independent and industry based Board of Directors, which, for a national Bulletin Board/STTM operator, would be appointed by the relevant Minister(s) of the participating jurisdictions, or the MCE.

Governing Entity: A government owned entity would be formed under statute – as the STTM is intended to be cross jurisdictional, this may need federal legislation or complementary legislation as per AER / AEMC – and a heads of power agreement between states and commonwealth.

Objectives and Role: The functions are set out in statute, with defined service obligations to the industry imposed by law.

Board: The Board consists of independent directors, plus directors drawn from industry as individual directors with appropriate industry knowledge (that is, directors do not represent their employers on this Board). The directors are appointed by a Minister or Ministers (depending on how many jurisdictions participate), or by the MCE. Although not a requirement of the existing Victorian legislation, in the case of VENCORP, the appointment of directors by the Minister follows a selection process in which industry participants are invited to nominate possible candidates.

The Board may be subject to direction by the Minister or Ministers (possibly through the MCE). In the case of VENCORP, the Victorian Gas Industry Act 2001 enables the Minister to give such directions as he/she sees fit, without limitation. However, it would be possible for legislation to restrict the scope of such Ministerial powers of direction over the Bulletin Board/STTM operator, if desirable.

The Board is not required to comply with the rules of corporate governance, although these can be voluntarily adopted, and it may be possible for statutory requirements to impose some of these obligations.

The Board would consider issues with the operation of the Bulletin Board/STTM or the Corporation and make independent decisions on those matters, having regard to its obligations and functions under statute.

Members: A statutory authority would not normally have members and would not normally include the concept of members able to vote on resolutions relating to the activities of the authority. Stakeholders would normally be Government(s).

GMOWG understands it may be possible to establish a statutory authority that includes industry participants in its 'membership' and to include the concept of the 'members' voting on resolutions related to the activities of the authority, such as appointment of Directors. However, it is unaware of examples of organisations, comparable with the proposed Bulletin Board/STTM operator, where such a structure has been adopted.

Role of Government: Governments enact legislation to create the governance entity. The Minister/s or MCE, following a selection process, appoint an independent and industry based Board of Directors, and Ministers or MCE can have legislative powers of direction over the Board, which may or may not be limited in scope.

5.5.3. The Co-Regulatory Model

Overview: A corporation owned by industry participants would be formed as part of a scheme. The scheme would be subject to government / jurisdictional approval, which in the future is expected to involve the AEMC. The scheme would include:

- the Constitution of the company;
- the Bulletin Board/STTM Rules; and
- any technical standards necessary to ensure complete, seamless operation of the Bulletin Board/STTM.

Governing Entity: Under the co-regulatory model, the governing entity is a company limited by guarantee established under the Corporations Law. The members of the company are the participants in the Bulletin Board/STTM, and membership is mandatory through legislation, licences or business authorisations issued by AER or jurisdictional regulatory authorities.

Board: The Board consists of independent directors, plus directors from those areas of the gas industry which are participants in the scheme, nominated by and voted on by those participants. The Board is structured to ensure that all relevant market areas are represented, while ensuring a balance such that no one market area can control a vote of the Board. Once elected to the Board, Directors do not represent their employers on that Board. The rules of corporate governance apply to the Board therefore the Board would consider issues with the operation of the Short Term Trading Market or the Corporation and make independent decisions on those matters, having regard to its obligations under the Corporations Law and consistent with its obligations for provision of services to industry.

Members: All industry participants in the scheme are members. Subject to the final procedures and the necessary obligations arising from these, this may include producers, pipeline operators, wholesalers/shippers, retailers, traders, self-contracting users and large end-use customers.

Role of Government: Government enacts legislation stipulating the minimum requirements for the Bulletin Board/STTM including setting the principles of operation and establishing the regulatory framework (probably through the AEMC) and the requirement for membership of the scheme by industry participants. Government maintains control over policy outcomes through its ability to withdraw approval of the scheme, although specific rights of direction by Ministers could be included in enabling legislation. The operation of the market administrator is transparent to Government, so that all Board papers, documents, consultations etc are automatically provided to Government.

5.5.4. Joint Government and Industry Approach

- Overview:* Either a statutory or corporate entity could be established under which both the Ministers/MCE and the gas industry were entitled to nominate and appoint Directors to the Board. This might be agreed on the basis of 50% appointed by Ministers/MCE and 50% appointed by industry participants (which would potentially include direct end-use customers), with an independent Chair, or on such other percentage representation as was considered appropriate given the nature of the Bulletin Board/STTM operator's roles and responsibilities.
- Governing Entity:* The market administrator could be established as a statutory or corporate entity. The major difference between these two structures relates to the accountability of the governing body. A statutory entity will ultimately be accountable to government; a corporation will ultimately be accountable to its members, which could either be industry participants, or both industry participants and government.
- Board:* Directors would be appointed to the Board by Government and industry to a pre-determined ratio. Provided Directors meet specified eligibility criteria, Government(s)/MCE would have no powers of veto on the appointment of Directors by industry, and industry would have no veto on appointment of Directors by Governments/MCE. Regardless of the proportion of Government/industry appointed Directors, it would probably be appropriate for there to be an independent Chair appointed through a process that requires agreement of both Government and industry.
- Members:* A statutory authority would not normally have members and would not normally include the concept of members able to vote on resolutions relating to the activities of the authority. Stakeholders would normally be Government(s).
- As discussed in section 5.5.2, GMOWG understands it may be possible to establish a statutory authority that includes industry participants in its 'membership' and to include the concept of the 'members' voting on resolutions related to the activities of the authority, such as appointment of Directors. However, it is unaware of examples of organisations, comparable with the proposed Bulletin Board/STTM operator, where such a structure has been adopted.
- If a corporate entity was used, industry participants in the market would be members of the company, and it would be possible for Ministers or government entities to also be members, with all members able to vote on company resolutions.
- Role of Government:* Government(s) would need to establish enabling and underpinning legislation for establishment of the entity, setting out required scope and objectives, and to establish the legal/regulatory framework for the Bulletin Board/STTM. Government(s)/MCE appoint some Directors to the Board of Directors, and can retain such additional rights as it considered appropriate through legislation.

5.5.5. Industry Independent Market Operator/Administrator

Overview: This model is a variation of the co-regulatory model and, while not previously adopted in Australia, the Board structure has been implemented for the Gas Industry Company in New Zealand.

It would involve a corporation being established and owned by industry participants who would nominate and appoint a Board, which is comprised of some directors drawn from the gas industry but with a majority of directors being independent of participants in the gas industry¹⁵.

The Constitution of the entity would be consistent with policies/objectives specified by Government(s)/MCE and its authorisation/approval by Government(s)/MCE, possibly through AEMC, would be dependent on it achieving those objectives.

Enabling legislation may, or may not, impose requirements for Board reporting to the Minister(s)/MCE and Minister(s)/MCE powers of veto over recommendations/decisions of the Board.

Governing Entity: The market administrator would be established as a corporate entity, such as a company limited by guarantee established under the Corporations Law. The members of the company would be Bulletin Board/STTM participants, and membership would be mandatory through legislation, licences or business authorisations issued by AER or jurisdictional regulatory authorities

Board: The Board would be nominated and appointed by industry participants as the members of the company. The Constitution would require that a majority of members were independent of gas industry participants. An independent director is defined as being independent of management and free of any business or other relationship that could materially interfere with – or could be reasonably seen to interfere with – the exercise of their unfettered and independent judgment. A minority of directors would be nominated from industry members, in order to ensure that there was adequate expertise on the Board to have a current understanding of and expertise to deal with current and emerging issues in the management of the company.

Members: All industry participants in the scheme are members entitled to vote on company resolutions. Subject to the final procedures and the necessary obligations arising from these, this may include producers, pipeline operators, wholesalers/shippers, retailers, traders, self-contracting users and large users who may wish to bid in capacity.

Role of Government: Government takes a similar role to that under the Co-Regulatory Model, within the framework that the market administrator has a more independent Board than under the Co-Regulatory Model.

¹⁵ By having a majority of independent directors, this model adopts Principle 2.1 of the Principles of Good Corporate Governance and Best Practice Recommendations issued by the Australian Stock Exchange on the appropriate constitution of Board of Directors.

5.6 Other Governance Considerations

Sections 5.4 and 5.5 discuss a range of options for the overarching governance structure for a Bulletin Board/STTM operator. Having decided upon the preferred structure for the governing entity, there are other governance issues that would need to be resolved, which are important for the effective operation of the new entity and the Bulletin Board/STTM but in most cases, the available options for these would not be materially constrained by the type of governing entity chosen.

5.6.1. Combined energy (gas and electricity) market operator options

This paper contemplates a new Bulletin Board/STTM operator being established separately for the gas industry, rather than seeking to establish a “national *energy* market operator” that encompasses the national electricity market (NEM) as well as the gas STTM. This approach has been adopted due to the NEM being well established and the need for considerable gas industry input to the initial development and transition to a gas STTM. As such, there would be concerns with a single entity being able to maintain adequate focus on a range of complex and specific gas industry issues, while also managing the not insignificant task of maintaining satisfactory operation and development of the NEM.

However, should the Gas Market Leaders Group or MCE consider a joint energy (gas and electricity) market operator worthy of further consideration, then the governance models discussed here could (with some modification) also form the basis for those considerations.

5.6.2. Statutory or Corporate Entity?

All of the options considered in section 5.5 could be established as either a statutory authority or as a company limited by guarantee established under Corporations Law.

A statutory entity would have closer links and accountability to Government(s), with its objectives and responsibilities set out in statute. While not strictly subject to Corporations Law, the Board may voluntarily adopt the rules of corporate governance, which require directors to act in the best interests of the company and its members as a whole, and it may be possible for statutory requirements to impose some of these obligations. Statutory entities would normally be subject to directions from the Minister(s)/MCE, although the scope for such directions need not necessarily be open ended, legislation could limit the matters on which such directions could be given.

If the governing entity is a company established under the Corporations Act, the responsibilities and accountabilities of the directors are established under the rigorous governance requirements established under the Act and laws. In this case, obligations and accountabilities would be to its Members, which could be Government(s), industry participants or both, and members would have voting rights on company resolutions. Corporate entities can, through enabling statutes, be made subject to directions from the Minister(s)/MCE in the same way as statutory entities.

5.6.3. Funding

Regardless of the governance structure and whether the body is established as a statutory or corporate entity, it is considered that the Bulletin Board/STTM operator should be funded on a cost recovery basis. The entity would impose fees on Bulletin Board/STTM participants to cover its costs. These costs and fees could be subject to approval by an appropriate regulator (likely, the AER). Any surpluses would be used to fund ongoing operations and/or reduce future fees and would not be distributed as dividends to Government(s) or Members. This is the approach that has been adopted by all existing Australian energy market operators/administrators.

5.6.4. Liability

Under any governance model, it is considered that the entity should be provided with protections and/or limitations on its liability. Such protections may be provided through statute, for a statutory entity, or through its constitution, rules or Member's agreements for a corporate entity. This is the approach that has been adopted for all existing Australian energy market operators/administrators. The alternative approach is to impose liabilities up to an agreed insurable limit, in which case the market as a whole bears the cost of the insurance to protect individual members from loss. The desirable approach can be determined during detail rule design, based on cost benefit analysis.

5.6.5. Rule Making

Under any governance structure, there would be the need for Government(s) to establish a legal/regulatory framework to impose obligations for the establishment and ongoing operation of the Bulletin Board/STTM. The operational rules themselves could either be imposed by legislation, or as part of a "scheme" that is approved by Government or a regulator (most likely the AEMC) as meeting requirements set out in legislation, and imposed by membership of the scheme.

There may be a preference for the operational rules to be imposed by statute should Trade Practices Act issues arise, particularly for rules associated with price setting, exclusive trading etc. Statutory rules can apply with any of the governance models (for example, NEMMCO is a corporate entity with rules established by statute). As a possible variation on this, in the case of the New Zealand Gas Industry Company, it is understood that the industry-appointed Board does not make rules itself but makes recommendations to the Minister, who can either veto or make the rules as recommended, through legislation. However, given the role of the AEMC, it would seem that such an alternative would impose an additional layer of consent and cost on the process.

5.6.6. Rule Change Process

Subject to the resolution of potential TPA issues, the rule change process is likely to be materially the same under any model, i.e. rule changes could be proposed by any party, would be considered through industry consultative forums, with wider/public consultation where appropriate, leading to Board consideration of recommendations and, following endorsement by the Board, regulator (AEMC) approval.

It is recommended that attempts be made to ensure that the AEMC consultation processes (and those of the ACCC, should it need to become involved on TPA issues) could be combined with the industry consultation processes to avoid duplication of effort and unnecessary delays in implementing changes.

5.6.7. Compliance

Different compliance regimes exist under the various electricity and gas market arrangements currently in place, including:

- Reference to the regulator (in this case, probably, the AER); or
- Industry self-regulation by the Bulletin Board/STTM Board and/or an independent panel empowered to impose fines.

There is no reason, however, why the compliance regimes could not be materially the same under any governance structure for the Bulletin Board/STTM operator.

5.6.8. Dispute Resolution

To avoid high costs and delays, the objective of dispute resolution procedures should be to limit the reference of disputes to courts to the extent practical. The approach used in all existing Australian energy market models relies on the establishment of an independent panel to hear and rule on disputes. The details may vary between markets but, again, the governance structure of the Bulletin Board/STTM operator should not be a barrier to implementing an efficient and cost-effective mechanism that is acceptable to participants.

Table 5.1 : Summary of Governance Options

Governance Model	Jurisdictional model (s. 5.5.1)	Jurisdictional/ industry model (s. 5.5.2)	Joint Government/ Industry model (s.5.5.4)	Industry Independent model (s. 5.5.5)	Co-regulatory Model (s. 5.5.3)
Board Appointment	Board appointed solely by Minister(s)/MCE	Combination of Board Directors appointed by industry and Government(s)		Board appointed solely by industry Members	
Industry Involvement in Board	No requirement for industry expertise on Board	Statutory requirement for Board to include industry expertise experience and independent members	Board partly comprised of Directors nominated by participating jurisdictions/MCE and partly by Directors nominated and appointed by industry participants	Board entirely appointed by industry participants, but with a requirement for a majority of independent Directors	Board entirely appointed by industry participants
Entity Structure	Could either be a Statutory Authority or Company Limited by Guarantee				
Membership	"Members" would be the jurisdictional Governments	Members would include industry participants and participating jurisdictions/MCE		Members would be industry participants	
Costs and Liability	The entity should be funded on a cost recovery basis and have protections/limitations from liability – these outcomes can be achieved under any model.				
Imposition of Rules & Rule change process	<p>Rules could either be:</p> <ul style="list-style-type: none"> – imposed through legislation/statute; or – form part of an approved scheme to meet specified statutory objectives <p>In either case, the rule change process is likely to be the same, requiring regulatory approval by AEMC.</p> <p>Where the rules are not imposed by statute and are made/changed by the Board of a company constituted of industry members, ACCC authorization may be required due to potential TPA issues.</p>				
Regulatory Oversight	Regulatory oversight of Bulletin Board/STTM operation and, to the extent considered necessary, costs/fees will be by AEMC and AER under any model.				
Compliance	It should be possible to adopt similar regulatory or self-regulatory approaches to enforcement/compliance issues under any model.				
Dispute Resolution	Efficient and cost effective dispute resolution processes, avoiding unnecessary and costly referral to the courts, could be implemented under any model.				

5.7 Discussion of Governance Options

A summary of the governance options discussed in sections 5.5 and 5.6 is provided in Table 5.1, above.

Despite the many permutations of possible governance frameworks within the range discussed in section 5.4, including those described in the illustrative examples in section 5.5, the essential differences between the available alternatives can be summarised as follows:

- The balance between Government and industry control over the composition and appointment of the Bulletin Board/STTM operator Board;
- The manner and extent to which the Board is subject to direction by the Minister(s)/MCE; and
- The level of accountability of the operator and its Board to Government(s) and/or industry.

Current Australian energy market models exhibit different approaches in this regard. The co-regulatory model has been implemented to administer the gas retail markets and balancing arrangements in NSW, ACT, SA and WA, including the two jurisdictions that are expected to implement the STTM initially. In Victoria, a statutory body (VENCorp) has been established to operate and administer the wholesale gas spot market and the gas retail market. The jurisdictional model, with a company limited by guarantee, has been employed for operating and administering the National Electricity Market.

An observation may be made that the Jurisdictional and Jurisdictional/Industry models have been chosen for the National Electricity Market and Victorian gas spot market, where the market operators (NEMMCO and VENCorp) have functions and powers with direct operational control over the physical system operation and in managing supply shortages and other emergencies, and where there was a history of Government control over security of the supply system, through State owned entities. Conversely, the Co-regulatory model has been successfully deployed in gas markets where the market administrators (REMCo and GMC) do not have powers of direct operational control over assets, and where such operational control has historically been in the hands of private entities, rather than Governments.

The STTM operator will not exercise operational control over physical gas system assets, or provide directions to industry participants in relation to the day-to-day operation of their assets. Direct operational control of the physical gas supply system will remain the role of pipeline and network operators. Nevertheless, the STTM must result in strong economic signals to deliver gas in accordance with the outcomes of that market, and to do so must ensure that financial consequences of either complying or not complying with those outcomes are attributed directly to market participants. Otherwise, the economic efficiencies from operation of that market will be lost, or worse, give rise to anti-competitive behaviour or arbitraging between the STTM and contracts. Thus, while daily orders for gas injections and transportation will be made by shippers under their contracts, those contractual orders would be expected to align closely with the outcomes of the daily clearing of the STTM. Thus, the day to day operation of the STTM, and the timely and accurate performance of the daily market clearing process by the STTM operator will provide an important input to those orders and, hence, have an impact on the determination by participants of actual physical outcomes.

As discussed in section 5.1, in the event of the STTM failing to clear, or other “triggers” to be established through consultation with NGERAC, signifying “market failure” to manage supply shortages or other emergencies, the Bulletin Board/STTM operator would likely have a role, along with NGERAC, industry and government(s) in managing the transition from market-based operation to a NGERAC/jurisdictionally-activated response.

Under normal supply and system operating conditions, Government involvement in market processes and system operation should be limited and non-interventionist. However, under supply shortages or other emergencies where market forces are likely to be unable to clear the market and deliver outcomes consistent with Government public service objectives, the public interest requires Governments to become more involved.

Hence, it is to be expected that Governments would wish to retain some influence over the STTM operation in achieving the MCE's policy objectives and, in particular, the role of the STTM operator in assisting Governments and/or NGERAC under the National Gas Emergency Response Protocol.

Nevertheless, Governments would be able to retain this influence under any of the governance models canvassed in this paper.

5.7.1. Comparison of Models

Since the MCE's principles for gas market development include "*market design and institutional requirements responsive to and reflective of the needs of the market and market participants*", it would appear inappropriate to choose a governance structure that denied industry some say in the composition and appointment of the Board of Directors, or where the appointed Board did not have some accountability, in its decision making, to act in the interests of the industry.

The *Jurisdictional* and *Jurisdictional/Industry* models are described in sections 5.5.1 and 5.5.2 as having their Boards appointed by Minister(s)/MCE.

Even though it would be possible under the *Jurisdictional* or *Jurisdictional/Industry* models to make provision (either formally or informally) for at least some directors to be appointed with industry experience or expertise, or even for participants to nominate persons for some or all Board positions, the ultimate accountability of directors would still be to Government(s)/MCE, particularly if established as a statutory entity. The Board may also be subject to direction by the Minister(s)/MCE, although the scope of such directions could be of specified and limited scope in the enabling legislation.

The *Joint Government and Industry Approach* (described in section 5.5.4) represents a further step towards giving industry more direct involvement and input to the governance and decision making of the entity. This model allows a sharing of the rights to appoint the Board of Directors between Government and industry (potentially including direct, or self-contracting, end-use customer participants in the Bulletin Board/STTM), in such proportion as is considered appropriate. The level of accountability of the Board to Government(s) and industry will depend on whether a statutory entity or a corporate entity is chosen as the appropriate vehicle, and if the latter, what mix of membership is determined.

The *Co-regulatory model* (described in section 5.5.3) allows Government to retain control of policy, but places a higher level of control over the implementation of that policy and the costs incurred in implementation with industry. The co-regulatory scheme must be approved as meeting criteria/policy objectives specified by Government (approval would most likely be through the AEMC), and that approval may be withdrawn should the scheme change in a manner that does not meet government policy. The power to withdraw approval of the scheme is used in lieu of the power of Ministerial direction that exists with a statutory entity, and the market administrator operates transparently to Government by providing automatically all documents to Government for perusal. Market participants control the Constitution and nominate and vote for the Board of Directors. The Board is accountable to its industry members on all decisions. The Directors, however, do not represent their individual companies, but must act in the best interests of the market administrator, an obligation enforceable under Corporations Law.

The *Industry Independent Market Administrator Approach* (described in section 5.5.5) is a variation of the Co-regulatory model whereby, although the Board of Directors is nominated and appointed solely by industry, a majority of directors must be independent from any of the industry participants. Like the Co-regulatory Model, the Board is accountable to its industry members on all decisions. This model could be seen as providing independence in the Board, to provide additional comfort to Government, and other stakeholders who are not eligible as Members, that the Board will ensure that the market administrator acts in the best interests of the market.

The Gas Industry Company in New Zealand has been established under this type of governance framework, as an industry body to develop and make recommendations to the Minister on a wide range of industry matters so as to achieve outcomes that meet the Government's policy objectives, which are set out in its October 2004 Policy Statement on Gas Governance. Under this example, the Constitution of the Gas Industry Company requires the Board to follow the objectives of the Gas Act and report regularly to the Minister. Further, the Board is only able to make recommendations on rules and regulations, which can then either be made or vetoed by the Minister. It is probably too early to reach a view on the effectiveness of the Gas Industry Company's governance structure and its applicability to the STTM, since it has yet to formulate recommendations to the Government on establishment of a gas spot market in New Zealand.

In all of the above models, Government retains its policy setting role. It also retains an influence over the achievement and manner of achievement of its policy objectives – either through Ministerial/MCE powers of direction in the case of a statutory body or jurisdictionally based corporate entity, or through the ability to withdraw approval for a co-regulatory scheme that fails to achieve its policy objectives.

Further, putting aside the appointment of directors and their legal accountabilities, the “operational” mode of industry consultation and influence over the decision making processes would be substantially the same in all models. This is currently demonstrated by the modus operandi of all the current energy market operators in Australia, despite their different governance structures – i.e. there are industry working groups and consultative forums that develop consensus or majority recommendations to the Board, the Board considers and reaches a decision on these recommendations, involving wider consultation if it sees fit, and in most cases (at least those involving establishment of rules, rule changes or costs/fees) refers those decisions to the regulator (in future the AER or AEMC) for final approval prior to implementation. Under each of the governance models the Board's decisions must take account of the requirement to achieve Government policy objectives.

The effectiveness of the partnership between Government and industry in pursuing the MCE's gas market development program to date (including the work being progressed through the Gas Market Leaders Group and NGERAC), demonstrates the importance and value of a cooperative and participative involvement by industry in developing and achieving Government policy objectives.

5.8 Impact on Existing Market Operators

This paper suggests that rather than seeking to adapt one of the existing energy market operators, it would be preferable to establish a new governance entity as the Bulletin Board/STTM operator.

If it were decided to implement a Bulletin Board facility alone, with no STTM, then there would still be a requirement for all of the existing energy market operators to continue in their current roles and to fulfil their current functions. The following discussion is, therefore, relevant to the impacts of the establishment of a new governance entity to oversee implementation and operation of a gas STTM.

Gas Market Company Limited (market administrator for competition in the retail industry in NSW and the ACT) – some of the balancing functions of GMC will be carried out by the STTM operator. GMC can continue to perform all of its functions, except for administration of the cumulative imbalances under the balancing arrangements. The extent to which GMC retains some residual balancing functions may depend upon the definition and extent of coverage of the STTM hubs in NSW and ACT.

Retail Energy Market Company Limited (market administrator for competition in the retail industry in SA and WA) – some of the balancing functions of REMCo will be carried out by the STTM operator in SA, but WA is unlikely to participate in the STTM initially. REMCo can continue to perform all of its functions, except for administration of the swing gas market. The extent to which REMCo retains some residual balancing functions may depend upon the definition and extent of coverage of the STTM hubs in SA.

VENCorp (market operator for Victoria) – the introduction of a STTM on other pipelines is not proposed to impinge on the operation of the gas spot market arrangements for the Victorian principal gas transmission system. All of VENCorp's existing roles and responsibilities would still need to be fulfilled.

The STTM operator should, however, seek to leverage off the systems and processes used by these existing market operators. This may involve sub-contracting, or otherwise entering into arrangements for access to these systems and/or for data provision by the existing market operators, rather than developing duplicate systems to collect the same or similar data.

Dependent upon the governance model adopted for the STTM operator, and the detailed design of the STTM and data requirements, it may become apparent at some stage that there are potential industry-wide savings to be made by rationalization of market operators. Decisions on the absorption of some or all of the existing market operator functions by the STTM operator should be made on the basis of logical rationalisation and cost minimisation for gas industry participants as a whole.

Appendix 1: Gas Market Options Working Group

Background

The Gas Market Leaders Group has been established by the Ministerial Council on Energy to develop a Gas Market Development Plan which will deliver on the MCE's objectives for a competitive, reliable and secure natural gas market delivering increased transparency, promoting further efficient investment in gas infrastructure and providing efficient management of supply and demand interruptions as set out in the MCE's Expanded Gas Program.

Specifically, the Plan should provide:

- further development of Options 2 or 3 identified in the Allen Consulting Group (ACG) Report; or
- an alternative market development plan that provides equivalent benefits in terms of transparency and lowering barriers to market entry.

Key elements of the Gas Market Development Plan should include:

- The level of information on system capabilities, supply and demand information, including secondary trades, to be provided to the market in order to increase transparency;
- How such information would be provided to the market in a transparent and accessible manner, e.g. market based electronic facilities to publish trading and physical system information;
- Additional market arrangements that would promote greater levels of liquidity and competition and how these arrangements would be implemented, e.g. the phasing in of spot market trading at major trading nodes;
- Consideration of whether publication of an annual report on the performance of the market and the emerging transmission and supply constraints (similar to the NEMMCO Statement of Opportunities) would be beneficial to gas market development;
- An implementation timetable, including milestones; and
- The identification of any regulatory and rulemaking requirements which jurisdictions would need to put in place in order to facilitate implementation of the plan.

In developing its plan, the Leaders Group should take account of the following:

- MCE's Expanded Gas Program of 19 May 2004;
- The MCE Gas Market Development Principles in Appendix 2;
- The variations between jurisdictions' gas demand profiles, network topology, and industry structure;
- The new governance and institutional arrangements for the energy sector;
- Associated gas market reform initiatives currently being undertaken by the MCE; and
- The findings of ACG's final report.

The Gas Market Leaders Group met on 12 December to establish a workplan for delivering on its terms of reference and decided to establish a Gas Market Options Working Group to assist it with this task.

Terms of Reference for the Gas Market Options Working Group

- Define and scope Options 2 and 3 from the Allen Consulting Group Report to a sufficient level of detail to be able to make an assessment of the feasibility and cost/benefit of the options and any variations.
- Issues to address include:
 - Whether participation should be voluntary or mandatory.
 - Necessary prudential requirements.
 - Governance arrangements.
 - Market clearing mechanisms.
 - Information requirements for each option, and particularly what information would be posted on a Bulletin Board (such as system capability, supply and demand information, price etc).
 - A methodology to allow a cost benefit analysis of each option (high level).
 - Barriers to implementation.
 - An implementation path.
 - Any legislation or code requirements or amendments.
 - Production of an Annual Report focusing on supply/demand projections and system constraints.
 - Assessment against the MCE Gas Market Principles, as augmented by the Gas Market Leaders Group (see Appendix2).

Membership of the Group

Members of the Gas Market Options Working Group are as follows:

- Matt Zema, CEO VENCORP (Chair)
- Patricia McKenzie, CEO Gas Market Company
- Julian Turecek (Origin Energy), representing ERAA
- Peter Geers (AGL), representing ERAA
- Stephen Livens (Epic Energy), representing APIA
- Rod Johannessen (APT), representing APIA
- Peter Fennessy (Alinta), representing ENA
- Mark Frewin (TRUenergy) representing NGF
- Matthew Arnold (ExxonMobil), representing APPEA
- David Headberry, representing End Users
- Darren Nelson, representing NT Power and Water
- Mark Nielsen, representing Western Power
- Terry Grimwade (VENCORP)
- Marie Taylor, MCE Secretariat

Timeframe

The Working Group is requested to provide the Gas Market Leaders Group with an initial report on the above issues by **3 February 2006**.

Appendix 2: MCE Principles for Gas Market Development

Industry should be guided by the following MCE Principles for Gas Market Development when considering future gas market arrangements.

- Information on market and system operations and capabilities at all stages of the gas supply chain (subject to recognition of existing contractual confidentiality) should be publicly available and frequently updated.
- Gas market structure to facilitate a competitive market in all sectors.
- Gas market participants should be able to freely trade between pipelines, regions and basins.
- There should be regulatory certainty and consistency across all jurisdictions.
- Market design and institutional requirements responsive to and reflective of the needs of the market and market participants.

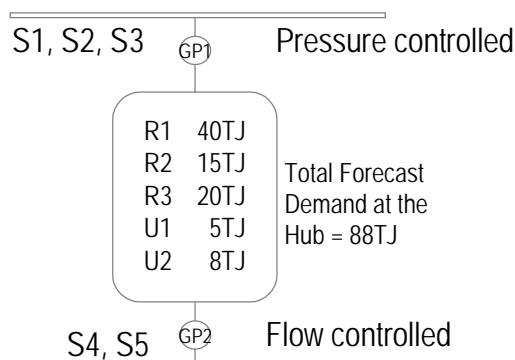
At its meeting on 12 December the GMLG drafted the following additional clauses to clarify and elaborate on the above principles:

Point 4 - add the words "(to the extent possible)" after "jurisdictions".

Point 5 - add the following sub-points:

- minimise the need for government intervention in the operation of the market;
- minimise cost and complexity;
- respect existing commercial arrangements;
- take account of the physical characteristics of the networks;
- take account of the interface with the National Electricity Market;
- complement the work of the National Gas Emergency Response Advisory Committee (NGERAC); and
- recognise the ongoing importance of bilateral contractual arrangements which underpin gas market development

Appendix 3 : Daily Operation and Settlement of STTM – Worked Example



Shipper contracts				Ex-Ante STTM			
Buyer	Seller	Quantity	Price			Cleared offers	Total cleared
R1	S1	20TJ	\$2.00	S1	20TJ @ \$2.00/GJ	20TJ	23TJ
	S4	15TJ	\$1.90		10TJ @ \$3.50/GJ	3 T J	
R2	S2	15TJ	\$2.10	S2	25TJ @ \$2.10/GJ	25TJ	25TJ
R3	S5	15TJ	\$2.05	S3	5TJ @ \$2.20/GJ	5TJ	10TJ
	S3	5TJ	\$2.20		5 T J @ \$3.20/GJ	5TJ	
U1	-	-	-	S4	15TJ @ \$1.90/GJ	15TJ	15TJ
U2	S1	5TJ	\$3.50		10TJ @ \$3.60/GJ	0	
				S5	15TJ @ 2.05/GJ	15TJ	15TJ
					5TJ @ \$3.55/GJ	0	
				Total	110TJ		88 TJ

Total contracted quantity = 75 T.J

This example illustrates how the short term trading market would operate and clear for a hub supplied by two pipelines – one of which is operated under pressure control and one under flow control.

It could, for example, represent a notional Adelaide hub supplied by the Moomba-Adelaide and SEAgas pipelines.

For the purposes of this example, “Shippers” are assumed to be the parties delivering gas to the hub and “Users” are the retailers or direct end-use customers who withdraw or burn gas at the hub. Shippers 1, 2 and 3 deliver gas via the pressure-controlled pipeline, and Shippers 4 and 5 deliver gas via the flow-controlled pipeline.

At the Hub, the users are retailers 1-3 and direct end users U1 and U2.

The Users submit their forecast withdrawals to the Market Operator as shown, totalling 88TJ.

It is assumed that there are bilateral contracts in place between Shippers and Users as shown in the “Shipper Contracts” table above. The total of the pre-arranged contract quantities for this day is 75 TJ, 13TJ less than the total forecast demand at the hub.

R1 only has contracts in place for 35TJ, whereas its forecast withdrawals for the day are 40TJ. Rather than trying to negotiate a short-term contract, it will seek to purchase the additional 5 TJ through the STTM.

Similarly, U1 has forecast withdrawals of 5TJ, and no contracted deliveries; while U2 is contracted for 5TJ but expects withdrawals of 8TJ.

These Users are relying on Shippers having spare or unused delivery capacity to offer into the market at a reasonable price.

At the same time as the Users submit forecast withdrawals to the market operator, Shippers would submit bids or offers to deliver gas at the Hub. The market operator would construct a supply/demand curve and establish the clearing price and the cleared withdrawals and deliveries.

The "Ex-Ante STTM" table illustrates indicative price offers by shippers. In all, there are offers at various prices to deliver up to 110TJ.

The clearing price is set by the marginally priced offer from S1 at \$3.50/GJ.

All offers below this price are cleared in full, while offers above this price (S4's offer at \$3.60 and S5's offer at \$3.55) are not cleared.

S1 has a total of 23TJ of deliveries cleared, but has contracts to deliver 25TJ. Nevertheless there will be adequate deliveries to meet S1's contractual delivery obligations, through other shippers delivering gas at the hub at the clearing price.

The above clearing price and the cleared withdrawal and delivery quantities are determined prior to the start of the gas day and are cash settled at the clearing price.

In practice, retailers (and even some end-users) are often both "shippers" and "users" in that they arrange and manage their own supply and transmission agreements. Where this is the case, the relevant delivery and withdrawal quantities can be offset such that the market operator makes or receives a single net settlement payment for imbalances between deliveries and withdrawals. In this example, let's assume R2 and S2 are the same entity.

The ex-ante STTM settlement in this case is then as shown below:

	S1	S2	S3	S4	S5	R1	R2	R3	U1	U2	Total
Cleared delivery	23	25	10	15	15	0	0	0	0	0	88
Forecast withdrawal	0	0	0	0	0	40	15	20	5	8	88
Market Imbalance	+23	+25	+10	+15	+15	-40	-15	-20	-5	-8	0

Typical retailer being its own shipper:

Assume R2 and S2 are the same entity, i.e. R2 is a retailer that manages its own supply and transmission agreements.

Then this entity's exposure to the STTM clearing price is its net imbalance of cleared deliveries and withdrawals, i.e. $25 - 15 = 5\text{TJ}$ at $\$3.50/\text{GJ} = \$17,500$

More general example of User and Shippers as different entities:

R1 expects to use 40TJ, but has contracts with shipper S1 for 20TJ at $\$2.00/\text{GJ}$, and with S4 for 15TJ at $\$1.90/\text{GJ}$.

Using these bilateral contracts, R1, S1 and S4 can achieve an agreed fixed price for the 35TJ contracted, regardless of the STTM clearing price.

In this example, R1's exposure to the STTM clearing price would thus be limited to the un-contracted quantity 5TJ. (ie. $-5\text{TJ} @ \$3.50 = -\$17,500$).

Actual withdrawals over any given day seldom (if ever) equal the forecast or nominated quantities. Hence, there needs to be an after the event reconciliation and settlement to account for “variances” between the quantities cleared “ex-ante” in the STTM, and the “actual” withdrawal and delivery quantities as determined after the event via meter readings and/or other allocation methodologies.

The following table illustrates this “ex-post” settlement of these variances. The top 3 rows in the table are a repeat of the ex-ante settlement quantities and below that are figures that represent the actual withdrawals for each user.

	S1	S2	S3	S4	S5	R1	R2	R3	U1	U2	Total
Cleared delivery	23	25	10	15	15	0	0	0	0	0	88
Forecast withdrawal	0	0	0	0	0	40	15	20	5	8	88
Ex-ante market imbalance	+23	+25	+10	+15	+15	-40	-15	-20	-5	-8	0
Actual delivery	27	29	12	15	15	0	0	0	0	0	98
Actual withdrawal	0	0	0	0	0	45	10	25	5	13	98
Actual market imbalance	+27	+29	+12	+15	+15	-45	-10	-25	-5	-13	0
Variance c/f	+4	+4	+2	0	0	-5	+5	-5	0	-5	0

Variances c/f and cash settled at next day’s clearing price

R1 has actual withdrawals that summate to 45TJ, compared to its forecast or cleared withdrawals of 40TJ. R2 has withdrawn 5TJ less than forecast. R3 and U2 have each withdrawn 5TJ more than forecast. U1 is the only user whose forecast was accurate.

Overall, users have withdrawn 10TJ more than was forecast.

Assuming that shippers had arranged for deliveries at the hub to be equal to the quantities cleared ex-ante in the STTM, then this additional 10TJ would be supplied from linepack. Furthermore, it would be supplied from linepack on the pressure-controlled pipeline.

In this example, cleared deliveries for shippers on the flow-controlled pipeline equalled 30TJ, and cleared deliveries via the pressure-controlled pipeline totalled 58TJ. With the additional 10TJ drawn down from linepack, actual deliveries from the pressure-controlled pipeline would be 68TJ.

The market operator will need to be advised of the allocation of this 68TJ to each of the individual shipper. The pipeline operator will need to perform this allocation in any case to settle its shipper contracts, and will be requested to provide details of this allocation to the market operator. In this example it has been assumed that the allocation is done proportionally to the shipper nominations. This

needn't necessarily be the case and the pipeline operator will be free to perform this allocation however it is required under its bilaterally negotiated contracts with shippers.

The resultant shipper and user variances from the forecast or cleared quantities are then cash settled at the clearing price determined for the next day.

To the extent that shippers are required under their contracts to restore linepack and their pipeline imbalances on the next day, it is possible that this may be reflected by an increased clearing price on that day because to deliver the same quantity at the hub, while restoring linepack, will require increased injections or receipts.

Shippers will be able to physically restore their pipeline imbalances by various bidding strategies in the STTM – either planning to go long or short – and arranging for injections or receipts to achieve either a positive or negative pipeline imbalance for the day, as required. However they will need to do all this in a way that is consistent with their contractual rights, or else face whatever penalties are provided for under the contracts. In the extreme if they bid in the STTM in such a way that is not physically supported by their contractual rights, then they would be likely to face significant financial exposure in the STTM at future days' prices.