

Gas Market Leaders Group

National Gas Market Development Plan

Scope of a National Gas Statement of Opportunities

Industry Consultation Paper

12 August 2008

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1 Introduction

A Gas Statement of Opportunities (GSOO) was recommended in the Gas Market Leaders Group's (GMLG) National Gas Market Development Plan in July 2006. The final report of the Joint Working Group on Natural Gas Supply also recommended a GSOO in its final report in December 2007.

In December 2007 the Ministerial Council on Energy (MCE) agreed that the development and publication of a GSOO would form part of the Australian Energy Market Operator (AEMO) functions. AEMO will recover the cost of publication through its fees.

It is intended that the GSOO would be a national document. It would provide a 10 year outlook of demand forecasts and supply capabilities. This outlook would highlight where potential reserve shortfalls, or production or transmission constraints may occur in the future.

The purpose of this industry consultation paper is to set out options for the key characteristics of a GSOO, to indicate a preferred option and to seek industry response as the basis for developing a GSOO.

1.1 Invitation for submission

Submissions are invited to comment on the proposed GSOO document outline, approach and information requirements. Interested parties are invited to make written submissions which should be received by Tuesday 30 September 2008.

Submissions may be lodged electronically via email or in hard copy via ordinary mail.

To lodge a submission via email:

- The submission should be sent to graeme.cook@vencorp.vic.gov.au
- The submission should be on letterhead (if an organisation), signed and dated by the proponent

To lodge a submission via ordinary mail:

- The submission should be on letterhead (if an organisation), signed and dated by the proponent
- The submission should be sent to:

Graeme Cook
Chair, GSOO Steering Committee
VENCorp
PO Box 413,
World Trade Centre, Vic 8005

1.2 Structure of the paper

The paper starts by setting out the policy background in section 2. The paper looks at the development of policy on information disclosure in the gas sector; the evolution of the

Statement of Opportunities (Electricity SOO) in the electricity sector; and the possible objectives for a GSOO.

Section 3 covers the possible structure of the GSOO. It sets out options for issues such as coverage, term and regional framework.

The paper is intended to provide clarity on options that could be considered for developing the GSOO and a preferred option as the basis for submissions. Respondents may also wish to raise issues or options which are not canvassed in this report.

2 Background

2.1 Gas Market Development Plan

The Gas Market Leaders Group (GMLG) was established in December 2005. The terms of reference for the GMLG required it to develop a gas market plan to:

“...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 interruption.”

The National Gas Market Development Plan was released in June 2006. The Plan included three recommendations that addressed information disclosure and increase transparency in the market:

- the establishment of a National Gas Market Bulletin Board
- the introduction of a national Gas Supply/Demand statement i.e. GSOO; and
- the detailed design of a Short-Term Trading Market for all States except Victoria.

The Bulletin Board has been established under the National Gas Law which commenced from 1 July 2008¹. The Bulletin Board is intended to improve decision making and trade through providing readily accessible and up to date information on the market and the transmission pipeline systems.

The legislation creates an obligation for certain classes of person to provide information in accordance with the National Gas Rules (Rules). The legislation also empowers the Bulletin Board operator to collect and publish the information on the Bulletin Board. The Bulletin Board started operation in July 2008².

The national gas supply demand statement is intended to provide a long term outlook, over 10 years of demand forecast and supply capabilities, highlighting where potential supply shortfalls or transmission constraints may occur in the future. The purpose is to assist industry and potential new participants in commercial decisions on investment and contracting. It will not form a basis for centralised planning of gas infrastructure.

The Short Term Trading Market (STTM) will establish a mandatory price-based balancing mechanism for all gas delivered to or withdrawn from defined market hubs. This will replace existing compulsory balancing mechanisms between shippers, retailers and self-contracting users. The STTM will not replace the spot market and balancing arrangements in Victoria, which are already price-based.

The GMLG envisaged that the STTM would be designed for all pipeline systems (excluding minor pipelines) but would initially be set up in South Australia and New South Wales. The

¹ The legislation has been implemented in all States and Territories other than Western Australia, which is due to implement in October 2008

² Further details on the Bulletin Board can be accessed through its website on <http://www.gasbb.com.au>

design is intended to provide transparency in market pricing; yield price signals for consumers and for investors in pipe, pipeline services, storage and supply; and enhance market liquidity by allocating gas to the parties that value it the most.

The Bulletin Board, STTM and the supply/demand statement require the provision of information but do not affect responsibilities for planning and investment. It is appropriate that there is consistency and linkage between these measures. This is discussed further below.

2.2 Electricity Statement of Opportunities

Under the National Electricity Rules (NER) the market operator, the National Electricity Market Management Company (NEMMCO) is required to:

- publish an annual Statement of Opportunities
- publish an Annual National Transmission Statement³, having regard to Annual Planning Reports prepared for each region; and
- publish shorter term projections of system adequacy.

The Electricity SOO is intended to assist market participants in assessing the future need for generation capacity (or demand management) and the need for augmentation of the transmission network to support operations.

The Electricity SOO focuses on the aggregate supply and demand position by region. Energy and peak demand forecasts are prepared by region. Information is given on existing, committed and proposed generation. Generation projects are treated as committed if they have planning consents, legal proceedings to complete land acquisition and executed contracts for plant and equipment. Proposed generation investments, which have a lower level of certainty, are reported but not included in generation forecasts.

The Electricity SOO covers transmission network capabilities, based on planning by regional bodies, but does not incorporate forecasting of transmission investments. However, in 2005 amendments were made to the NER which required NEMMCO to prepare and publish an Annual National Transmission Statement (ANTS). The ANTS has a 10 year focus which assesses:

- the location and capacity of national transmission flow paths;
- the electricity flows under future demand and generation scenarios;
- the projected capabilities of the transmission network;
- the implications for constraints on the national transmission flow-paths; and
- options for relieving forecast constraints.

The approach to the Electricity SOO requires a close interaction between NEMMCO and the Jurisdictional Planning Bodies (JPBs). NEMMCO initiates the production of the SOO by writing to the Chief Executive Officers of each company on the Inter-Regional Planning

³ AEMO will produce a National Transmission Network Development Plan which will replace the Annual Transmission Statement

Committee (IRPC), to clarify both the data requirements for the SOO and the nature of the obligations under the NER. The JPBs provide significant input to the SOO, which is co-ordinated by NEMMCO based on economic forecasts developed by NEMMCO.

Short term projections of generation are based on committed projects, identified by the JPBs. Longer term projections are based on analysis of least cost additions, drawing on analysis of fuel costs and heat rates undertaken by Acil Tasman, and on consultation with project proponents.

In carrying out this review, NEMMCO is required to have regard to the Annual Planning Reports (APRs) published each year. The APRs are prepared by the JPBs, together with Distribution Network Service Providers (DNSPs) connected to the transmission network. The NER sets out the issues to be covered in the APR.

The DNSPs can seek information on load and generation by location and time from market participants. The timelines for requesting the information are set out in the NER. Market participants are required to use reasonable endeavours to give accurate information. The DNSP can modify any forecast information it considers inaccurate, but must advise the participant and NEMMCO when this is done, and why.

Under section 3.7 of the NER, NEMMCO must produce medium and short term projections of system adequacy. The purpose is to inform the market of possible power supply problems; enable market participants to plan any scheduled work on plant; and more generally, to enable market participants to make decisions based on an understanding of supply, demand and outages of transmission networks up to two years in advance.

The approach to the Electricity SOO has a number of useful comparisons for the approach to a GSOO. One is the use of a scenario based approach, in particular for the ANTS. This reflects the uncertainty once the forecasting period gets beyond committed generation investments. The level of uncertainty is likely to be greater in gas given the rapid growth in gas use; the 'lumpy' nature of demand, in particular in systems with a low level of residential load; and the likely but uncertain rapid growth of gas powered generation.

The second is the close interaction between the APRs and the ANTS. Electricity networks are all regulated and all have an obligation to plan for meeting demand growth within defined reliability standards. The NER establishes powers for network service providers to seek information, and obligations on market participants to provide it. NEMMCO then draws on that information for preparation of the ANTS. This framework is not repeated in the gas sector. Only Victoria produces an APR. This may mean that additional powers would be required to develop a GSOO, which to some degree mirror the powers of electricity network service providers to obtain information.

The MCE accepted the recommendation of the Energy Reform Implementation Group to establish a National Transmission Planner, while maintaining the accountability of the Transmission Network Service Providers (TNSPs) for transmission investment, and of the Australian Energy Regulator (AER) for economic regulation. The MCE has requested the Australia Energy Market Commission (AEMC) to undertake a review of a detailed implementation plan for establishing a national transmission planning function. The AEMC published its draft report on the National Transmission Planner Review in May 2008.

Figure 1 illustrates the inter-relationship between the GSOO, Electricity SOO, the National Transmission Network Development Plan (NTNDP) and the APR.

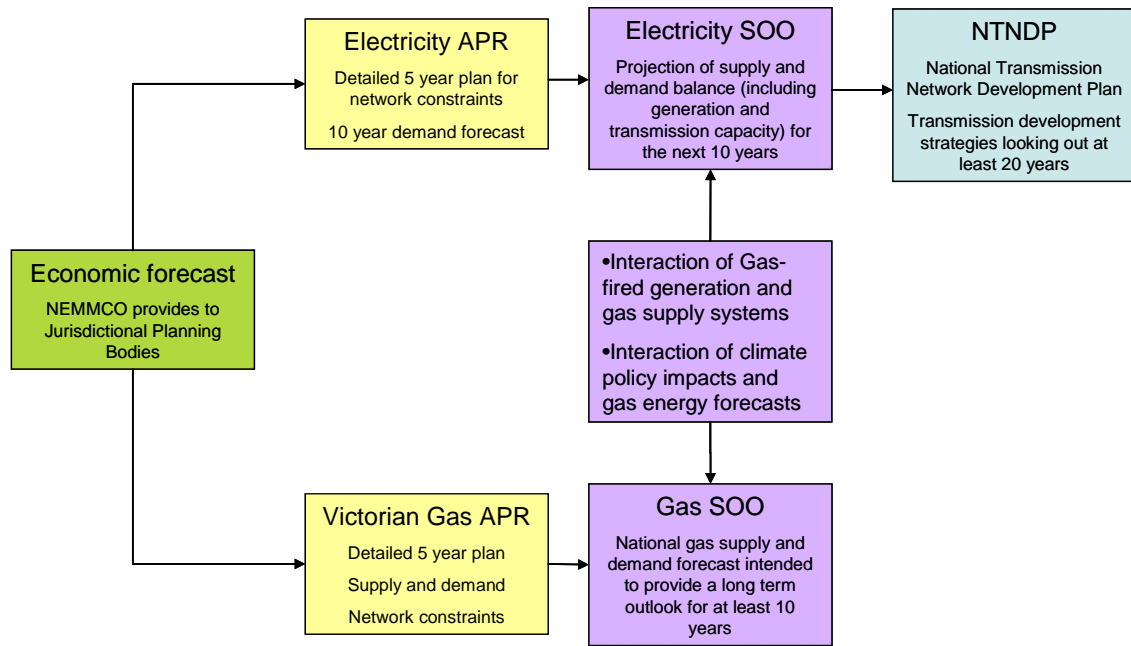


Figure 1 Inter-relationship between the gas and electricity SOOs, NTNDP and APR

3 Scope of a Gas SOO

3.1 Objectives and principles

The National Gas Law sets out an objective to promote efficient investment, operation and use of natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

Investment in natural gas infrastructure and its operations is undertaken by risk-taking companies. Those companies are accountable to their owners for their decisions regarding investment and operations, and resulting profitability. The GSOO should not be considered a plan for investment, or a forecast of investment, operations or price.

However, efficient investment will be assisted by the availability of information on the present position of supply, demand and infrastructure capability including interconnection constraints, and possible future trends. The objectives of a GSOO as set out in the GMLG report are therefore to assist existing industry participants and potential new investors in making commercial decisions on investment in infrastructure and contracting in order to mitigate future risks.

The benefits of greater disclosure and transparency need to be balanced against the costs. The costs will include the direct costs of complying with these disclosure obligations and preparing the GSOO. The arrangements also need to balance intrusive powers with respect for existing commercial arrangements, and recognition that bilateral contractual arrangements have underpinned the development of the gas market.

It would be desirable to have a set of overarching principles to guide the development of the GSOO, and the balancing of these benefits and costs. One approach would be to use the augmented MCE principles developed by the GMLG⁴, shown in Box 1. These MCE principles would establish a comprehensive framework for development of the GSOO.

The purpose of the GSOO will be to provide information. It is possible that the first of these principles is particularly applicable. An alternative would be that the sole principle applying to the development of the GSOO should simply be that:

“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.”

As the GSOO may be used to facilitate efficient investment and use of natural gas services, another option would be to expand this principle to clarify the purpose for which information is to be made available and to be updated. This may provide a clearer basis for ensuring that information is obtained to meet the objective of the GSOO but also ensures that information is not sought which is not directly required.

⁴ Refer National Gas Market Development Plan, GMLG report to Ministerial Council on Energy, June 2006, and amended by the GMLG at their Ninth meeting on 17 August 2007.

Box 1: Augmented Principles for Gas Market Development

1. 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
2. Gas market structure to facilitate a competitive market in all sectors.
3. Gas market participants should be able to freely trade between pipelines, regions and basins
4. There should be regulatory certainty and consistency across all jurisdictions
5. The market design and institutional requirements should be responsive to and reflective of the needs of the market and market participants.
 - a) Take account of the physical characteristics of the networks;
 - b) Recognise the fundamental importance of bilateral contractual arrangements which underpin gas market development;
 - c) Market rules may be imposed to vary existing contracts for operational issues;
 - d) Take account of the interface with the National Energy Market;
 - e) Minimise the need for Government intervention in the operation of the market;
 - f) Complement the work of the National Gas Emergency Response Advisory Committee (NGERAC); and
 - g) Maximise value and benefits.

In summary:

- ***the proposed objective of the GSOO is to provide information to facilitate a competitive market and efficient investment, operations and use of natural gas services; and***
- ***the principle to guide the development of the GSOO will be the first of the MCE Principles for Gas Market Development, i.e. "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"***

3.2 Coverage

The coverage of the GSOO could be considered across a number of dimensions:

- *Geography:* the GSOO could have different coverage of eastern seaboard markets from the Northern Territory and Western Australia;
- *Legal coverage:* the GSOO could be consistent with the approach adopted for the Bulletin Board; and
- *Scope:* the GSOO could focus on demand, supply and transmission in equal measure, or have a greater focus on one or more of these elements.

3.2.1 Geographic differentiation

One approach would be to focus mainly on the eastern seaboard gas markets (South Australia, Victoria, New South Wales, Australian Capital Territory, Tasmania and Queensland), with less or no description of Western Australia and the Northern Territory markets. The gas industry differs considerably between the eastern seaboard, Western Australia and the Northern Territory, as it does amongst eastern seaboard states.

The objective of GSOO is to provide information on supply, demand (including exports) and transmission network capacity, to assist existing market participants and potential investors. This need is likely to exist to some degree in all pipeline systems, and does not create an argument for excluding Western Australia and the Northern Territory or providing a less detailed coverage of the gas market in particular states and territories.

However, the nature of the systems in different locations will affect the benefits of the GSOO. Market participants and new entrants are likely to face greater difficulties in accessing information and planning in markets with multiple users, supplied by more than one basin and by more than one pipeline. The benefits of the GSOO are likely to be lower where these characteristics do not apply.

The main markets with multiple users, supplied by more than one basin and by more than one pipeline are currently Adelaide, Melbourne and Sydney. Queensland is developing coal seam methane reserves and export capacity through the proposed Liquefied Natural Gas (LNG) train at Gladstone. Southern Queensland is increasingly integrated through the South West Queensland Pipeline and the proposed QSN link. This will allow these reserves to supply New South Wales and South Australia. These major developments should be included.

For similar reasons, the transmission component of the Electricity SOO has to date concentrated on the interconnected network in the NEM.

The proposed approach is:

- ***the GSOO should have a national focus providing information on all natural gas markets and the powers to enable this long term objective to be achieved.***
- ***the inclusion of Western Australia and the Northern Territory will depend on their willingness to be involved.***

3.2.2 Legal Coverage

The regulatory arrangements for gas pipelines provide for pipelines to be covered or uncovered. Coverage establishes obligations on the provision of natural gas services and regulatory control over prices and access conditions.

The GSOO could focus on covered pipelines, and exclude uncovered pipelines or treat them in less detail. This would appear consistent with normal practice for other network industries. The obligations of network owners on issues such as information disclosure tend to be greater for regulated than unregulated networks.

The major load centres are predominantly served by uncovered pipelines, including the Moomba to Adelaide Pipeline System (MAPS) and SEA Gas pipeline serving Adelaide and the Eastern Gas Pipeline and a large part of the MSP serving Sydney. It is noted that substantial information on existing key pipeline capacity, including these pipelines, is available on the Bulletin Board.

In addition, the role of the GSOO in providing information to enable efficient decisions on investment and operations does not suggest a need for different treatment of covered and uncovered pipelines, as information on both is likely to be required for efficient decisions.

The approach taken should also be consistent with the legislation and with the approach adopted for the Bulletin Board. Chapter 7 of the National Gas Law sets out obligations to provide information to the Bulletin Board operator which apply to producers, users and service providers unless exempt under the Rules. Chapter 7 also provides for protection of the information provided.

The proposed approach for legal coverage of the GSOO is:

- ***it be consistent with the legislation and the approach adopted for the Bulletin Board; and***
- ***it will apply to producers, users and service providers (whether covered or uncovered) unless exempt under the Rules.***

3.2.3 Scope

The GSOO could focus primarily on demand, supply or pipeline operation and development.

An exclusive focus on demand, supply or pipelines would not be consistent with the recommendations of the GMLG. However, it is necessary to consider whether greater emphasis should be placed on demand and supply analysis rather than transmission analysis, or vice versa.

The report of the working group on gas supply⁵ suggests that the main purpose of compiling the GSOO is to provide information on capacity and reserve adequacy. This suggests a focus on demand, supply and pipeline transport.

The Electricity SOO started out with a focus primarily on demand and supply analysis, with a high level overview of transmission. The transmission coverage has since grown into the ANTS, and will expand further through the establishment of a National Transmission Planner. The resources dedicated to the production of the ANTS are now similar to the resources needed to produce other elements of the Electricity SOO.

⁵ Ministerial Council on Mineral and Petroleum Resources/Ministerial Council on Energy Joint Working Group on Natural Gas Supply, Final Report, September 2007

In the NEM, the desire for increasingly co-ordinated operation and investment on the interconnected system has been a key factor, which has led to the increasing focus on networks. This has required a balancing between maintaining existing accountabilities for TNSPs in planning and investment, while introducing some degree of co-ordinated planning at a national level.

The gas market is less meshed than the electricity market and does not have a similar need to maintain instantaneous balance. This may reduce the need for a national and network-wide focus on pipeline investment. The points raised by the Garnaut Report regarding the private development of gas transmission pipelines are noted.⁶

It is proposed that the GSOO should cover demand, supply, storage, transmission network capacity and interconnection constraints.

3.3 Term

The level of confidence in supply and demand projections declines as these projections look further into the future. However, there are benefits from being able to explore the impact of demand, supply and transport capacity trends.

One way to resolve this is to conduct analyses that are more narrowly defined and detailed for a relatively short period – up to five years – and then more general, higher level, projections beyond five years.

The introduction of an emissions trading scheme is likely to lead to an increase in gas powered generation, with large impacts on load. Given the materiality of this issue and its impact on production and pipeline systems it may be desirable for the GSOO to include some reasonably long term scenarios, up to 20 years. The scenarios may also need to consider the impact of other factors such as drought and gas powered generation.

The period of the projections in the GSOO should also consider that provided in other documents. For example, in the electricity industry, the APRs provided by regulated network service providers set out data on short term actions (5 years), with a higher degree of certainty, while the Electricity SOO and the ANTS provide higher level, often scenario-based, projections (10 years). The NTNDP will have a 20 year horizon.

Unlike the electricity sector, the gas sector does not have Annual Planning Reports (with the exception of Victoria). The Bulletin Board will only provide very short term information, with the existing capital stock. There may be benefits if the GSOO covers both short term projections of demand and supply (including committed investments in new supplies and pipeline augmentations etc.) as well as longer term information on the development of demand, supply and pipeline capacity.

Work needs to be done to determine more precisely how capacity and reserves adequacy should be measured – and the audience for this information – to provide relatively certain actions in the near future, and projections of demand, supply and network investment further into the future. There will be a requirement to provide more than annual

⁶ Chapter 17 Garnaut Draft Report.

information in some cases, e.g. seasonal peak capacity, but the requirement for monthly profiling is not likely.

It is proposed that the GSOO should provide a 10 year outlook, consistent with the Electricity SOO, and a more speculative focus for 20 years.

3.4 Regional framework

In the NEM, supply and demand is defined by NEM region. Transmission infrastructure that is located within a NEM region is defined to be intra-regional transmission and transmission lines that cross regional boundaries are defined to be interconnectors. Other than in detailed studies, demand and supply is generally defined in aggregate across the region, rather than at specific points.

An application of this approach to the GSOO would have demand and supply defined by state boundaries. All pipelines within state boundaries would be defined as intra-regional pipelines. Major pipelines that cross state boundaries (SEAgas, EGP and Moomba to Sydney) would be defined as inter-regional pipelines.

This approach would assist in incorporating the impact of state-specific policies – for example the Queensland Gas Scheme – in the GSOO. However, it would also establish a regional framework for the GSOO based on State Government boundaries which is not necessarily appropriate for gas supply, transport and demand.

A variation on this approach would be to focus on demand mainly at the regional centres: Adelaide, Canberra, Sydney, Melbourne and Brisbane. The disadvantage of this is that significant gas demand is located outside regional centres, particularly in NSW and Queensland. This may well increase with increasing penetration of base load gas generation capacity located outside metropolitan areas.

Another alternative is to have no geographic disaggregation of supply and demand, and to treat the eastern seaboard as one integrated region. Locational information would still be required on supply, demand and pipeline capacity. However, it would not be necessary to calculate net transfers (imports and exports) between regions.

This might make for a simpler analysis. However a highly aggregated approach would reduce the value of the information in the GSOO to market participants and potential investors. One geographic unit for the aggregation of demand and supply, rather than several, would make it more difficult to see how demand and supply is changing around Australia.

A final alternative would be for demand and supply to be aggregated based on demand zones and demand hubs used for the Bulletin Board. The demand zones would either correspond to the overall load serviced by an individual Bulletin Board pipeline (including its laterals, connecting networks and minor pipelines) or to ‘hub’ load centres that are serviced by two or more Bulletin Board pipelines.

Table 1 lists the demand zones used for the Bulletin Board.

Table 1: Demand Zones

Demand Zone	Description
Victorian Principal Transmission System (VIC)	Demand supplied off the Victorian Transmission system (PTS), includes demand on Western Transmission system, the Carisbrook to Horsham pipeline, on laterals that may extend into NSW. Exclusion: Net export via VicHub, the Interconnect or Iona withdrawals.
Tasmanian Gas Pipeline (TGP)	Demand supplied off the TGP within Tasmania
Eastern Gas Pipeline (EGP)	Demand supplied through the EGP including to the ACT and Sydney zones. Exclusion: flows via VicHub to the Longford-Melbourne pipeline or to the TGP.
Moomba to Adelaide Pipeline System (MAP)	Demand supplied through MAP system including all laterals and including the Adelaide demand zone.
Moomba to Sydney Pipeline System (MSP)	Demand supplied through MSP including its laterals, through Wilton CG and Canberra CG (Watson) but excluding any export flows to Victoria via the Interconnect.
SEA Gas (SEA)	Demand supplied through SEA Gas and its laterals or connecting pipelines including the ADL zone. Exclusion: Net flows on the day to Iona UGS and excluding flows to Iona via the Minerva to Iona pipeline.
Adelaide (ADL)	Demand supplied through SEA Gas CG (Cavan) and the MAP CG (Gepps Cross), including demand from the Torrens Island and Pelican Point gas powered generators and any other direct connected loads in the Adelaide area. Exclusion: deliveries to that part of Adelaide supplied via off-takes on the MAP upstream of Grepps Cross CG i.e at Taparoo and Elizabeth that can only be supplied from the MAP and, hence is not in the Adelaide 'hub'.
Australia Capital Territory (ACT)	Demand supplied through either the EGP CG at Hoskinstown or the MSP-Canberra Cg at Watson.
Sydney (SYD)	Demand supplied through the MSP CG at Wilton and the EGP CG at Horsley Park CG and EGP CG at Wollongong CG. Exclusion: The Smithfield and Port Kembla loads that can only be supplied from the EGP and, hence, are not in the Sydney 'hub'.

Demand Zone	Description
Roma to Brisbane Pipeline (RBP)	Demand supplied via RBP downstream of Wallumbilla to Brisbane including the Brisbane load and demand on laterals to the RBP and any other connecting pipeline loads supplied via the RBP.
Queensland Gas Pipeline (QGP)	Demand supplied via QGP downstream of Wallumbilla and to Gladstone extending to Rockhampton and Maryborough loads, all laterals to the QGP or connecting pipelines. Exclusion: Any net flow to Wallumbilla.
South West Queensland Pipeline (SWQ)	Demand on the SWQP west of Wallumbilla and to Ballera including that from the Cheepie to Barcaldine pipeline, any other laterals or connecting systems including any net deliveries to the Ballera zone on the day.
Carpentaria Gas Pipeline (CGP)	Demand downstream of Ballera including Mt Isa and demand on Cannington line or other laterals or connecting pipelines to the CGP, north of Ballera. Exclusion: Any net flows to the SWQP.
Ballera (BAL)	Deliveries to the Ballera locale including (any by-passes to the proposed QSN Link or the CGP from the SWQP). Ballera is a production zone but is also treated as demand zone in respect to flows received from SWQP.

The proposed approach is for demand and supply to be initially aggregated based on the demand zones and demand hubs being used for the Bulletin Board.

3.5 Gas demand

The main issues for defining demand are:

- The categorisation of demand by end user;
- The definition of demand – annual or daily; and
- Seasonal Demand – summer and winter

Commonly used end-use customer classes include residential, commercial, industrial and power generation. Further disaggregation of these demands may be useful: for example power generation could distinguish between open-cycle capacity, base load (CCGT) capacity or co-generation. Gas powered generation projects should be consistent with the

Electricity SOO's assumptions regarding project status. An account could also be made of interruptible loads, own-use (gas used in compression) and fugitive losses.

The nature of gas demand varies significantly across Australia. Gas demand in Victoria is predominantly residential, although demand for gas powered generation is increasing rapidly. In South Australia, although gas has a high residential penetration, demand is dominated by power generation. In New South Wales, gas also has a high penetration around Sydney but demand is dominated by industrial and more recently generation. In Queensland and Western Australia, demand is predominantly industrial and power generation dominated.

Gas demand for electricity generation is expected to rise sharply in the eastern seaboard. There is also the prospect of significant LNG development and major projects like Olympic Dam. Considering the lumpy nature of such demand, this makes accurate demand forecasting difficult which points to the usefulness of scenario-based demand projections.

The appropriate definition of demand – annual demand (Petajoule - PJ) or peak daily demand (Terajoule - TJ/day) needs to be considered. Projections of total demand over a year should be easier to compile than projections of daily demand but information on peak winter day or peak summer day demand by customer category could be useful in providing background to the need for investment in pipeline and storage capacity.

It is proposed that the GSOO:

- ***should distinguish between residential, commercial, industrial and gas powered generation demand. It should identify both actual and forecasts of annual demand and peak daily demand; and***
- ***will rely initially on a top down approach to develop the demand forecasts. This will require the services of consultants as central forecasts are not available in all jurisdictions.***

3.6 Gas reserves and production

Other than in Queensland Coal Seam Methane (CSM) and the Cooper Basin, most of the gas used in Australia is located offshore. Information on gas reserves is collected by the Commonwealth and State Governments, geoscience agencies, the Australian Petroleum Production & Exploration Association (APPEA) and numerous private consultancies and information service providers (sometimes sourced from the annual reports of gas production companies).

To undertake a reliable assessment of reserves using the conventional 1P and 2P classifications would be a demanding exercise, where 1P (Proved) Reserves can be borrowed against, 2P (Proved and Probable) Reserves can be contracted and 3P (Proved, Probable and Possible) Reserves are an indicator of future potential.

There seems little merit in the GSOO duplicating detailed analysis undertaken by others. On the other hand, the GMLG recommended that the GSOO produce an indicator of reserves in relation to production (a variation of this – netting out minimum reserve levels -

was proposed in the MMA report)⁷ with red, amber and green lights based on the value of this ratio.

It will require significant analysis to develop a reliable assessment of reserves. To relate reserves to production (annual and peak capacity), it is necessary to consider the ability to transport gas to the different interconnected demand centres and regions across Australia. For example, if the reserve to production ratio for gas from the Otway basin turned red this would not necessarily mean that supplies to Adelaide would be under threat because the Moomba to Adelaide pipeline provides access to an alternative source i.e. Moomba or Queensland and the SEA Gas pipeline could transport some gas originally sourced from Gippsland for part of the year.

This suggests that, if such reserve indicators are to be compiled, then they should focus on gas in South Australia, Victoria, New South Wales, Tasmania and Queensland as an integrated, interconnected market (post QSN link 2009), and then separately for the Northern Territory and Western Australia. As discussed in section 3.2.1 this is likely to be done subsequently.

In view of the resources required to independently produce estimates of reserves, it may be advantageous to reproduce the reserve data already compiled by other organisations. Therefore, as part of the GSOO development, GeoScience Australia and other parties who currently produce information on reserves will be consulted to determine how best this information can be incorporated into the GSOO.

It is proposed that the GSOO should cover all production facilities within the geographic areas discussed in section 3.2.1 and that gas transmission capacity for these facilities will be defined in a manner consistent with the Bulletin Board.

3.7 Gas transmission

There are several issues to be decided in defining how gas transmission capacity should be specified in the GSOO.

The first is whether pipelines not covered under the National Gas Law should be treated in the same way as covered pipelines. The distinction between covered and uncovered pipelines is a material one for regulation of pipeline access. However information on both will be required to meet the objectives of the GSOO and to ensure consistency with the approach adopted by the Bulletin Board under the National Gas Law.

The next issue is how pipeline capacity should be defined. Technical data on pipeline diameter, pressure and distance is already available. However, it is not possible to calculate the transport capacity of pipelines from this. Furthermore the specification of pipeline capacity needs to take account of existing contracted injections and withdrawals, existing and proposed operating and investment decisions. Nameplate and Operating Pipeline capacity are currently provided by Transmission owners to the Bulletin Board.

⁷ Analysis undertaken by MMA (McLennan Magasanik Associates) for the Joint Working Group on Natural Gas Supply.

Calculation of pipeline capacity requires modelling of the system using assumptions on injections, pressures and withdrawals throughout the system. To maximise the value of the information on transmission capacity, it will be necessary to broadly outline the assumptions and the modelling approach – as is done in the Victorian APR – for the results to be understood. However it is noted that unlike the Victorian system, transmission pipelines face competition in provision of their services and as such scenario based assumptions are all that can reasonably be projected (i.e. the configuration of existing pipelines may be augmented or diminished based on future demand and supply needs).

The analysis will not need to consider the interaction between injection, linepack availability, storage and other measures for meeting peak demand as such day-to-day information is not required for long term projections. Likewise the short term matters are being dealt with by the STTM and Bulletin Board processes.

The increasing interaction between pipeline systems and implications for pipeline constraints and the degree of overall system redundancy and its implications for security of supply if production or pipeline capacity is lost may be useful.

Modelling growth in pipeline capacity will be a complex task. The starting point should be to consult expected users of the GSOO on the transmission and other information they consider would be most useful and the implications for both data and supporting analysis provided in the GSOO. This should be done before attempting detailed design of this aspect of the GSOO.

It is proposed that that the GSOO should cover all pipelines within the geographic areas discussed in section 3.2.1. and that gas transmission capacity for these pipelines will be defined in a manner consistent with the Bulletin Board, i.e. the capacity will be provided in TJ.

3.8 Interaction with the Bulletin Board and other planning documents

As discussed earlier, the National Gas Market Development Plan issued by the GMLG recommended that information disclosure should be promoted through the:

- establishment of a Bulletin Board
- Short-Term Trading Market for all States except Victoria; and
- the introduction of a national gas supply/demand statement.

The national gas supply demand statement – referred to in this document as the GSOO - is intended to provide a long term outlook, over 10 to 20 years of demand and supply. The purpose would be to assist industry and potential new participants in commercial decisions regarding investment and contracting.

The Bulletin Board has a much shorter focus of only a few days, although it will include an annual projection of gas demand for a year. It will also enable a body of data to be built up over time.

It appears likely that the Bulletin Board will be a useful source of information to support the GSOO. As already discussed above, the structure of the GSOO should be designed to be consistent with the Bulletin Board – for example in regional structure. This will assist use of Bulletin Board data for the GSOO and industry in assessing both sources of information.

In electricity, bodies in each State produce an Annual Planning Report (APR). In the gas sector, only Victoria currently produces an APR, which has similarities to a SOO. There may be some overlap between the GSOO and Victoria's APR. Both documents will use demand and supply projections and information on transmission. Both documents should adopt consistent assumptions for ease of production and ease of use of the two documents.

The APR is a much more detailed document than the proposed GSOO. The APR could be regarded as a regional deepening and extension of the GSOO. It is possible that other regions would also consider such a document, but this is not necessary for the GSOO itself.

There are several areas where the GSOO and the Electricity SOO will need to be developed together to ensure consistent assumptions. These include:

- *Economic forecasting:* household and small commercial demand is forecast on an aggregate basis rather than as individual projects. Those forecasts are sensitive to assumptions on Gross Domestic Product GDP growth. It will be desirable that the GSOO and Electricity SOOs adopt consistent forecasts.
- *Interaction of gas powered generation and gas supply systems:* as noted, NEMMCO forecasts additions to generation based on committed projects, and on analysis of fuel costs, heat rates and other factors. Forward projections show a large share of generation requirements being met by gas powered generation. The GSOO will need to confirm the viability of meeting these projections, given projections of supply, pipeline capacity and other demands.
- *Gas price assumptions:* NEMMCO's long term forecasts of generation are based on (among other things) fuel cost assumptions. The assumed costs for gas are likely to be sensitive to the supply/demand position. They will also be sensitive to the assumed timing and volume of any export capacity through the Gladstone LNG project or other proposed investments such as Coal Seam Methane. It will be important for the GSOO to have gas forecasts for gas powered generation consistent with the Electricity SOO
- *Interaction of climate change policy and gas energy forecasts:* the output of non-scheduled wind generation, for example, will impact on the energy provided by other generators. This may particularly affect OCGT plant and the volume of its gas demand. It will be desirable that the GSOO and Electricity SOOs adopt consistent approaches to forecasting.

NEMMCO currently prepares the ANTS which sets out opportunities for development and augmentation of interconnections in the NEM. As set out in AEMO's final report to the MCE dated 30 June 2008, a NTNDP will be developed by AEMO.

It is proposed that the GSOO should:

- ***be structured to ensure consistency with the Bulletin Board; and***
- ***be consistent with the principles and key parameters used for the Bulletin Board, the Victorian Gas APR, the Electricity SOO and the National Transmission Network Development Plan.***

3.9 Powers required

Estimating the adequacy of pipeline capacity and of reserves is potentially highly data intensive. The assessment in the GSOO should be based on reliable data that covers:

- reserves and production schedules;
- existing and proposed future gas processing capacity;
- pipeline interconnect transfer capacities;
- expectations of annual and peak day demand;
- the location of major new point loads and proposed exports;
- information on the spare capacity of existing pipelines, including spare or mothballed compressor plant; and
- proposed changes to pipeline operation and capacity expansion, and on storage capacity operation and development.

Table 2 gives an indication of the types of data that may be required for the GSOO and the proposed parties to be responsible for providing the data.

Table 2 Indication of data requirements from industry

Item	Data to be provided (TJ or TJ/d)	Provider	Provided/updated	Notes
Production	Production MDQ "nameplate rating" 10 year outlook	PR	Once off. Annual confirmation	<ul style="list-style-type: none"> - Bulletin Board will be used for the first year - Committed, likely and possible projects/expansions are needed from responsible parties in future years. - Major planned outages i.e. maintenance
Storage	Holding Capacity "nameplate rating" 10 year outlook	SO	Once off. Annual confirmation	
LNG or UGS	Supply MDQ Refill MDQ 10 year outlook	SO	Once off. Annual confirmation	
Pipeline Capacity	Pipeline Capacity and Interconnect transfer capacities "nameplate rating"	PO	Once off. Annual confirmation	
Forecast Demand	Forecast Winter and Summer Annual & Peak day	AEMO	Once off. Annual confirmation	<ul style="list-style-type: none"> - Initial top down forecast generated by consultants. May seek further information from retailers or pipeliners to validate - Economic forecast will share common information with jurisdictional APR's and electricity SOO - Include GPG forecasts that are consistent with electricity SOO Climate change policy will be consistent with the electricity SOO and NTNDP
Reserve	Quantity of reserve	AEMO	Collation of public information	<ul style="list-style-type: none"> - other parties e.g. Geoscience, ABARE and company annual reports

Legend:

PR: Producer

SO: Storage Operator

PO: Pipeline Operator

Obtaining reliable data will require access to commercially confidential information. In relation to the Bulletin Board, the National Gas Law and Rules have been developed which set out the obligations of parties to provide relevant information.

An alternative would be to obtain expert opinion from consultants and other commentators on this data. Much of the data used to compile the Electricity SOO – for example generation cost data - relies on consultant reports rather than being provided by industry participants. However, it is likely that industry knowledge will be required for some aspects of the GSOO.

In the longer term legislative backing may be required to support the GSOO. In practice the disclosure obligations are likely to sit in the Rules rather than the legislation. It is therefore of interest to consider the approach adopted in the NER to enable production of the Electricity SOO and the ANTS.

The Electricity SOO draws on powers in the NER. Chapter 3 of the NER sets out NEMMCO's obligation to publish data, including the Electricity SOO. Section 3.13.3 (s) states that NEMMCO may seek the assistance of the IRPC (which includes all the Jurisdictional Planning Bodies) and Section 3.13.3 (t) creates an obligation for market participants to inform NEMMCO when they become aware of any information required by NEMMCO for publication in the Electricity SOO.

Section 5 of the NER covers network connection, network access and network planning. Section 5.6.5 (b) states that NEMMCO must consult market participants and interested parties on the data to be used in the ANTS. Section 5.6.5 (f) allows NEMMCO to seek information that it reasonably requires for the ANTS review, and (g) puts an obligation on the parties to respond.

As noted in Section 2, NEMMCO also draws on the APRs, and the NER gives powers to network service providers to assist in preparation of the APRs.

Data availability is likely to be an ongoing issue in the development of the GSOO just as it is for the development of the Electricity SOO. To develop a deeper understanding of the powers that may be needed to ensure adequate data for the compilation of the GSOO, the concepts of capacity and reserve adequacy may need to be defined more clearly.

The introduction of obligations to provide information for the GSOO will also need to be accompanied by measures to protect the confidentiality of that information and to ensure it is only used for defined purposes. As noted, Chapter 7 of the National Gas Law provides for protection of information provided to the Bulletin Board operator. This may provide a precedent applicable to information provided for the GSOO.

It is proposed that:

- *Legal obligations should be introduced to require all producers, users and service providers (unless exempt under the Rules), to provide information to enable the preparation of the GSOO, and that this information should be accompanied with appropriate steps to protect the information and ensure it is only used for defined purposes;*
- *ahead of the legal obligations being in place (July 2009) the GMLG will seek to have in place by January 2009 a formal commitment with industry to provide the required data; and*
- *AEMO has obligations in place to develop a GSOO.*

4 Glossary

1P	Proven reserves
2P	Proven plus Probable reserves
3P	Proven, Probable plus Possible reserves
ABARE	Australian Bureau of Agricultural and Resource Economics
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ANTS	Annual National Transmission Statement, published by NEMMCO
APR	Annual Planning Report
CCGT	Combined Cycle Gas Turbine
DNSP	Distribution Network Service Provider
Electricity SOO	Electricity Statement of Opportunities
GMLG	Gas Market Leaders Group
GPG	Gas Powered Generation
GSOO	Gas Statement of Opportunities
IRPC	Inter regional Planning Committee established under the NER
JPB	Jurisdictional Planning Body as defined in the NER
MCE	Ministerial Council of Energy
NEMMCO	National Electricity Market Management Company
NER	National Electricity Rules
NTNDP	National Transmission Network Development Plan
OCGT	Open Cycle Gas Turbine
STTM	Short Term Trading Market
TNSP	Transmission Network Service Provider