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Dear Mr Pierce

Australian Energy Market Commission Victorian Declared Wholesale Gas Market (DWGM) Draft Report

AEMO welcomes the opportunity to comment on the Australian Energy Market Commission's (AEMC) Victorian Declared Wholesale Gas Market (DWGM) Draft Report.

AEMO considers that the Southern Hub model proposed by the AEMC is an appropriate model for further assessment against the Victorian Government's Terms of Reference and the COAG Energy Council's vision. However, AEMO also considers that the suitability of this model to the Victorian market and gas system and the benefits of transitioning from the current arrangements to the proposed design are yet to be established. The next stage of the review should aim to provide greater detail on the Southern Hub model and in particular seek to tailor the model to the Victorian system and environment.

AEMO also believes that a further phase of analysis and justification are required before there can be a recommendation to proceed with implementation. The proposed market design should first be considered against the features of the existing Declared Wholesale Gas Market (DWGM) and an assessment performed by weighing up the benefits and limitations of the market models as well as the costs associated with the implementation of the recommendations. Ultimately such analysis will provide the basis for the justification to transition to a new market and will better inform decision makers on whether the model should be implemented.

This submission is provided in two sections. The first part of this submission provides the AEMC with feedback on the Southern Hub model and identifies aspects of the proposed model that could use further assessment in the following stages of the review. The second part of the submission provides AEMO's view on the review process going forward.

AEMO looks forward to engaging further with you during the course of this Review. If you would like to discuss the contents of this submission further, please do not hesitate to contact Violette Mouchaileh on 03 9609 8551.

Yours sincerely,



Peter Geers
Executive General Manager, Markets

Attachments: AEMO submission on Victorian Declared Wholesale Gas Market Draft Report

Declared Wholesale Gas Market Submission

AEMO welcomes the opportunity to provide a submission to the AEMC's review of the Victorian Declared Wholesale Gas Market (DWGM) draft report. The draft report proposes the DWGM move to the Southern Hub model.

AEMO understands that the Southern Hub model would replace the current market carriage capacity arrangements with an entry-exit capacity model, and the mandatory central market schedule with a voluntary trading exchange that continuously matches bids and offers (collectively, 'the model'). This model is a proven and functioning market design in Europe and has both advantages and disadvantages when compared with the existing market. Recognising this, AEMO is of the view the entry-exit model is a reasonable model to assess the current DWGM arrangements against. However, there are a number of areas AEMO considers require further consideration and assessment before a decision can be made to progress the Southern Hub model.

This submission identifies aspects of the proposed model that could use further assessment as part of the next stage of the review and presents AEMO's views, moving forward, on the DWGM review process. The aim of this analysis should be to assist in establishing whether the Southern Hub model could be viable for the Victorian environment and at what cost.

1 Comments on the Proposed Design

AEMO notes that the Southern Hub model as proposed in the draft report has been defined at a high level and further details are required. To date, the discussion around the Southern Hub model concept has focussed on how such arrangements work in a European context. AEMO is of the view that for the next phase of the review the model needs to be considered and tailored to the Victorian environment, specifically recognising the physical system, which is a meshed network of transmission pipelines with physical limitations and bespoke requirements.

In this context, the following section provides AEMO's view on some aspects of the market design that would benefit from further analysis and development prior to a detailed design being recommended.

1.1 Voluntary exchange and market liquidity

The Southern Hub model proposes to move away from the current mandatory market to a voluntary exchange, where products for a Victorian hub would be traded (similar to the Gas Supply Hub) on the gas day and into the future. The benefit of this model is that the voluntary nature of the market and the ability to trade continuously (i.e. not restricted to schedules) gives participants the flexibility to use the market when needed, and the option to source gas off-market. Such a market would support physical forward trading at the hub, which could be important in helping to build a forward curve for gas in Victoria.

However, consideration needs to be given to the implications of changing to a voluntary exchange. In particular, as participation is voluntary, the level of liquidity in the market is uncertain. In European markets, a diversity of participants with a variety of physical and commercial positions is key to liquidity in the voluntary exchanges. Given the gas industry structure this will not necessarily be the case in Victoria (at least initially). Furthermore, the participation of producers (who have only limited direct participation in the DWGM) is likely to be important. Given that there is an established and active wholesale market and the nature of the underlying demand, liquidity and participation in the new voluntary exchange will be important.

A key question is who are the natural sellers in a voluntary Victorian gas market? It should also be noted that the voluntary exchanges in the Netherlands and Great Britain are supplemented by active Over-the-counter markets (OTC) that serve as a key alternate avenue for trades. OTC markets are not at the same level of maturity in Australia. It should be recognised that with current market dynamics, participants in Australia have fewer alternatives to source and trade gas off-market than in Europe.

Without a liquid spot market, consideration needs to be given to the impacts on participants (particularly smaller players) who have come to rely on the DWGM's mandatory market to manage their portfolios. Currently such participants have the ability to procure gas (at a price and subject to constraints) from the mandatory market. In response to concerns over initial market liquidity, a number of European markets mandated the release of supply on the exchange by key participants. This approach would represent a significant intervention in the market. If the commodity market is illiquid, participants would need to continuously monitor the market to complete their required transactions and this may prove onerous, particularly for smaller participants.

Although it may be challenging to assess the likely level of liquidity, an understanding of the impacts of an illiquid voluntary exchange and any measures that could encourage liquidity should be part of the assessment of the proposed design.

1.2 Forward Market

The report identifies a key benefit of transitioning the existing DWGM to the Southern Hub model would be the emergence of a meaningful reference price that encourages the development of derivatives. AEMO believes that this assertion could use further analysis, especially in the context of the commercial environment.

It is important to note that most gas in Victoria is sold under long-term supply arrangements to retailers at Longford with the Gippsland Basin Joint Venture. Given the structure and dominance of long-term contracting in Victoria, AEMO considers the participation of producers particularly important to the success of a nascent forward market. The market design should be cognisant of the need to encourage the participation of producers.

It is also unclear if liquidity is limited, whether a reference price derived from a basket of trades delivered at the Southern hub will be a "better price" than the current market price and an enabler of futures trading. A potential disadvantage of the proposal is that there may be basis risk for participants arising from a difference between the price at which they transact and the price determined based on the basket of trades. Without liquidity in the underlying market(s) any future reference price may also be of only limited use in contracting and portfolio management.

1.3 Balancing Model

The AEMC has proposed that a balancing model similar to that used in the Netherlands (in the Title Transfer Facility, (TTF)) should be considered for Victoria. This would be a participant-led balancing model, where participants continuously monitor (in near real-time) and manage their imbalance position. The system operator is responsible for any residual balancing of the system that remains unresolved by participants. The TTF model has buffer zones which represent the flexibility of the network. When the aggregate system imbalance exits the dark green buffer zone, the system operator may intervene to correct the imbalance.

The existing market provides incentives to participants to accurately forecast their demand across the day and to balance their intra-day position. In what has been characterised as a system operator-led approach, the system operator also reschedules the system (using bids

and offers from participants), which rebalances supply and demand across the day. This is done taking into account what has already occurred and how the system is tracking against the end of day line-pack target. The advantage of an operator-led approach is that the system is efficiently and safely managed through a central coordination of scheduling of flows by the system operator who has a top-down overview of the system.

A participant-led approach on the other hand, such as the TTF-model, provides participants with greater flexibility in managing their positions potentially leading to more efficient economic outcomes. However, a reduced level of central coordination has the potential to result in more frequent large system imbalances, particularly if the system operator is incentivised to only undertake residual balancing actions as a last resort. This can in turn have ramifications for deliverability and potentially system security. In developing a balancing model there is a trade-off between potentially greater levels of economic efficiency and an appropriate level of system security. AEMO would welcome further analysis on the advantages and disadvantages of each approach to balancing.

Considerations for a near-real time balancing model

AEMO considers the TTF 'near-real time' balancing model a worthwhile option for assessment by policy makers. Some matters that need to be considered in order for the balancing model's application to Victoria to be assessed are outlined below.

The first issue to consider is that a model where participants are responsible for continuously monitoring their imbalance position, and where there may be need to take corrective action at short notice needs to be under-pinned by quality near real-time information. In the Netherlands, participants are able to track their imbalance position and the transmission system's imbalance position in near real-time. Provision of such information requires advanced data systems as well as the ability to reliably metre gas flows in near real-time. It should be noted that in the Netherlands, near real-time allocations are used, and the settlement of imbalances are done based on the near real-time data. This is deemed appropriate as even if the data is erroneous, it is the information that participants use to respond to decisions.

However, in Victoria, given retail demand is a large share of the load, the discrepancy between real time information (and any near real-time allocation) and final information could be large. Therefore there could be issues with settling the market on this information.

The information, metering and settlement arrangements that are required for the Southern Hub balancing model needs defining and assessment. As part of this assessment it should be established whether it would be possible to provide the required level of information granularity and accuracy using current systems and metering. In particular, there should be consideration as to the impacts on distribution-level metering and any potential ramifications for the retail market.

Issues with a dedicated balancing market

The draft recommendation is for the balancing market to be potentially established separately to the commodity market. The recommendation concludes that if the voluntary spot market is illiquid the system operator may require a dedicated balancing stack in order to ensure system security. While it is understandable why practically such a mechanism may be required if the spot market is illiquid, there are some potential issues with such an arrangement that require analysis. These include:

- The potential ramifications from splitting liquidity between the commodity market and the balancing market for the growth of the new voluntary market. Liquidity in the commodity market may be reduced as participants who offer gas to the system operator in the balancing market must reserve that quantity of gas for exclusive use of the system operator.
- The incentives required to encourage participants to offer gas into the separate balancing market given any commodity offered for balancing must be reserved. For example in the original TTF model, reservation fees were paid to encourage a certain quantity of balancing gas to be offered to the system operator. Such fees are not required under the current market.
- The potential for any gaming issues where the system operator must use a separate balancing market, where (presumably) offers for balancing gas are made ahead of time, from the commodity market.

These issues are minimised in the current market's balancing design. AEMO is concerned that this proposal could be a step backwards in terms of operational and economic efficiency from the current market's balancing mechanism.

An assessment of the issues associated with a separate balancing market against the issues associated with an illiquid commodity market that is used for balancing should be undertaken. This should also be considered against the existing arrangements. If it is decided that a dedicated balancing market is needed due the risk that an illiquid spot market presents to system security and/or deliverability, a clear transition path for the system operator eventually using the commodity market for balancing actions should be developed. Alternative or complementary tools to the dedicated balancing market should also be considered such as within-day obligations and tolerances and/or the system operator tendering for balancing services.

1.4 Entry and Exit Capacity Model

Capacity Allocation

The entry and exit capacity model is the target model being implemented across the EU jurisdictions. However, in Europe, unlike Australia, there is a common market framework across all EU jurisdictions. If an entry-exit market is implemented solely in Victoria, the Victorian market will continue to interface with contract carriage pipelines. While this is an issue now with the current market design, potential boundary issues need to be considered in designing the capacity allocation mechanism. To facilitate efficient cross-border trade, transaction costs and administrative burdens should be minimised through harmonising arrangements.

For example, consider that exit rights at the border of the Victorian system would be exit rights onto a contract carriage pipeline. Such exit rights would probably need to be matched with a corresponding contract carriage right. This has implications for the design of the exit allocation mechanism and the capacity market. Presumably a participant who purchases exit capacity at a boundary point will want the certainty that they will actually be able to use that capacity. One option would be to have bundled capacity products at cross-border locations but this would require the involvement of connected pipeline operators.

Furthermore, consideration should be given to how distribution exit capacity is allocated. The report comments that this could be done via auction, however this does not seem to be a practical solution. These exit rights will interface with distribution networks servicing a retail market where customers can switch retailer (and hence affect a retailer's need for exit capacity) frequently. Analysis on appropriate capacity allocation mechanisms is required.

Some form of implicit allocation related to share of customers may be a solution. Arrangements for large industrial users should also be considered.

It is also worth noting that the current market already has limited capacity rights in the form of AMDQ. The translation of these pre-existing rights will need further consideration in the next stage of this review, as there are likely to be a number of technical issues. It seems sensible that at a minimum those who have paid for AMDQ Credit Certificates have their investment in those rights reflected in the new capacity rights regime.

Capacity Release Mechanism

In the draft Stage 2 Report, the AEMC states that it is yet to come to a view on whether a release mechanism for capacity is required. AEMO considers it highly likely that such a mechanism(s) would be of benefit. It should be noted that release mechanisms are seen as fundamental to a well-functioning capacity market in Europe. This is particularly the case where there is a concentration of capacity rights amongst a small group of rights holders. Furthermore, the DWGM has been underpinned by its open access model since its establishment and this has been a key feature in supporting greater wholesale and retail competition in Victoria.

If the exclusive capacity rights are introduced without a release mechanism to support capacity trading, the new market may have greater barriers to entry and could be less efficient than the current market. This could interfere with one of the key benefits of the current design in enabling greater participation and potentially have flow on effects to competition in both the wholesale and retail markets. It would also not be consistent with recent developments on the East Coast to support capacity trading on contract carriage pipelines and with the AEMC's recommendations in its Capacity Trading paper. If an entry-exit capacity model is introduced, AEMO considers it important that measures to encourage the effective and efficient secondary trading of that capacity are considered in the next stage of this review.

1.5 Cost Recovery and Tariff Framework

The cost recovery framework will likely need to be modified under an entry-exit market. Under the current framework, system and market operation costs are recovered via a fee levied against withdrawals in the DTS. This arrangement would likely change given the role of the system operator and the nature of the voluntary exchange under the Southern Hub model. Specific consideration should be given to how the system operator and transmission owner recover their costs. Mechanisms to address for over and under-recovery of system operator and transmission owner costs should also be proposed and analysed. For example how would the transmission owner recover costs if there is an under-recovery from capacity auctions?

The tariff model also needs consideration and analysis. The tariff model should be designed to ensure an equitable distribution of costs between entry users and exit users. The design should consider whether different tariffs are required for those who are wheeling gas through the system to those who are using gas in the system if this results in differing operational costs. AEMO would welcome analysis on these matters in the next stage of the review.

1.6 Gas Delivery

The next stage of the review should give consideration to how the trading market design will interface with system operation and the role that the system operator plays. In particular the end-to-end gas delivery model should be developed alongside the market design. The gas delivery model should concern matters such as nominations, entry-exit programs,

allocations, and any other matters required to facilitate the transport and transfer of gas on the declared transmission system. The gas delivery model should identify the inputs required by the system operator to manage the system and transport gas and the outputs required for participants to effect title transfer and gas delivery to customers. For example, AEMO currently runs an optimisation program that uses demand forecasts, a physical representation of the DTS and its constraints, participant supplied bids and offers and SCADA data (for the BoD linepack calculation) to determine schedules that provide an hourly profile of gas injections and withdrawals across the DTS. Given the significant change proposed to the market design, this system operation would probably need to change. Such changes may also be a key cost driver for the proposed model.

Ultimately, the gas delivery model should inform the market design. For example, lead-times on nominations at various system points should reflect physical capacity of the system to tolerate change this in turn should be reflected in the products to be used on the voluntary exchange. As the requirements for gas delivery can influence the market design, the two should be considered in tandem.

1.7 System Operation and Congestion Management

Analysis should be undertaken on the tools available to the system operator to manage congestion. Congestion management in the DTS is currently managed through the application of constraints and the use of an economic dispatch. As the proposed model moves away from an economic dispatch, the way in which congestion is managed also changes. For example, does the system operator need to have the ability to interrupt flows, buy back capacity, or undertake locational trades to relieve congestion? Such tools are common in European markets but are often coupled with a commercial incentive on the system operator to minimise the costs of congestion.

The characteristics of the DWGM are also different to some of the major European transmission systems – in particular the DTS has relatively small: linepack, storage as portion of demand, and spare capacity at entry and exit points. The large share of retail demand as a proportion of total demand, and the concentration of a significant share of supply at one specific location are also challenging aspects to manage.

Under the current market model, the system operator has the tools and inputs required to efficiently schedule and manage the system and it should be established whether this would be the case under the proposed model. In addition, operational tools (e.g. Longford profiling) have been developed by AEMO in consultation with industry over time to manage the bespoke operational requirements and characteristics of the DTS. It is important to validate the use of, or necessary amendments to, these operational tools under the proposed model.

1.8 System Security

Ensuring that the market design supports the safe and efficient operation of the DTS is paramount. Given that the proposed model would represent a significant change to the nature of system operation and a change to the role and responsibilities of the system operator and participants, it is important to assess the potential impacts on system security. Consideration should be given to what kind of arrangements are required to maintain security of supply and safe operation of the DTS if it operates under an entry-exit model.

In the UK, National grid has an obligation to meet minimum pressures at certain locations throughout the year (called the safety case). To meet these requirements, National Grid purchases operating margins, essentially storage or LNG capacity or offers to supply or take gas away from the system, from participants. These operating margin services are then used in the event of any interruption to supply or infrastructure failure to ensure system security is

maintained. Given the change to the role of the system operator under the proposed model, such alternate system security measures could be appropriate.

The adequacy of the current system security arrangements (curtailment procedures, emergency powers etc.) and whether any new mechanisms are required should be assessed in light of the proposed changes to the market design. The model's impact on system security needs to be a part of the analysis supporting any recommendation to proceed with its implementation.

2 Southern Hub model assessment and consultation

Moving to an entry-exit system with continuous trading would represent a significant change, potentially resulting in a substantial cost to the Victorian gas industry and ultimately end users, with flow on implications to the east coast gas market. This is because the proposed model may require changes to:

- the way participants' trade and impacts how the physical system is managed;
- a suite of wholesale and retail systems for industry and AEMO; and
- commercial arrangements for the market operator, system operator, transmissions system owner and participants.

Given the nature of the reform, and recognising the substantial change and cost that would result, AEMO considers the assessment and analysis of the Southern Hub model requires further work. In our view this is required to enable a well-informed decision, and allows interested parties to understand the differences and value the proposed model brings before embarking on significant investment.

This section outlines our views on what should be considered as part of the consultation process prior to an implementation decision.

Analysis of the proposed design against the current design

To date, the review has largely focussed on the benefits of the proposed model and how they address some of the perceived short comings of the current market. The current market is generally viewed to have been an enabler of retail competition in Victoria and in particular as being more conducive to entry by small gas retailers¹. In addition, the DWGM has supported security of supply and has appropriate incentives and mechanisms to support system security. Consistent with the Terms of Reference and the COAG Energy Council's vision, the Southern Hub will need to be able to facilitate similar outcomes.

It is also worth noting that some of the additional benefits as described in the proposed model are arguably already provided by the current market. An example of this, and as discussed previously, is the balancing arrangement in the current market which, in AEMO's view, may be more efficient than the proposed balancing model for the Southern Hub.

Ultimately, AEMO would like to see analysis between the Southern Hub and the current market arrangements. The review should undertake a side-by-side assessment of the current market against a more detailed design of the proposed market. The intent of this assessment is to better understand, and inform of, the incremental benefits and pros and cons of the proposed Southern Hub Model against the current market with respect to the potential cost of change. It should be remembered that any future market will replace an existing and established market and there will be trade-offs that should be clearly articulated to inform decision making.

¹ AEMC 2014 Retail Competition review pp161

Consideration of alternative options

AEMO notes that there are no other options being considered alongside the Southern Hub model. It appears, from the draft report, that the only way forward is to either implement an entry-exit model with continuous trading or to retain the existing arrangements. Alternate options that directly address some of the issues raised in this review (for example options to address issues with capacity rights in the DTS) in an incremental way without requiring a complete overhaul of the market framework could be considered in addition to the Southern Hub model. An assessment could then be undertaken as to whether it would be more beneficial to retain the existing arrangements, make incremental enhancements to the current market, or to implement a completely different market design i.e. the Southern Hub model. Without an alternate option, there is a risk that should there be no case to proceed, no outcomes may eventuate from the process that address some of the issues identified with the current market arrangements, or the proposed entry-exit model proceeds to ensure an outcome from the review process.

Industry involvement and consultation

AEMO is interested in how the AEMC plans to undertake consultation for the next stage of the review and beyond the final report. AEMO appreciates the opportunities provided so far to feed into the design process through formal submissions to the initial working paper and to this draft report. However, given that the review must now turn to matters of detail, AEMO considers that a more active and frequent consultation process would be useful. As the AEMC develops a high level or detailed design, there are likely to be substantive matters that will need to be tested and validated with industry. AEMO encourages a process that enables greater industry involvement. Some form of technical working group process (similar to what was done in the information stream) may aid industry engagement.

Future Development Path

The staging of the remaining phases of the review and the approval process are currently unclear. In the AEMC's draft report, many of the challenging concepts and mechanisms of the proposed model are deferred to a detailed design phase and a decision on implementation should follow this. The need for clear policy intent will be important as there will be winners and losers from any change and trade-offs to consider. Recognising this, AEMO considers that an additional phase of model development and assessment of the existing and proposed model is required to inform the implementation decision. It would be helpful if the AEMC could map out the remaining stages of the review process and key approval milestones including the requirements to transition to any implementation phase.