6 December 2016

FROM THE OFFICE OF
THE ACTING CHIEF
EXECUTIVE OFFICER

Level 22
530 Collins Street
Melbourne VIC 3000

Postal Address:
GPO Box 2008
Melbourne VIC 3001

T 1300 858724
F 03 9609 8010

Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Mr Pierce

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

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

AEMO recognises the work undertaken by the AEMC in developing further the Southern Hub model conceptual design, and the cost benefit assessment undertaken.

AEMO agrees that the Declared Wholesale Gas Market (DWGM) design needs to adapt to the rapid and ongoing changes being experienced in the East Coast Gas industry and in the National Electricity Market. We consider that reform of the current arrangements is important to maintaining the market's relevance to industry and policy objectives.

AEMO supports further investigation of the Southern Hub model, with a particular focus on the model's capability to manage system security in Victoria. We provide a case study for 1 October 2016 that explores some of the system security challenges that will need to be addressed in the detailed design phase.

If the AEMC's Southern Hub Model is endorsed, and recognising the intent of the AEMC process was to develop a conceptual design of the Southern Hub rather than a detailed design, we suggest the next phase of the reform phase must be flexible and able to accommodate refinements to the AEMC's target model should there be any issues or challenges identified as the detail is worked through.

AEMO looks forward to engaging further with the AEMC leading up to the publication of the Final Report. If you would like to discuss the contents of this submission further, please do not hesitate to contact Peter Geers, Executive Group Manager Markets, on 07 3347 3059.

Yours sincerely,

Karen Olesnicky
Acting Chief Executive Officer

Attachment: AEMO submission on Victorian Declared Wholesale Gas Market Draft Final Report

Declared Wholesale Gas Market Submission

1 Introduction

AEMO agrees that the Declared Wholesale Gas Market (DWGM) design needs to adapt to the rapid changes being experienced in the east coast gas industry. We also agree that reform of the current arrangements is important to maintaining the market's relevance to industry and policy objectives.

AEMO note the successful implementation of the various forms of an entry-exit model in European markets, and welcomes the Australian Energy Market Commission's (AEMC) consideration of such a model for the Victorian DWGM. AEMO recognises that the AEMC have put further work into developing the high level concepts that support the Southern hub model, and also undertaken a cost benefit assessment to inform the value of the model to Victoria and wider east coast gas industry.

Recognising the need for change and the work undertaken by the AEMC to date, AEMO supports further investigation of the Southern Hub model.

In this submission we focus on elements of the model that we believe would require further detailed development work as part of the detailed design phase. Our submission focusses on the relationship between the proposed continuous balancing mechanism and system security, and, the intra-day capacity allocation. We use a case study at the end of the submission that explores some of the system security challenges that will need to be addressed in the detailed design phase, particularly the need for the system operator to have appropriate tools beyond market direction.

If the model is endorsed, we suggest the next stage is flexible and able to recognise the need for, and, accommodate changes to the AEMC's target model should there be issues or challenges identified as the detail is worked through. Consistent with the reform experience in Europe (which centred on achieving a target model), it is possible that the design details of the model that is ultimately implemented in Victoria differ from what is initially proposed but still achieve the original design goals.

2 Comments on the model

2.1 Continuous balancing and system security

The AEMC recommend the implementation of a continuous balancing model. At a high level, the following are the model's key features:

- Participants do not have to be in balance at all times. The requirement to be in balance only occurs when the system operator has to intervene to maintain system security.
- The system operator acts as a residual balancer, participants are the primary party responsible for balancing.
- Costs for balancing actions are allocated to those with an imbalance position (participant imbalance signal, or POS) in the same direction as the SBS at the time of intervention by the system operator.

As discussed in our previous submission to the AEMC discussion paper in April 2016, the Dutch gas transmission system (where this model is applied) is different from the Victorian transmission system. In particular, when compared with the Netherlands:

- Victoria has a far peakier demand-profile driven by a large share of temperature sensitive load relative to total demand. In the Netherlands the majority of gas is transiting the system on a flat profile which significantly flattens the total demand profile.
- Victoria has only a single supply source near the main demand centre in Melbourne (Dandenong LNG). The major supply sources are distant from Melbourne and largely deliver on a flat-profile, limiting their ability to respond to any rapid changes in demand.
- The Victorian system is a meshed network of 'Long and Skinny' pipelines which limits the amount of useable linepack and therefore the ability of the system to safely accommodate large imbalances and sudden changes to demand or supply.

Noting these physical differences, the next stage of the process needs to further explore how the AEMC's proposed balancing arrangements should be tailored to address the characteristics of the Victorian system. Some of the issues that need further consideration are outlined below.

The need to respond early to changing conditions

As a consequence of the Victorian DTS's physical characteristics and volatile demand early intervention to balance the system is often necessary to maintain system security. This is particularly the case when there are supply or transportation constraints and/or high levels of system demand (which typically occurs in winter). When potential pressure issues are identified, action is normally required ahead of time to prevent the issue from eventuating. The current market framework enables timely response to changing system conditions through:

- Four hourly rescheduling of the system which allows flows to be dynamically adjusted to changes in system conditions based on participant bids and forecasts
- The ability to apply constraints at each schedule to adjust system flows to maintain system security (including scheduling out of merit order gas)
- The ability to run an ad-hoc operating schedules during a scheduling interval to take corrective action early.

Given the temporal issues associated with the physical characteristics of the DTS, if the continuous balancing model is adopted, AEMO considers that it would be necessary to project the SBS out a number of hours. This would enable early corrective-action to be taken by the system operator. This will provide sufficient lead time (both for participants and AEMO) to support safe management of the DTS. Without sufficient lead time, more LNG would be required than otherwise would be necessary as it may be the only supply source able to respond in such a short time.

AEMO notes that the AEMC currently considers a projected SBS to be a suggested feature of the model. While we consider that more analysis is necessary on the level of projection required we believe a projected SBS would be required in the attempt to adapt the continuous balancing model to Victoria. The inputs to the projected component of the SBS will also need consideration. Relying on participant nominations and renominations may be too restrictive if they are unable to reflect projected changes to system conditions.

The AEMC also note that setting the system balance bands (which reflect the flexibility of the system, and govern the frequency and extent of system operator intervention) conservatively may achieve the same outcome as a projected SBS. The AEMC also notes that the balancing bands are determined before the gas day and so are unable to accommodate for any significant changes to system conditions intraday. Noting this, a combination of conservatively defined balancing bands and a project SBS will be required, at least for an initial period. A projected SBS has the advantage of being able to accommodate changes to system conditions (weather forecast changes, loss of supply sources transportation constraints) when they occur, though this may entail the projected component not simply being an aggregate of participant imbalances.

Defining the bands very conservatively may also result in frequent and unnecessary operator intervention affecting the ability for participants to manage their flexibility requirements.

Alternate balancing tools

Under the current market framework, when a need for a balancing action is required AEMO can:

- Await a market response at the next schedule (a market notice may be published prior to the schedule)
- Schedule in out of merit order gas at the next schedule
- Run an ad hoc schedule to take more immediate action
- Exercise its emergency powers and direct participants
- Commence curtailment procedures.

Under the proposed model when a need for a balancing action is identified AEMO can only either purchase or sell gas via the voluntary exchange or use its emergency powers to direct participants. AEMO considers that operational tools/options between market response and directions will be required for an efficient market outcome. This may increase the probability of AEMO having to use its emergency powers to direct participants, particularly as a market response may not be practical for every situation. AEMO balancing actions are reliant on bids or offers from participants on a voluntary exchange which may not be initially liquid.

In addition, the direction process, and compensation provided to participants (as there is no longer a bid stack or market price to identify the value of gas) are likely to be complex and will need further consideration in light of the new framework. Directions would typically be used for a significant event that constitutes an emergency, given the steps involved in enabling directions they also do not necessarily result in a quick response. They should not be a regularly used 'balancing tool' otherwise breaches of system security will potentially occur more often.

Noting this, AEMO considers that there is a need for further investigation into any intermediate tools balancing between a market response and directions. Such tools may take the form of the system operator contracting for gas or capacity from facility operators or producers or contracting with shippers to provide balancing services. AEMO notes that intermediate tools are commonplace in other entry exit markets with National Grid Group having access to "operating margins" in the UK and Gasunie Transport Services contracting for peak supply in the Netherlands.

Locational issues and cost-to-cause

AEMO understands that the SBS and residual balancing bands are system-wide indicators, and so would likely be weighted towards tolerance levels at Dandenong City Gate. Therefore their ability to pick up locational issues may be limited. For example, a small Custody Transfer Meter (CTM) reaching minimum pressures is unlikely to result in the SBS breaching the system-wide dark green band. The physical nature of the DTS, with long and skinny pipelines and distant supply sources makes a lot of the 'congestion or balancing' issues locational issues particularly at the fringes of the network. This makes it a challenge to reconcile the continuous balancing model, which takes a system-wide approach, with the physical realities of operating and trading on the DTS. This will need to be further examined in the detailed design phase.

Because of this dynamic, the AEMC have suggested AEMO will need to be able to undertake locational actions through the use of location-specific products. AEMO understands that this is not a feature of the Dutch continuous balancing model but is a feature of the UK's quite different daily balancing model. It is important to consider that the Dutch and UK balancing systems have quite different cost to cause arrangements. Combining the UK locational energy actions into the Dutch system-wide continuous balancing model will need to be further examined, noting that either cost to cause could be impacted incentives if the model has to socialise the costs of locational balancing, or if the model attributes cost to cause, then it could make the balancing arrangements more complex.

In order for the continuous balancing model to be adapted to Victoria, locational balancing may need to be reconciled with the model's system-wide balancing arrangements.

The Products on the Exchange

The balancing products on the voluntary exchange are the primary tool for AEMO to balance the system. Their design is important to the success and efficacy of the model. AEMO considers that a virtual product (simply buying another participant's imbalance on the system) would not be appropriate for balancing purposes as it would not necessarily result in a physical change in flows. Instead, as the AEMC suggest, a physical product for change in entry/exit flows in the virtual hub would be required. This should be supplemented by an appropriate suite of locational products. The system operator would only place a bid or offer for these products in response to a need for a balancing actions. For the reasons outlined earlier in this submission physical and locational products are likely to be required features of the model. Virtual title transfer products should still be available for market participants to trade gas but liquidity in the product may be limited if it is not of use in balancing.

3 Intraday capacity allocation

The allocation of intraday capacity is an important consideration that is yet to be fully explored. The current market is able to dynamically allocate intra-day capacity to those who value it most through the intra-day rescheduling process (using participant bids). Under the proposed model, entry and exit capacity can be acquired ahead of the gas day via an auction. However, the process and mechanism for allocating incremental or unutilised capacity intraday will need further consideration and design work to minimise the intraday allocation creating a barrier to instant response. The ability to access intraday capacity (on short notice) is important to the continuous balancing model and the expected increasing role of gas fired generation in the National Electricity Market. AEMO consider this is an important issue that needs to be addressed in the detail design process.

4 1 October 2016 Case Study

Background

A case study is useful in bringing context to the issues raised in this submission and identifying some of the issues that will need to be further worked through. In this section we use the events of 1 October to analyse how the event was managed under the current framework and against the high level conceptual design of the Southern hub model.

On 1 October, the Declared Transmission System (DTS) faced a threat to system security resulting from an outage at the Longford Production Facility. At 04:26 AEST on 1 October 2016, there was an unplanned total shutdown of the Longford Production Facility, which ceased injections into the DTS. Longford injections recommenced at approximately at 04:52; however, injections ceased again at 05:36. Longford plant operators subsequently requested AEMO constrain down Longford hourly injections to 0 TJ/h for the first three hours of the gas day (in actuality Longford would not recommence injecting for around five hours). At this stage there was no threat to system security.

At 08:32 Longford plant operators advised AEMO that the Longford plant would be unable to begin injections until around 11:00. AEMO modelling of the DTS indicated that minimum operating pressures near Sale in the Longford to Melbourne Pipeline would be breached around 10:00. At 08:40, AEMO provided registered participants with a notice and issued an ad hoc schedule at 9:02.

How the issue was managed under the current framework

Events on 1 October changed rapidly. At 8:32 when Longford advised AEMO that it would not begin injections until 11:00, an immediate system security issue emerged. Given the time constraints, with the need to act in around thirty minutes, AEMO determined that it could not wait until the 10:00 AM schedule to constrain on LNG (out-of-merit order) to address the issue. Consequently, AEMO ran an ad-hoc operating schedule just after 9:00 AM. The ad-hoc schedule enabled a quick response to the issue through scheduling (constraining on) LNG which was done to preserve line-pack in the Longford to Melbourne pipeline to assist in maintaining pressures at Sale. While the use of an ad-hoc schedule is a market intervention by AEMO as system operator, it is not a direction using AEMO's emergency powers. An ad-hoc schedule also uses the injection bids made participants at the previous schedule, scheduling the cheapest offers first and so is an intervention within the market framework.

Considering the events of the day under the proposed model

It is not clear whether the SBS/POS balancing signals, in its current form, would lead to a similar outcomes in the DWGM. In particular, it is unclear whether the SBS/POS would reflect locational constraints. The SBS is a system-wide signal and would not necessarily pick up a locational issue of this nature especially at a smaller custody transfer meter. Further, it is not clear how the SBS would reflect the change in the constraint at 8:30. Regardless, without the ability to project the SBS it would not have been able to pick up the issue emerging a number of hours out in sufficient time.

It is likely in this scenario, noting that a detailed design would better inform this, that AEMO would need to make a direction using its emergency powers. This scenario highlights the need for greater

consideration of alternate tools that can be used at short notice and serve as an interim between market response and directions to better enable AEMO to manage time-critical systems security events. As discussed in our earlier submissions, system security is a key part of the current market design and is key to the efficient operation of any future market designs. Additional tools such as providing AEMO the ability to contract for supply including supply and capacity at the Dandenong LNG Facility, locational products that the system operator could call upon when required, and a manadatory LNG bid stack that the operator could utilise if required would allow for an orderly market outcome in critical situations. These tools are a feature of the European entry-exit markets. Additional tools available to the system operator balancing may be identified in the detailed design phase.

5 Conclusion

AEMO agrees that the DWGM design needs to adapt to the rapid and ongoing changes being experienced in the east coast gas industry. We also agree that reform of the current arrangements is important to maintaining the market's relevance to industry and policy objectives.

The AEMC's Southern Hub model represents a significant reform to the DWGM. The working structure of the next stage of the reform process, which must turn to matters of detail, is important to ensuring that benefits of the reform are delivered. The process must be flexible and able to make changes to the AEMC's target model as the various elements of the design are worked through.

Recognising the need for change and the work undertaken by the AEMC to date, AEMO supports further investigation of the Southern Hub model.