



Hon Lily D'Ambrosio MP

Minister for Energy, Environment and Climate Change  
Minister for Suburban Development

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Ref: MBR036822



Dear Mr Pierce 

### **RULE CHANGE PROPOSALS FOR THE DECLARED WHOLESALE GAS MARKET REFORMS**

Please find attached a package of proposals to amend the National Gas Rules to lower barriers to entry, streamline trading practices and improve transparency to help support greater competition in the Victorian gas market.

The proposed rule changes follow from the Australian Energy Market Commission's July 2017 report *Review of the Victorian declared wholesale gas market*, which identifies issues with the Victorian gas market pertaining to the limited risk management options, opaque longer-term pricing, limited market-driven investments and barriers to trading between gas markets. The proposed changes include:

- the introduction of a clean and simple wholesale gas price for the DWGM;
- establishing a forward trading exchange which will make it easier for buyers and sellers to trade gas and lock in a future price; and
- improving the allocation and trading of pipeline capacity rights.

Collectively, these changes aim to promote the trade of gas within Victoria and assist with putting downward pressure on gas prices. A more efficient Victorian gas market is also expected to help improve the reliability of electricity supply in both Victoria and other states, as gas-fired electricity generators will benefit from having better access to available gas supplies.

I would like to thank your organisation and the Australian Energy Market Operator for assistance with the development of these proposed changes.

If you would like to discuss the proposed rule changes, please contact Raif Sarcich, Principal Policy Officer, Energy Sector Reform, DELWP on (03) 9637 8122 or at [raif.sarcich@delwp.vic.gov.au](mailto:raif.sarcich@delwp.vic.gov.au).

Thank you once again for your support in this important matter.

Yours sincerely

Hon Lily D'Ambrosio MP  
Minister for Energy, Environment and Climate Change  
Minister for Suburban Development

29 / 10 / 2018

# Rule change proposal – Simplify Victorian wholesale gas prices and improve risk management options

(Recommendation 1)

## Statement of Issues

The AEMC’s Review of the Victorian Declared Wholesale Gas Market

The east coast Australian gas market is in a period of transition and adjustment. The shipment of Liquefied Natural Gas (LNG) from Gladstone in Queensland has created a connection to export markets that links Victoria to international market prices and dynamics. The export demand for LNG is expected to triple the size of the eastern Australian gas market by the end of 2018.<sup>1</sup>

The transition in the gas sector to an export linked market has coincided with the expiry of many domestic long-term gas supply agreements (GSAs). Because of these changes, market participants have now reduced ability in how they manage price risks in the Victorian Declared Wholesale Gas Market (DWGM or Victorian Gas Market).

On 4 March 2015, the Victorian Government requested the Australian Energy Market Commission (AEMC) to undertake, in consultation with the Australian Energy Market Operator (AEMO), a review of pipeline capacity, investment, planning and risk management mechanisms in the DWGM. A key aim of the Review of the Victorian Wholesale Gas Market (the Review) was to examine whether improvements are required given the significant structural changes underway in the eastern Australian gas market.

In June 2017, the Final Report of the Review by the AEMC identified four issues that impede the effective functioning of the DWGM in the long-term interests of consumers:

- Limited risk management options
- Opaque longer-term pricing
- Limited market-driven investment in the Declared Transmission System (DTS)
- Barriers to trading between the DWGM and other Australian markets.<sup>2</sup>

The AEMC made three short-term recommendations to address these issues.<sup>3</sup>

One of the recommendations from the Review was to introduce a clean and simple wholesale gas price for the Victorian trading hub, making it easier for buyers and sellers to manage risk and lower transaction costs, which will lower the costs for consumers.

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<sup>1</sup> The total eastern and south-eastern Australia forecast gas production is expected to be 1,891PJ compared to 642PJ of total domestic gas demand (including residential, commercial, industrial usage). The difference between the two is attributable to LNG export. The export of LNG export from Gladstone is about twice the eastern Australian domestic gas demand. AEMO, *Update to the gas statement of opportunities*, September 2017.

<sup>2</sup> AEMC, *Review of the Victorian Declared Wholesale Gas Market*, Final report, 30 June 2017, pp. v-vi.

<sup>3</sup> In its draft final report, the AEMC recommended a reform package, also referred to as the ‘target model’. The recommended design features include a virtual hub that would retain the existing footprint of the DTS, a mandatory balancing mechanism, and tradeable capacity rights for entry to and exit from the DTS. The ‘target model’ is discussed in more detail in chapter 5 and in the final technical report that accompanied the AEMC final draft report.

## Nature and scope of the problem

### Nature and scope of the problem

The fundamental problem to be addressed is that the current treatment of uplift charges is a barrier to effective risk management and trade in the DWGM. Underlying these are a number of specific issues, including:

- That there is great complexity (and difficulty for market participants in understanding and predicting the outcome) of the current uplift methodology;
- That the current methodology may not effectively allocate costs to the causers of those costs, which may be inequitable;
- That the incentives to market participants sent by the current methodology may deter financial risk management and trade; and
- That the evolution of the market may result in more frequent or more material uplift charges being levied, with the deficiencies already outlined, increasing their relevance to market behaviour.

Each of these is further outlined below.

Contextually, under the existing arrangements, AEMO utilises separate schedules for setting wholesale gas prices using a pricing schedule and for physically operating the DTS using an operating schedule. In the event of, for example, physical constraints along the DTS, the separation of the pricing and operating schedules leads to a series of out of merit order injections and withdrawals. For example, market participants may be constrained on and scheduled to inject gas despite offering gas above the market price. AEMO makes ancillary payments to constrained on market participants and recovers this from market participants through a series of uplift charges. The intention behind the existing design of uplift charges is to allocate costs in a manner that, as far as practicable, ensures that participants whose behaviour contributes to costs pay for these, to encourage efficient decision-making.

Central to the current rule change proposal is the congestion uplift. Several issues have been identified with hedge-ability of congestion uplift and that the need to manage congestion uplift adds to the market's complexity.

Firstly, the congestion uplift hedging mechanism is complex. Market participants that hold AMDQs<sup>4</sup> may chose an injection hedge nomination (IHN) such that they do not receive ancillary payments even when they are constrained on to inject up to their AMDQs.<sup>5</sup> In this case, they may receive an uplift hedge against paying congestion uplift to the extent that they have injected at their AMDQ's

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<sup>4</sup> AMDQ are non-firm capacity rights in the DWGM that collectively refers to authorised MDQ and AMDQ cc. Benefits associated with AMDQ include:

- Tie-breaking rights: when there are equal-priced injection bids, those associated with AMDQ are scheduled first.
- Congestion uplift hedge benefits: market participants can use all or part of their AMDQ as hedges against congestion uplift charges.
- Curtailment rights: when curtailment is necessary, those without AMDQs are curtailed ahead of those with AMDQ.

<sup>5</sup> An injection hedge nomination is a process whereby a market participant (injecting MP) nominates to AEMO the amount of its injections that it intends to use in the determination of its own uplift hedge.

relevant close proximity point and do not exceed the portion of their nominated injection uplift hedge allocated to each scheduling interval.<sup>6</sup> Withdrawal of gas by a market participant with no or partial uplift hedge may result in the market participant receiving an allocation of the congestion uplift. The rationale is that those participants whose withdrawal exceeds their uplift hedge are in effect utilising more capacity than authorised and are therefore contributing to the congestion of the system. Due to the risk associated with congestion uplift, and the complexity in managing exposure there may be an incentive for participants to have inefficiently large injection hedge nominations which they do not modify.

Secondly, the ability to hedge congestion uplift is restricted to participants with physical injections matched to the location of their AMDQ and this may negatively impact trading. This means that a participant that is simply a buyer from the spot market is unable to directly hedge against congestion uplift even if it has AMDQ. Its only option is to enter into an agency injection hedge nomination (AIHN) with an injecting participant at the location of its AMDQ. This injecting participant may be a competitor and unwilling to provide the buyer with an AIHN. It also increases the transaction costs of purchasing gas from the spot market as this arrangement needs to be entered bilaterally and ex ante.

The other option left to a participant to manage the risk of congestion uplift is to acquire its own supply contract and hold sufficient AMDQ. This may be challenging if the participant only requires a small volume (which is likely for a spot market buyer, particularly a new entrant) as well as ultimately reducing the traded volume in the market. The requirement for an uplift hedge to be supported by an injection encourages participants to take a physical injection position even if their commercial requirements does not necessitate them to do so.

Thirdly, a participant who exclusively transports gas from Longford to Culcairn through the DTS is unable to hedge its congestion uplift exposure. On the one hand, although the participant is injecting at Longford, it requires AMDQ in order to hedge uplift and it cannot acquire AMDQ without acquiring tariff V or tariff D customers in Victoria – which it is unlikely to have if it is simply transporting gas through the system. On the other hand, processes such as an AIHN is only useful as a congestion uplift hedge if the participant has AMDQ but no injections. Consequently, the inability to hedge congestion uplift for a participant transporting gas through Victoria may serve as a disincentive to inter-regional trade.

These arrangements mean that the market price does not reflect the total wholesale cost of gas. This limits the effectiveness of any physical forward position or financial derivative hedges entered into by market participants outside of the DWGM:

- A market participant which is scheduled to inject gas bought outside of the DWGM to meet its own withdrawal requirements will not be exposed to the market price as it is in balance, but may still incur uplift payments.
- Similarly, a market participant which enters into a derivative contract based on the market price may also be exposed to uplift payments even if its exposure to the market price has been hedged.

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<sup>6</sup> A close proximity point means a group of system injection points that AEMO has determined can be regarded as the same injection point for the purposes of determining injection tie-breaking right and uplift hedge.

This means that market participants are unable to effectively manage risks associated with having insufficient or surplus gas (that is, being short or long) by using financial derivatives. It is also unlikely that the development of financial risk management products can develop in Victoria with the existing design of the DWGM.

Furthermore, the congestion uplift framework was envisaged to address constraints relating to high levels of demand that would not be able to be met due to capacity constraints in the DTS. This type of congestion is currently less likely to occur than in the past given physical and commercial changes in the market. Congestion due to maintenance or outage is more likely to occur now, but in these circumstances congestion uplift is unlikely to allocate cost to cause and may be contributing to inefficient market outcomes. For these reasons, it may be timely to reconsider the appropriateness of the congestion uplift framework.

While these problems may have been of relatively little consequence during the more stable market environment of the recent past, they are becoming increasingly apparent and costly in a more dynamic market.

Evidencing this, of 27 gas days leading to positive ancillary services charges since July 2008, 21 have occurred in calendar years 2016 and 2017.<sup>7</sup> Within these, congestion costs have been the most substantial category by far, due to the effect of a single event – the unplanned shutdown of the Longford gas processing facility on 1 October 2016.

In this incident, the AER notes that “approximately \$3.1 million in ancillary payments were generated across the market as gas was scheduled out of merit order including from Dandenong LNG.”<sup>8</sup> These were duly allocated to market customers as congestion uplift charges according to the rules, although the nature of this ‘congestion’, being caused by an unplanned outage of a major facility, does not accord well with many stakeholders’ understanding of what ordinarily constitutes ‘congestion’ on gas pipelines.

This illustrates the sporadic, and some might argue capricious, nature of congestion uplift charges currently under DWGM rules, as well as potentially increasing frequency and the potential for material impact on market participants who do not or cannot hold AMDQ.

The AEMC’s recommended option to improve risk management options in the Victorian gas market

The AEMC’s recommendation is to include locational transmission constraints in the pricing algorithm, which will mean that the market price will reflect the cost of constraints currently notionally recovered through congestion uplift. The AEMC’s preferred option would retain separate pricing of surprise event related (temporal) constraints.

The AEMC, in its review, considered that this recommendation would facilitate buyers and sellers entering into a financial hedge contracts and would improve the effectiveness of physical and financial hedging because both counterparties’ exposure in the market would be more closely related to the market price, as opposed to the market price plus or minus congestion uplift charges

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<sup>7</sup> Note that AEMO procedures and methodologies have been subject to modification over this period for reasons other than congestion management.

<sup>8</sup> See: AER, Weekly Gas Market Report, 25 September – 1 October 2016.

and ancillary payments. This would improve the market participants' ability to manage their price risks.

The Energy Sector Reform Division of the Victorian Government, in consultation with the AEMO and other technical experts, considered the implementation of AEMC's recommendation to include locational constraints in the pricing algorithm. This would require fundamental changes to the market design. For example, modifications would be required to the current pricing and operating schedules, and to the methodology of calculating uplift charges. Furthermore, incentives and procedures to achieve daily linepack targets, for example through linepack bidding, would need to be considered. Modifications to the treatment of planned and unplanned outages and maintenances are also likely to be necessary. Furthermore, any unintended consequences that may adversely impact on bidding behaviour or the efficiency of the market outcomes would have to be carefully considered.

To design, test and implement these changes is likely to require a similar timeline to implement the 'target model', the preferred long-term market design by the AEMC.<sup>9</sup> The long timeline is at odds with the need to reform the DWGM in a timely manner.

At the time of submitting the present rule change request, two additional rule change proposals were submitted by the Victorian Government, both reflecting recommendations made by the AEMC in their Review. The interlinkages in terms of benefits and implementation costs of the three rule change proposals would need to be considered during the rule change assessment process. For example, the benefits from the proposed Forward Trading Market and improved AMDQ regime that are the subject to two additional rule change proposals, may not be fully realised without addressing, in a timely manner, issues that are subject to this rule change proposal.

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<sup>9</sup> The AECM recommended that to meet all the objectives of reform, significant changes were required to the Victorian gas market design. The reform package that was developed is referred to as the "target model" and it includes an entry/exit trading hub over the Victorian DTS. For further details, see AEMC, *Review of the Victorian declared wholesale gas market*, Draft final report, 14 October 2016.

Whilst substantial changes to the DWGM market design will be necessary if the market progresses to the 'target model', the purpose of this rule change proposal is to implement changes that can deliver benefits to market participants in the short to medium-term. For this reason, it is considered that an alternative approach will require less time to implement and will improve risk management options to market participants at lower costs.

#### The preferred short-term option to improve risk management options in the Victorian gas market

In order to achieve benefits from reform in a timely manner the preferred option for a short-term implementation is to retain the current pricing and operating schedules and the related ancillary payment methodology. Surprise uplift would also be retained and calculated the same way as it is currently done. Congestion uplift charges, however, would no longer be recovered in the way they are today. Instead, the portion of ancillary payments that is recovered through congestion uplift would be 'socialised' or 'smeared' across market participants, using a 'pro rata' measure.<sup>10</sup>

There are likely to be different ways that this recommendation can be implemented and further work by the AEMC is likely to be required. For example, common uplift is currently recovered on a pro rata basis from market participants based on each participant's withdrawal quantities relative to all withdrawals on the relevant gas day.<sup>11</sup>

For example, if the socialising of the common and congestion uplift was done based on total quantity of energy injected and withdrawn, then all market participants would receive or pay the same overall price for a unit of gas, comprised of:

- the market price on a dollar per unit bases, as delivered assuming no physical constraints on the DTS, plus
- a common and congestion uplift, also on a dollar per unit bases.

In addition, some market participants would receive or pay surprise uplift and/or ancillary payments.

Other approaches may be explored by the AEMC during the rule change process, in consultation with stakeholders, including AEMO.

A consequence of this rule change proposal is that the cost of congestion would be 'decoupled' from AMDQ. This may open opportunities to simplify several of the current market processes such as IHN and AIHN and to deliver further benefits to market participants.

It is important to note that this rule change proposal is not proposing to change the calculation of surprise uplift. Retaining surprise uplift is necessary to retain incentives for market participants to accurately forecast their gas requirements and to facilitate efficient decisions regarding adjusting their gas requirements.

Also, the rationale for removing congestion uplift does not appear to hold for the DTS Service Provider (DTS SP) uplift which arises when the service provider, the APA Group, fails to comply with

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<sup>10</sup> This option was raised in submissions to the Draft final report of the *Review of the Victorian declared wholesale gas market*: AEMO, p. 2.; Seed Advisory, p. 40; Origin, p. 11.

<sup>11</sup> Common uplift includes costs that cannot be allocated to any market participants such as costs associated with AEMO's demand forecast overrides.

its obligations under the Service Envelope Agreement.<sup>12</sup> As such, this uplift could be retained and used to offset ancillary payments to market participants when such conditions arise.

#### Other considerations

A number of stakeholders during the Review process suggested that the cost-reflectivity of the congestion and surprise uplift is not strong in all circumstances.<sup>13</sup> As such, stakeholders have suggested that *more* cost reflective uplift charges may be warranted. Given that currently high congestion uplift charges are typically due to ad hoc events, such as unplanned maintenances and outages, it is worth considering how these events and the subsequent allocation of ancillary payments are treated.

Outages within and outside the DTS are represented in the pricing and operating schedules through a series of constraints. How accurately the constraints 'replicate' the conditions of ad hoc events are important factors to be considered. In its submission to the draft final report to the Review, AEMO suggested to revisit the way co-located bids and offers could not be matched in circumstances when the trade is physically possible, consistent with the capacity of the DTS, and does not require access to the constrained DTS. The implementation of a directional flow point constraint pricing (DFPC pricing) mechanism was considered by the gas wholesale consultative forum in 2014.<sup>14</sup> At the time it was not considered worthwhile to pursue due to the implementation costs. It may be worth considering the benefits from implementing DFPC pricing again given the changed market conditions. Furthermore, given that the high uplift events are associated with ad hoc schedules, there may be benefits from AEMO reviewing its methods with the aim of improving cost to cause and reducing congestion uplift which, under the proposal, would be smeared across all market participants.

### Costs and benefits of the proposed rule

By socialising the costs of common and congestion uplift across injecting and withdrawing market participants, the prices paid by buyers and sellers in the DWGM will be the same, except for costs and payments relating to surprise uplift and ancillary payments. Buyers and sellers will have a choice to enter into a physical or financial contract based on the ex-ante (including gas only) or ex-post price (including gas and the relevant common and congestion uplift). In both cases the prices (per unit of gas) faced by buyers and sellers that transact through the DWGM will be the same.

Improving the effectiveness of physical and financial hedging may improve the liquidity in the markets for these products and if this occurs it will further enable market participants to manage their price risk. This is likely to provide improved forward market price transparency and this will help market participants and potential new entrants with making investment and operational decisions throughout the supply chain from production to consumption.

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<sup>12</sup> The APA Group (Service Provider) and AEMO are parties to the Service Envelope Agreement, under which:  
(a) Service Provider:  
(i) makes available the entire VTS to AEMO; and  
(ii) provides a range of supporting services to AEMO; and  
(b) AEMO operates the VTS in accordance with the National Gas Rules.

<sup>13</sup> Seed Advisory, submission to the draft final report, 2 December 2016, p. 40.

<sup>14</sup> Directional flow point constraints (DFPCs) can restrict the hourly and daily net flow at a specific location to reflect net injection constraints upstream from the DTS and net withdrawal constraints downstream from the DTS.

It will also remove a requirement to physically inject gas to receive the congestion uplift hedge which may be currently creating a bias towards physically contracting for gas outside of the DWGM. Removing this bias may further stimulate the development of a market for financial contracts and further enhance options for market participants and new entrants to manage risk.

Removing congestion uplift in its current form will make the congestion uplift hedge provided by AMDQ redundant. This would make some of the complex procedures, such as the injection hedge nomination and agency injection hedge nomination procedures obsolete thereby simplifying the processes to trade in the Victorian gas market. These changes, together with the proposed improvements to the AMDQ regime and the establishment of the Forward Trading Market, submitted through separate rule change proposals by the Victorian Government, would improve market participant's ability to understand and manage their risks.

Improving the ability for market participants to manage risk, increasing price transparency and reducing complexity will reduce barriers to entry, and this is likely to encourage new entrants to the market including those in other jurisdictions. This may enhance the flow of gas within Victoria and potentially provide new sources of supply and enhance diversity of supply.

Allowing existing and new participants to better manage risk is expected to place a downward pressure on the costs of providing gas. To the extent that this reduces costs for market participants, these cost savings can be passed onto consumers.

By making it easier for buyers and sellers to manage risk and lower transaction costs, in the context of an east coast gas market, is also likely to be of key importance for the electricity sector given the use of gas as a generation fuel.

It is acknowledged that there may be a trade-off between simplifying the costs market participants face and a desire to encourage behaviour that limits the creation of constraints (and therefore costs) to the system to an efficient level. The current arrangements attempt to allocate the cost of constraints to their causers through various types of uplift payments. This is intended to provide financial incentives for market participants to efficiently trade off the privatised costs and benefits of actions which cause constraints and to make efficient investments, for example in pipeline capacity or additional LNG capacity, to hedge against uplift and to receive ancillary payments.

Socialising the costs of constraints may result in less efficient management of constraints, including less efficient scheduling outcomes in the short term and less efficient investment in the Victorian gas network and other gas facilities in the long-term.

The type of constraints congestion uplift was originally envisaged to address is no longer a significant issue in the Victorian DTS. On a very high demand day, it is possible to have a situation where demand is so high that injections scheduled in the pricing schedule exceed the capacity of the pipelines, requiring more expensive gas (typically LNG) to be scheduled in the operating schedule to meet demand. Congestion uplift was intended to fund the ancillary payments required to address such events and create the incentive to invest in capacity to relieve congestion. The type of congestion outlined above is currently less likely to occur than in the past in Victoria given physical

and commercial changes in the market and this brings into question the appropriateness of the congestion uplift framework.<sup>15</sup>

Congestion due to maintenance or outage is more likely to occur now, but in these circumstances congestion uplift is unlikely to allocate cost to cause and may be contributing to inefficient market outcomes. Consequently, inaccurate allocation of costs to causers may not be driving market participants to act in an efficient manner. For this reason, it may be timely to reconsider how current implementation of constraints may be improved to better allocate costs between types of uplift, and then to individual participants. The intention is, to the extent possible, ensure that uplift that is better characterised as surprise uplift rather than congestion uplift is treated as such in the schedule.<sup>16</sup> This would also minimise the amount of uplift that would be socialised as a result of this rule change proposal.

The proposed changes to the uplift calculations would be low cost and simple to implement. The implementation would require no changes to the pricing and operating schedules it would only require some minor changes to the calculation of allocation of uplift.

## National Gas Objective

This rule change is expected to help achieve the National Gas Objective, set out in the National Gas Law as follows:

*“The objective of this Law is to promote efficient investment in, and efficient 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.”*

The implementation of a ‘socialising’ congestion uplift charge will mean that buyers and sellers are exposed to a similar/same price and this will mean that market participants will be better able to manage their price risk by entering physical or financial contracts. This is expected to assist with enhancing allocative efficiency, a key goal of the National Gas Objective (NGO).

*“efficient allocation of natural gas and transportation services to market participants who value them the most, typically through price signals that reflect underlying costs.”<sup>17</sup>*

It will also promote the efficient use of gas and efficient levels of investment, throughout the supply chain across the whole east coast. This may lead to improvements to productive efficiency of the Victorian gas market. In the context of the NGO, the AEMC defines productive efficiency as:

*“provision of, and investment in, physical gas and transportation services at lowest possible cost through employing the least-cost combination of inputs.”<sup>18</sup>*

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<sup>15</sup> The contributors to a reducing probability of this type of congestion include the expansions to the capacity of the southwest pipeline, forecast decreases in production, coupled with forecast decrease in demand. For further discussion on this topic see AEMO, Submission to the AEMC’s *Assessment of alternative market designs*, May 2017

<sup>16</sup> For example, on 1 October 2016, the Longford facility suffered an outage and was unable to meet production targets, resulting in the need for AEMO to inject out of merit order gas from Dandenong LNG and elsewhere. These circumstances appear consistent with a surprise-type event, meaning that those parties who were unable to inject should have borne the cost of the ancillary payments. However, we understand that the parties who paid most of the uplift were those who had insufficient AMDQ including those parties not operating injecting at Longford and who therefore could not have been said to have caused the shortfall in the conventional sense. AEMO, *DWGM Event - Intervention - 1 October 2016*, 14 October 2016.

<sup>17</sup> AEMC, *Review of the Victorian Wholesale Gas Market* Final Report, 2017 p.9.

The rule change will also improve dynamic efficiency by improving market participants' ability to readily adapt to changing supply and demand conditions over a long-term.

Finally, the proposed rule change will assist in contributing to the further development of the east coast gas market more broadly, which is guided by the COAG Energy Council's gas market vision statement<sup>19</sup> and the reform 'target model' set out by the AEMC in its Final Report.

The target pathway proposes a consolidation of wholesale gas trading around two major trading hubs in Queensland (Wallumbilla GSH) and Victoria (a further reformed DWGM with a continuous trading model and entry and exit rights for capacity). This is a longer-term reform project but continues to inform the gas market reform program of the COAG Energy Council.

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<sup>18</sup> AEMC, *Review of the Victorian Wholesale Gas Market* Final Report, 2017 p.9.

<sup>19</sup> AEMC, *Review of the Victorian Declared Wholesale Gas Market*, Final report, 30 June 2017, Appendix B.3, p. 94