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Mr. Chris Videroni
Branch Head, Gas Security
Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
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Lodged via email: gas@dcceew.gov.au

Dear Mr. Videroni,

Submission – Reliability and supply adequacy framework for the east coast gas market

We welcome the opportunity to respond to the consultation paper on stage two of the reliability and supply adequacy framework for the east coast gas market ("the proposed framework").

Australian Gas Infrastructure Group (AGIG) is the largest gas distribution business in Australia, serving more than two million customers through our distribution networks in Victoria, Queensland, South Australia through Australian Gas Networks (AGN) and Multinet Gas Networks (MGN), and several regional networks in New South Wales and the Northern Territory. Our storage facility and transmission pipelines, including the Dampier to Bunbury Pipeline in Western Australia, serve a range of industrial, mining and power generation customers.

Providing reliable, secure and flexible energy is central to how we measure our performance in delivering for our customers. Reliability is a focus for our day-to-day operations as well as in our planning for the future.

Comments on the consultation

We are supportive of the work to examine opportunities to better identify and respond to threats to reliability and/or supply adequacy related to gas markets on the east coast. Given the significance of the reforms, it is important that information gaps in understanding reliability and supply adequacy are well understood so that interventions can be well targeted. At this stage of the proposed framework's development, we believe more information needs to be gathered to fully understand the threats to reliability and supply adequacy that potentially exist today, including existing mechanisms for monitoring these.

Our position is that the following aspects need to be more thoroughly considered:

- the information that is currently available to identify threats to reliability and supply adequacy;
- how frequently this information is available, and the planning timeframe for which it is used to assess potential threats (i.e., short-, medium or long-term reliability and supply adequacy threats);
- what approaches are adopted by market participants (in conformance with and in addition to legal requirements) to monitor and manage potential threats; and
- whether the existing information available and management approaches adopted are sufficient to address risks appropriately.

Some parts of the gas supply chain will have a larger effect on overall system reliability and supply adequacy than others. Gas distribution networks have very high levels of reliability with mostly fixed network constraints and limited volatility (discussed further below). This submission aims to provide

further information on these issues from AGIG's perspective with a particular focus on gas distribution networks on the east coast gas market. Specifically, the submission highlights:

- current visibility of threats to reliability and supply adequacy;
- how reliability and supply adequacy are managed within AGIG networks;
- the need for clear boundaries in any approach;
- options to trial improvements to the framework; and
- renewable gases, reliability and supply adequacy.

Current visibility of threats to reliability and supply adequacy

Before considering new measures to improve the visibility of potential reliability threats and before considering new management tools, it is important to establish the measures that currently exist and whether they are sufficient in meeting the outcomes sought.

The National Gas Law (NGL) and National Gas Rules (NGR) include many provisions providing visibility of potential threats to reliability and supply adequacy. The consultation paper focuses on the Gas Statement of Opportunities (GSOO) and Victorian Gas Planning Report (VGPR), however these annual publications do not fully reflect more frequently published information now available as a result of several recent changes to the NGL and NGR.

For pipeline service providers, the new Part 10 of the NGR outlines prescribed transparency information. New Rule 101B(5) stipulates disclosures related to service availability information, specifically:

> *'(a) an outlook of the firm capacity of the pipeline that the service provider has available for sale or that it will have available for sale for each month in the following 36-month period; and*
>
> *(b) information about matters expected to affect the capacity of the pipeline (including any planned expansions of the capacity) for each month in the following 12-month period, including:*
>
> *(i) the expected start and end dates of the matters expected to affect the capacity of the pipeline; and*
>
> *(ii) a description of the matters expected to affect the capacity of the pipeline; and*
>
> *(iii) the expected capacity of the pipeline during the period it is affected by the matters referred to in subparagraphs (i) and (ii); and*
>
> *(c) information on any other limitations on the availability of the pipeline services identified in the pipeline service information.'*

This information is required to be published monthly (rule 101A(2)) by non-exempt pipeline service providers, including distribution networks where applicable under rule 101B. Exemptions are only available for non-third party access pipelines or small pipelines (<10TJ capacity).

Rule 101B(5), once fully implemented in September 2023, will provide information on the reliability and availability of pipeline services (both transmission and distribution) for much of the east coast gas market on a monthly basis. This information will significantly enhance visibility of potential reliability threats specific to pipeline services relative to the annual GSOO and VGPR cycles. Note that to understand the system-wide impact of this data may require AEMO to more regularly collate and

publish outcomes than is intended in the amended rule. However, we would suggest that this avenue represents a better option to obtain the information needed, relative to the alternative of implementing a new obligation.

In addition, amendments enacted as part of the gas market transparency reforms have only recently come into force. These reforms are designed to improve information gaps and asymmetries relating to supply and availability of gas and associated infrastructure. They include regular reporting from gas producers and users, as well as infrastructure developments. While the reforms were enacted in June 2022, many relevant provisions (relating to the GSOO and Gas Bulletin Board (GBB)) did not commence operation until this year and therefore the benefits of them are only now being realised.

Making full use of already (or soon to be) available information to improve visibility of reliability should be a first step before considering whether additional measures are needed, as these come at additional expense and would seem unnecessary if the objectives had already been satisfied by existing mechanisms. Much of this new information will be published or provided to AEMO more frequently than the annual GSOO/VGPR cycle and could play a crucial role in identifying potential threats in advance and within each year without the need for new requirements.

How reliability and supply adequacy are managed within AGIG networks

Our distribution networks are designed to have sufficient capacity to transport gas during peak loads, which occur during winter in most regions. Specifically, the existing network and new capital projects are implemented to the following requirements outlined in the Network Capacity Strategy[1] or similar planning document for each network:

- having regulating equipment operating within its design parameters and with enough capacity to accommodate peak loads;
- having the capacity to supply the peak hour load that occurs for a probability of a 1-in-2 year when operating at normal pressures;
- ensuring Transmission Systems (that are part of a distribution network) have capacity to supply the peak hour load that occurs in a 1-in-20 year demand event; and
- ensuring services including service regulators and meters are planned to have capacity to supply the customers maximum instantaneous load (diversified load).

The above characteristics are predominantly fixed. Where volatility can occur is more often in relation to pressure levels which are determined by factors both upstream and downstream outside of a distribution network service provider's direct control.

Upstream in Victoria, network operators have deeds in place with AEMO setting out minimum pressures and Maximum Hourly Quantities (MHQ) for gas delivered from the transmission system at each connection point (each gate station). Any deviation from these requirements requires the network operator's agreement. We understand that similar arrangements are in place with transmission pipeline operators in other states.

The significantly different nature of electricity and gas distribution networks also means care needs to be taken in applying electricity industry reliability frameworks to gas network infrastructure. Overall, the outcomes for system level reliability are very strong, as detailed in Attachment A at the end of this submission.

- Unplanned System Average Interruption Duration Index (SAIDI) (defined as the average unplanned outage duration for every customer served per 1000 customers) for our Australian Gas Network (AGN) averaged 3,048 minutes from 2018 to 2021. Unplanned System Average Interruption Frequency Index (SAIFI) (defined

1 See for example, for Multinet Gas Networks: https://www.aer.gov.au/system/files/MGN%20Victoria%20-%20Revisions%20to%20Final%20Plan%202023-28%20-%20Attachment%209.11A%20-%20GSR%20Response%20-%20Addendum%20to%20Network%20Capacity%20Strategy%20-%20PUBLIC.pdf

as the average number of interruptions that a customer would experience on the network per 1000 customers) averaged 23.2 over the same period. For our Multinet Gas Network (MGN) over the same period SAIDI averaged 2,937 minutes and SAIFI averaged 7.7. Tables outlining unplanned SAIDI and SAIFI for AGIG's AGN and MGN networks Victoria are included in Attachment A.

- For comparison, unplanned SAIDI and SAIFI for electricity distribution networks is reported in the AER's electricity network performance report. Both data sets are reported per individual customer, not per 1,000 customers as for gas networks. Where unplanned outage durations for electricity networks average 100+ minutes per customer, for gas distribution networks the average is around 3 minutes or less per customer. Similarly, outages are on average more than (in some cases far more than) 100 times more frequent on electricity networks for each customer relative to gas distribution networks.

We invest significant time and effort to ensure customer service expectations for reliability are met. For our regulated networks on the east coast, our reliability performance is also taken into account in the application of the capital efficiency sharing scheme. We are incentivised by the scheme to meet SAIDI and SAIFI benchmarks. If we do not meet the reliability benchmarks, any reward under the scheme is reduced.

When unplanned outages do occur, they tend to be very localised with effects that do not spread to significant numbers of customers. System wide unplanned outages, and the type that these reforms are seeking to generate visibility of, tend to be driven by activities upstream of the gas distribution networks, for example upstream pressure changes.

The relatively fixed design factors outlined, and absent changes in pressure upstream, mean that at the system level, gas distribution networks are exceptionally reliable with very little volatility between or within years on almost any measure.

Therefore, reliability data from distribution networks is unlikely to make a material difference to the calculation of any reliability standard.

Setting clear boundaries

Because of the relatively fixed nature of reliability in gas distribution networks, we believe it is important that the proposed framework set clear boundaries. Any potential reliability standard, monitoring and management tools should focus on parts of the gas supply chain where potential threats to reliability have the potential (even theoretical) to show some volatility within each year and where measures can be put in place to address threats.

As outlined above, data points internal to gas distribution networks are unlikely to show any material volatility in timeframes any shorter than the annual GSOO and VGPR cycle. Furthermore, the relatively fixed nature of network design means it is difficult to rapidly put in place measures in response to identified threats. Measures are likely to be implemented upstream, to manage pressure, or downstream of the distribution network, to manage demand.

The NGL and NGR framework already recognises these issues in the design and operation of the Declared Wholesale Gas Market (DWGM) in Victoria and Short-Term Trading Markets (STTM) in other states. Distribution network demand is treated as a single source of demand at withdrawal points from transmission pipelines/systems.

We suggest any proposed reliability framework adopt a similar approach where the boundary for the reliability standard, monitoring and any management tools be situated at gate stations. Distribution network demand should be included in aggregate in the proposed framework as within-network data is unlikely to have material system-wide effects.

Options to trial improvements to the framework

Should the Department proceed with a framework, we suggest that a potential approach would be for the proposed framework to be used as a starting point for a trial involving AEMO, market participants, users and the Department. This would allow the Department to determine if the framework and any obligations achieve the outcome sought, and allow the Department to evolve the framework as required based on the results of the trials. The opportunity to establish trials has recently been enabled in the NGL and NGR but not yet used.

A trial reliability standard could begin by measuring existing data – both historical data and gradually adding new data points made available by recent reforms to the NGL and NGR. This would enable different mixes of data and different types of standard to be analysed to help determine which approach is most useful to identify potential threats, at a more granular level (mainly by adding within year data to establish any volatility) than what the GSOO and VGPR can currently achieve. This stage of the trial would use actual data rather than a theoretical discussion about one approach or another.

After trialing different reliability standards, any additional data needs will become obvious and could inform a second stage consultation if additional data is needed. Trial rules could be adopted giving AEMO additional powers to collect data as necessary, perhaps in a specified region of the east coast gas market where reliability concerns have been identified.

Finally, a third stage could test different management tools in a specific region of the east coast gas market using scenarios and market modelling. This final stage could help understand how different interventions might affect actual market outcomes.

A trial approach would enable a best practice approach to be developed for the proposed framework. Clear objectives for the trial would need to be set. We believe that for a trial to proceed from stage 1 to stage 2 and eventually stage 3, there needs to be a clearly demonstrated benefit of the emerging framework relative to the existing framework. In particular, there needs to be clear additional benefits beyond the reliability and system adequacy reporting available in the GSOO and VGPR.

Renewable gases, reliability and supply adequacy

With recently agreed changes to the NGL and NGR to encompass hydrogen and renewable gases, we anticipate that renewable gases would be included in any proposed framework.

The production and use of hydrogen, biomethane, and other renewable gases in the system has the potential to improve reliability in several ways once they are implemented at scale. Firstly, by replacing and potentially augmenting diminishing supplies of natural gas.

Secondly, by enabling the production of gaseous forms of energy closer to sources of demand. This is particularly important in the southern states where demand is higher and potential threats have already been identified.

Thirdly, renewable gas production and use can reduce reliance on electricity networks, improving the overall reliability and supply adequacy of the energy system as a whole. This final point is particularly important. We do not yet have a strong picture of the overall reliability and adequacy of the energy system as a whole moving into the future. The Integrated System Plan focuses on electricity transmission infrastructure and does not fully consider alternatives. For example, it does not consider hydrogen pipelines as alternatives to new electricity transmission infrastructure. While this issue is beyond the scope of this review, it is important that government consider the reliability of the system as a whole without bias towards particular solutions.

Conclusion

Overall, we welcome efforts to consider whether the gas sector can better identify and respond to threats to reliability and/or supply adequacy on the east coast. However as mentioned above, given the significance of the reforms, it is critical that gaps in understanding reliability and supply adequacy are well understood so that interventions can be well targeted. At this stage of the proposed framework's development, we believe more information needs to be gathered to fully understand the threats to reliability and supply adequacy that potentially exist today, including existing mechanisms for monitoring these gaps.

Thank you for the opportunity to provide a submission to the process. If you wish to discuss the points we have raised in our submission in further detail, please get in touch with Mr Shawn Tan, Manager Policy at Shawn.Tan@agig.com.au.

Yours sincerely,

Cathryn McArthur
Executive General Manager Customer and Strategy

About AGIG

AGIG owns, operates and invests in infrastructure which delivers gas to more than two million homes and businesses. It powers generators, mines, manufacturers and household appliances and the combined network makes AGIG one of the largest gas infrastructure businesses in Australia.

AGIG manages over 40,000km of world-class distribution networks, more than 4,300km of transmission pipelines and 60 petajoules of storage capacity, valued at a combined $10 billion. We employ approximately 400 Australians with more than 1,600 contractors working on our business.

AGIG is leading the Australian renewable hydrogen industry, with the establishment of Hydrogen Park SA, the largest operational electrolyser in Australia; the construction of a 10GW electrolyser as part of our Hydrogen Park Murray Valley project; the launch of Australia's first home with 100% hydrogen-compatible appliances; and several other renewable hydrogen and biomethane projects in development.

AGIG has a low carbon vision to deliver 100% carbon-free gas by no later than 2050, with at least 10% renewable gas blends to homes and businesses by 2030, in line with emissions reduction targets.

Attachment A – Unplanned SAIDI and SAIFI

MGN reliability performance

Table 4-2: MGN Asset Performance Index

	Network Performance					API Calculation			
Measures	**2018**	**2019**	**2020**	**2021**	**Average**	**Target**	**Index**	**Contribution**	
Unplanned SAIFI	2,385	3,690	3,607	2,066	**2,937**	**2,792**	94.8	25%	23.7
Unplanned SAIDI	5.9	7.7	9.7	7.5	**7.7**	**6.7**	85.7	25%	21.4
Mains leaks	0.05	0.07	0.08	0.06	**0.06**	**0.06**	95.0	31%	29.7
Services leaks	4.3	4.5	4.7	4.1	**4.4**	**4.7**	106.9	16%	16.7
Meter leaks	13.0	12.8	13.0	10.4	**12.3**	**8.9**	61.8	3%	2.0
							Asset Performance Index		**98.2**

AGN Victoria reliability performance

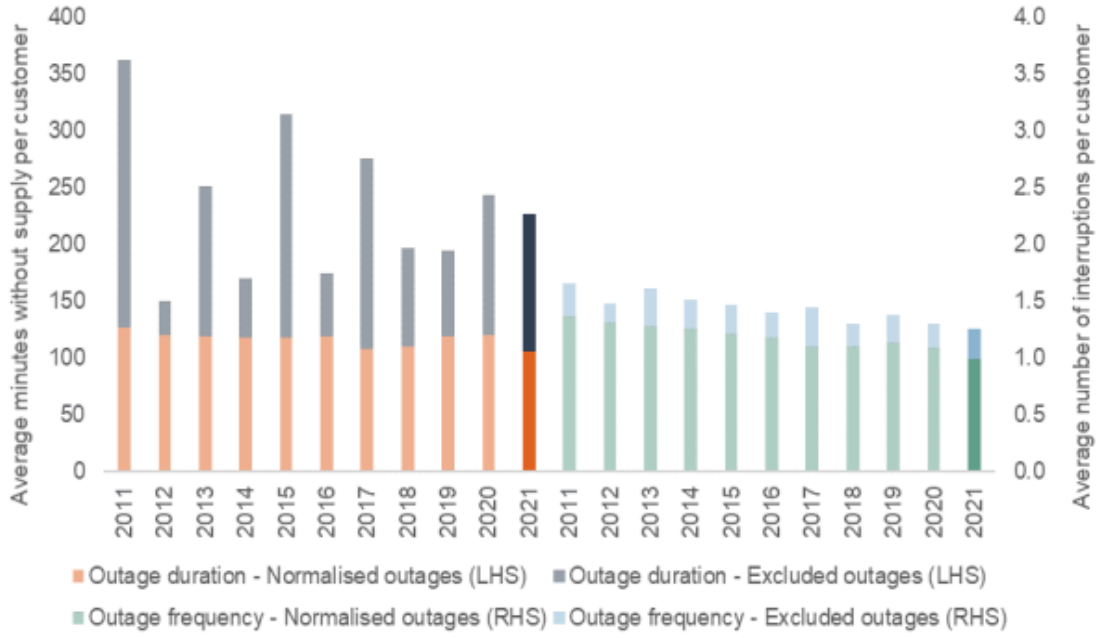
Table 6: AGN Asset Performance Index

	Network Performance					API Calculation			
Measures	2018	2019	2020	2021	Average	Target	Index	Contribution	
Unplanned SAIDI	3,991	3,384	2,897	1,920	3,048	3,389	110.1	25%	27.5
Unplanned SAIFI	25.8	24.3	23.7	18.9	23.2	27.8	116.6	25%	29.2
Mains leaks	0.02	0.02	0.02	0.02	0.02	0.04	144.0	30%	43.1
Services leaks	2.3	2.3	2.4	2.1	2.3	3.0	124.9	15%	18.6
Meter leaks	20.7	20.2	19.6	15.6	19.0	19.0	99.6	5%	5.2
					Asset Performance Index				**123.5**

- Unplanned SAIDI – average unplanned outage duration for every customer served per 1000 customers
- Unplanned SAIFI – average number of interruptions that a customer would experience on the network per 1000 customers
- Mains leaks – number of leaks on mains per km of distribution network.
- Services leaks, Meter leaks - number of leaks on services per 1000 customers

AER Electricity performance report

Figure 3-8 Unplanned outages - DNSPs



Source: Operational performance data, Economic Benchmarking RIN, AER analysis.