Hon Lily D'Ambrosio MP

Minister for Climate Action
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MBR-250100529

Anna Collyer
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Australian Energy Market Commission
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Dear Anna Collyer

Please find attached a proposal to amend the National Gas Rules, to extend the duration of the DWGM interim LNG storage measures for three years, as well as related amendments.

The current interim measures, effective from 15 December 2022, allow AEMO to act as buyer and supplier of last resort of uncontracted storage capacity at the Dandenong LNG Facility. These measures are fit for purpose and ensure sufficient LNG inventory can be held for reliability purposes over a period of tightening supply and reduced system resilience, particularly reduced redundancy at the key Longford production plant. The current arrangements also provide market participants with certainty about how AEMO will establish, maintain and use its LNG reserve while ensuring market participants are not crowded out.

The proposed rule changes also include new elements which are focused on providing AEMO and the market with improved operational visibility of the liquefaction services that allow for the DLNG facility to be refilled. These changes will assist AEMO in better fulfilling its declared system security functions in the Victorian Declared Wholesale Market.

The broader east coast gas reform program, including Stage 2 Reliability and Supply Adequacy reforms, and the potential expansion of AEMO powers as announced by Energy Ministers on 6 December 2024, will likely provide a longer-term solution for managing the Dandenong LNG reserve. But these arrangements will not be developed or implemented in time to fill this storage for the immediate upcoming winters.

DLNG plays a critical role in the Victorian Declared Transmission System, and it is important that it can continue to be fully used, especially in this context of growing risks to reliability of supply. As both AEMO and the Australian Competition and Consumer Commission have flagged, maximising all available storage, including shallow LNG storage, will be a key factor in maintaining reliable supply to end consumers.

The proposed rule change offers a simple and readily implementable solution that will contribute to the National Gas Objective by improving system security and reliability, allow for the more efficient operation of the market and help mitigate the risk of major supply disruptions and associated costs including to the broader economy. While the proposal is for amendments to the National Gas Rules, it is also expected to contribute to the National Electricity Objective noting the increasing interconnectedness of the gas and electricity markets.

The proposal also aligns with the Victorian Government's emission reduction targets and its Gas Substitution Roadmap. The latter sets out the strategic pathways and actions that will help decarbonise the gas sector. The Roadmap recognises that this process will take time and there is a need to ensure secure and reliable supply for Victorian households and industry while the transition is still underway. This rule change request supports this transition by maximising the use of existing

assets, and reducing the risk of future asset stranding. It also ensures that gas production that is already occurring can be stored for use when it is most needed.

If you would like to discuss the rule change request in further detail, please contact Ben Ferguson, Executive Director, Energy Transition and Strategy at ben.ferguson@deeca.vic.gov.au.

Yours sincerely

Hon Lily D'Ambrosio MP
Minister for Climate Action
Minister for Energy and Resources
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1. Introduction

1.1 Overview of the rule change request

This rule change request is intended to support AEMO (Australian Energy Market Operator) in the exercise of its declared system functions in the Victorian Declared Transmission System (DTS) and Declared Wholesale Market (DWGM) as set out under the National Gas Law (NGL) and National Gas Rules (NGR). This includes AEMO's functions relating to system security, safety, reliability and the efficient operation of the market.

It does so by requesting an extension (nominally three years) of the current arrangements under the NGR put in place as a result of the 2022 DWGM Interim LNG Storage Measures rule change request[1]. These allow AEMO to act as supplier and buyer of last resort at the Dandenong LNG storage facility (DLNG facility). The current arrangements expire at the end of 2025.

The DLNG facility, and the adjacent BOC liquefaction plant which supports it, play a unique role in the Victorian DTS. The need for LNG storage and liquefaction services in this part of the Victorian system to support system security is expected to be ongoing for some time. There is currently no known or proposed alternative to fulfil this function.

Use of the DLNG facility for reliability purposes (as opposed to system security) will likely vary over the longer-term, but there is a strong case that DLNG inventory should be maintained at the highest level possible for the immediate outlook period of 2026 to 2028 inclusive. This is due to the tightening supply demand outlook, significantly reduced system resilience and limited additional supply sources that can come online in those timeframes.

Maintaining secure and reliable gas supply to avoid curtailment is critical for end consumers. This is not only to avoid the physical and social consequences of gas curtailment, it also mitigates against the economic consequences and pricing impacts of such events and flow on impacts to consumers. While maintaining adequate inventory to manage system security and reliability risks comes at a cost, the counterfactual of a peak day supply imbalance and curtailment is expected to be far more consequential and would include flow on impacts for the National Electricity Market (NEM).

By requesting a time-limited extension to the current DLNG arrangements under the NGR, the proposal will allow for the development and implementation of the proposed Stage 2 East Coast Reliability and Supply Adequacy reforms (Stage 2 reforms). These may provide the regulatory framework for longer-term utilisation of the DLNG facility and the LNG Reserve. In particular, a gas reliability standard and value of gas customer reliability would provide a more objective measure to determine DLNG inventory levels.

While the request has been nominally framed as a three-year extension, the underlying intent is for sufficient flexibility to be provided in framing the duration to account for any potential delays or changes to the proposed Stage 2 reforms or alternative regulatory reforms. This is to avoid the risk of unnecessary rework to put in place another extension that may only be needed for a very short additional period of time.

This rule change request will also propose giving AEMO and market participants operational visibility of the BOC liquefaction services that support the DLNG facility. This is to allow AEMO to better deliver against its declared system functions and to allow the market to make better informed decisions on refill and management of its LNG inventory. Improved visibility of the liquefaction service is requested on an ongoing basis.

[1] DWGM interim LNG storage measures | AEMC

The rule change request provides a bridging solution. It facilitates adequate inventory for system security and reliability purposes for the immediate term. It also maintains clarity for the market on how the LNG reserve will be acquired, used, potentially transferred and disposed of until alternative arrangements are put in place. It provides a balance between reliability and affordability by maintaining existing pricing guardrails and limiting the duration of the proposed extension.

1.2 The preferred option contributes to meeting the National Gas Objective

This rule change request contributes to the National Gas Objective (NGO) in balancing improved security, safety and reliability of supply against affordability. It also contributes to the emissions reduction limb of the NGO. This is explained in greater detail in Chapters 4 and 5. The changes requested therefore fall within the rule making powers of the Australian Energy Market Commission (AEMC).

The rule change request has examined alternatives to the preferred option it puts forward.

One option is to allow the current AEMO buyer and supplier of last resort arrangements to lapse at the end of 2025. This would mean relying on AEMO's generic trading function and use of direction powers as a partial stop gap until Stage 2 reforms are implemented. This is not recommended for a wide range of reasons as set out in Chapter 3. Allowing current arrangements to lapse is less effective in meeting the NGO compared with the option put forward in this rule change request.

The rule change request also examines the option of a ten-year extension. It is difficult to argue for this as an interim bridging solution, particularly in light of the broader Stage 2 reforms and other east coast reforms currently underway. Locking in arrangements over a 10-year term, when other alternatives are likely to become available well before then, is considered counter-productive.

A ten-year extension could provide greater investment certainty. However, other parts of the national gas framework are likely to better support such investment while also ensuring transparency and oversight of any costs incurred in the long-term interests of consumers.

1.3 Supporting necessary investment in plant to ensure the ongoing provision of system security services

There will be a long-term need for LNG storage and liquefaction services in the Victorian network to support system security and emergency safe system shutdown. While this rule change request proposes a nominal three-year extension (or until such time Stage 2 reforms are introduced), it notes the need for longer-term certainty around the availability of LNG storage and liquefaction services in the Victorian DTS for system security purposes.

Ensuring the ongoing availability and reliability of the physical assets providing these services is a prerequisite to being able to maintain an adequate LNG reserve. Achieving this will likely require some further investment and refurbishment to be undertaken, given the age of the infrastructure in question. The appropriate conditions and frameworks are needed to allow this to occur. While this rule change request is not considered to be the most suitable avenue to provide this investment certainty, other parts of the national framework may be better suited to address this aspect.

The package of Stage 2 reforms currently being progressed may provide one such avenue. On 6 December 2024, Energy Ministers also tasked Senior Officials to work with AEMO to advise on potential expanded powers for AEMO to address East Coast gas supply issues emerging by 2028 and to recommend policy options to address supply and cost of gas over the medium term. These are to complement market-led solutions, while preserving current

export contracts and provide another avenue to ensure medium to longer-term LNG liquefaction and storage is considered. Other avenues relating to other parts of the NGL and NGR may also be available.

1.4 The broader reliability and supply adequacy reform agenda

The current rule change request complements a broader suite of reforms to support improved reliability and supply adequacy across the east coast gas system.

On 8 June 2022, Energy Ministers directed officials to progress reforms to support a more secure, resilient and flexible east coast gas system. This included introducing a fit for purpose Reliability and Supply Adequacy (RSA) Framework. Stage 1 of the framework came into effect in May 2023 via amendments to the NGL. This expanded AEMO's powers to better manage gas supply adequacy and reliability risks to the east coast gas system.

Energy Senior Officials were also tasked with preparing and submitting an urgent rule change to enable AEMO to better utilise storage to manage peak day risks. This resulted in the Victorian Minister for Energy submitting an urgent rule change request to the Australian Energy Market Commission (AEMC) in August 2022 to establish AEMO as buyer and supplier of last resort at the DLNG facility. The final rule was made 15 December 2022.

As this was progressed as an urgent rule change, the AEMC determined the arrangements should be framed as interim measures until the end of 2025. This was so that future DLNG arrangements could be integrated into a second stage of the RSA reforms (Stage 2 reforms).

The Stage 2 reforms are intended to build upon and provide guidance on the use of AEMO's Stage 1 east coast powers. Stage 2 seeks to establish a robust framework to guide AEMO in its use of these new powers, and to facilitate timely market-led responses to future threats by providing market participants with greater predictability and transparency. This includes rule change requests for:

- An East Coast Gas System reliability standard and associated settings;[2]
- An East Coast Gas System Supplier of Last Resort (SoLR) mechanism;[3]
- Notice of Closure for Gas Infrastructure[4]; and
- An East Coast Gas System Projected Assessment of System Adequacy.

Future DLNG arrangements, post 2025, could benefit from linkages to a proposed gas reliability standard. This would provide an objective approach to determining what level of inventory should be held at the DLNG facility for reliability purposes, when balanced against the value that consumers placed upon such reliability. [5]

The Stage 2 reforms could also provide an opportunity to incorporate or align DLNG arrangements with the proposed Supplier of Last Resort (SoLR) mechanism. This could allow for the establishment of a storage reserve(s) (Storage SoLR reserve) and/or a reserve of any other gas supply, pipeline, compression, blend processing, storage and/or demand response services (Other SoLR reserve) if the pre-conditions for triggering the mechanism have been met.

In determining that the current DLNG arrangements would only apply to the end of 2025, the AEMC expected that the Stage 2 reforms would be implemented for the start of 2026. This is no longer expected to be the case. It is likely they will not be implemented until mid-2027 at the earliest[6]. Mid-2027 would be well into the peak winter period and too late for refill of

[2] ECGS Reliability standard and associated settings | AEMC
[3] ECGS Supplier of last resort mechanism | AEMC
[4] ECGS Notice of closure for gas infrastructure | AEMC
[5] Some DLNG must continue to be maintained well beyond the implementation of Stage 2 reforms for system security and to allow for safe system shutdown in the event of a major emergency.
[6] Noting the complexities involved with developing and implementing and east coast gas reliability standard and associated settings, including a gas value of customer reliability, and with developing a SoLR mechanism, there is a credible risk implementation may be delayed beyond mid-2027.

DLNG storage for that year, given refill is a slow process. Any further delays to Stage 2 reforms could also place DLNG refill for 2028 at risk. This effectively leaves at least a two to three-year gap between when the current arrangements expire at the end of 2025 and the new arrangements are introduced. This gap falls precisely over a period of increasing peak day shortfall risks and reduced system resilience. The role of DLNG storage is expected to be critical over this period.

A further body of work announced by Energy Ministers on 6 December 2024 to consider potentially expanding AEMO's east coast powers may provide another avenue for longer-term arrangements at the DLNG facility.

While other options have been considered for the period 2026-2027, including the option of AEMO using its generic trading functions and/or directions power, there are direct and indirect costs and risks associated with these options. They are less likely to promote the NGO to the same extent as the proposed nominal 3-year extension.

1.5 Structure of this document

Section 2 of this document sets out the context and problem definition that this rule change seeks to address.

Section 3 sets out options considered and why these did not adequately address the problem statement.

Section 4 sets out the proposed rule change and how this is expected to address the issues set out in Section 2.

Section 5 outlines how the proposed rule change will contribute to the NGO and is in line with the AEMC's rule making powers.

The appendices to this rule change provide supporting information and sample drafting.

2. Context and Problem Definition

2.1. Increasing risks to security and reliability of gas supply

With southern gas production in rapid decline, AEMO projects Victoria's gas supply will fall by around 37 per cent by 2029[7]. Risks of Victorian annual shortfalls are forecast from 2029. While AEMO forecasts that Victorian peak day system demand from residential, commercial and industrial customers can also continue to be met until 2029, demand from gas-powered generation poses an increasing risk. This has the potential to be high depending on weather conditions and the availability of coal-plant and/or electricity transmission infrastructure at any given time. .

Gas-powered generation (GPG) is expected to play an increasingly prominent role in Victoria's electricity generation mix. Peak GPG demand is forecast to shift from summer to winter and will be increasingly volatile and peaky. Gas will play a critical firming role during periods of low coal or variable renewable energy generation output. Some of this GPG demand could be coincident with high winter system demand, increasing the risks of a supply demand imbalance[8].

[7] AEMO 2025 Victorian Gas Planning report: : page 3 which noted that total available gas supply is forecast to reduce by 37% over the outlook period from 257 petajoules (PJ) in 2025 to 162 PJ in 2029.

[8] The potential for extremely high GPG demand arising from weather conditions that impacts on the availability of VRE is demonstrated in Q2 2024. See AEMO's Quarterly Energy Dynamics report for Q2 2024: qed-q2-2024.pdf, Section 1.3.2. "The most significant uplift in gas-fired generation occurred in Victoria, with a quarterly average of 286 MW, more than doubling from 113 MW in the previous Q2. June's 474 MW was the highest monthly average recorded since August 2019." AEMO's 2025

The risk of seasonal shortfalls and deep storage depletion is also growing. The Australian Competition and Consumer Commission (ACCC) is forecasting that southern states in 2025 will face a supply deficit in Q2 and Q3. This will need to be met either by LNG producers in QLD sending gas south or east coast storage facilities[9].

At the same time, the energy transition is driving major change, creating uncertainty for investors and market participants. This appears to be leading to shorter-term contracting and delayed investment in supply and associated infrastructure to address the forecast shortfalls.[10] This is at a time when existing infrastructure is ageing and increasingly subject to reliability risks and may require additional investment in maintenance or refurbishment.

Victoria's gas system is also undergoing major changes. This is relevant, as Victoria has historically been a net exporter to northern States and had the highest penetration of domestic gas usage. In light of declining Gippsland production and consistent with the state's energy transition plans, the Victorian Government is taking action to reduce demand for gas. The *Victorian Gas Substitution Roadmap* sets out Victoria's plan to reduce gas demand through increased energy efficiency, electrification, and the uptake of renewable gases. While this is expected to result in a progressive reduction in system demand, this process will take time. Forecasts are consistently showing that supply will reduce faster than demand leading to the growing shortfall risk.

Parts of the economy that are unable to transition away to other sources in the short to medium-term will continue to need reliable and secure supplies of gas. These include large industrial users and manufacturers that cannot readily electrify or substitute their gas usage, particularly when used as a feedstock or for high heat applications. Electrification of households is also expected to take time given the historic high uptake of gas in Victoria for heating and cooking and the volume of households that need to be electrified even to maintain current gas forecasts.

2.1.1. Increasingly important role for storage

Both AEMO and the ACCC point to the increasingly critical role deep (underground) and shallow (LNG) gas storage will play both in meeting seasonal demand and peak day demand and improving resilience in the event of supply or demand shocks.

AEMO's 2024 GSOO notes that "[F]rom 2025, risks of shortfalls on some days in winter are forecast in southern Australia under extreme peak demand conditions, if extreme weather conditions drive very high demand for heating, coincident with high demand for gas-powered electricity generation (GPG). Deep **and shallow** gas storages are vital to meeting peak demands, while also providing seasonal flexibility, and the ongoing availability of stored gas ahead of winter conditions continues to be important to mitigate adequacy risks"[11]. It further notes that "[e]xisting storages will continue to need careful preparatory action to ensure the resilience of the gas system through the higher winter demand season. **Ensuring all storages are at full capacity prior to winter** is critical to reduce shortfall risks."[12]

2.1.2. Reduced system resilience

Reduced system resilience is a key risk. The Victorian and broader east coast gas system are increasingly vulnerable to unexpected supply or demand shocks such as unplanned outages of offshore infrastructure, gas production plant and/or transmission infrastructure.

The Longford gas plant is of particular concern. One of three Longford gas plants was permanently retired in October 2024. Both of the remaining two plants are required to achieve peak day capacity of 700 TJ/d over the immediate term. This reduced redundancy

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Victorian Gas Planning Report notes that actual GPG consumption increased by 96.5 percent from 2023 to 2024.

[9] ACCC Gas inquiry December 2024 interim report: Chart 2.4, page 23.

[10] Ibid.: page 45

[11] 2024 Gas Statement of Opportunities, page 4. Emphasis added.

[12] Ibid. Page 66. Emphasis added.

significantly increases the risk of supply disruptions because, if either of the two remaining plants are unavailable, Longford production capacity could be reduced by up to 350 Terajoules a day (TJ/d). A further Longford gas plant is expected to permanently retire later this decade.

The impact of a Longford unit trip or outage cannot simply be measured in terms of its impact on daily production volumes. Give the extremely limited availability of linepack in the Victorian DTS and the consequent challenges of operating the system, a major Longford capacity reduction needs to be considered in terms of its intraday impact. Further information on the challenges of operating the Victorian DTS and DWGM are included at Appendix A.

There have been very few instances of a full Longford gas outage to date.[13] However, outages of individual Longford gas plant units and temporary trips (including trips of the whole of Longford) have occurred at relatively regular intervals over recent years. There are also regular instances where the Longford facility operator has requested a capacity constraint at short notice involving significant reductions in intraday supply[14].

Historically, many events have not been visible to end consumers, and only a subset has involved DLNG injections. This can be attributed to two main factors: the incident occurring outside of peak winter conditions when the system is easier to manage (noting the timing of unplanned outages is a matter of luck); that, historically, the system and Longford provided much greater operational flexibility and response options. This is no longer the case.

Longford production rates are also increasingly dependent on availability of its Gas Conditioning Plant (GCP). A recent example where the GCP tripped on 1 January 2025 led to Longford production falling to under 140 TJ/d. On this occasion the trip occurred during mild conditions and on a public holiday with low gas demand. The outcome of a GCP trip on a peak winter's day would be far more serious.

The depletion of the large Gippsland legacy fields also reduces the ability of Longford to respond to intraday supply or demand shocks. These fields acted as additional storage, allowing Esso to ramp up production from one field to cover issues with another field or offshore platform.[15] Going forward, the Longford production profile will be much flatter and not provide this same level of flexibility. When combined with reduced redundancy in how offshore operations connect to the onshore plant, the ability to flexibly respond to intraday events has been largely eroded[16].

Additional evidence of reduced Longford redundancy is found in the ACCC's December 2024 Gas Inquiry Report. This notes that "over the past 2 years, C&I users and

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[13] Since the major Longford incident in 1998, there have been three full unplanned Longford outages of all three gas plants: two 6-7 hour unplanned outages overnight in April 2004 and prior to the start of the gas day on 1 October 2016 and a further outage of all three plants in April 2024. During the 2016 event AEMO intervened issuing an ad hoc schedule for 116 TJ of Dandenong LNG inventory to be injected into the system. This would have been an Emergency if it had occurred on a higher demand day. A further event where all three gas plants tripped occurred on 27 April 2024, luckily again outside of the peak winter period. However there have been multiple examples of individual plants tripping or being subject to extended outages or of significant capacity constraints.

[14] These capacity constraints are generally communicated to the market via System Wide Notices.

[15] 2024-victorian-gas-planning-report-update.pdf, page 14, Table 2 and ACCC Gas inquiry December 2024 interim report, page 47.

[16] As AEMO states in its 2024 Victorian Gas Planning Report (VGPR) update: "Retirement of infrastructure at the Longford Gas Plant and the decline of the large legacy fields reduces redundancy and supply flexibility, which increases the probability of outages. The tight peak day supply demand balance leaves a small margin for even brief supply issues, where any plant trips or equipment outages in winter within Victoria may result in a gas load curtailment event".

intermediaries have expressed concerns about the expansion in permitted interruption provisions in some producer and retailer GSAs". It further notes that "this is primarily an issue for gas supplied out of Longford, where the likelihood of outages has increased (i.e. as a result of the decline in production, the retirement of some of the processing capacity and increased need for maintenance of the remaining capacity)."[17] The increased inclusion of permitted interruption provisions, particularly in relation to Longford, supports the view that DLNG storage will increasingly be needed for reliability and/or system security purposes.

2.1.3. Peak day shortfall risks

AEMO's and the ACCC's forecasts point to the increasing risk of peak day shortfalls, even where all infrastructure is available at nameplate capacity. Shallow storage facilities are well placed to help manage such peak day risks. They can do this by providing LNG on high demand days where there is only a relatively small supply and demand imbalance (akin to the role short duration batteries play in the electricity system).

AEMO's 2024 supply adequacy forecasts show the supply demand balance tightening over the next years[18]. Importantly, AEMO's adequacy assessment separates out system demand (from residential, commercial and industrial customers) and demand from gas-powered-generation which is far more difficult to predict and peaky. In the event of coincident high system and GPG demand, the risk of a peak day shortfall markedly increases. AEMO's forecasts currently assume supply from shallow storage will be available for supply into the market.

One option to manage peak day supply is for AEMO to curtail gas-powered-generation. However, depending on conditions in the National Electricity Market (NEM) on the day, this could have serious implications for electricity supply and pricing. This could be the case where there is physically not enough electricity generation or demand response available to replace the volume of GPG that is curtailed[19]. This could occur, for example, where coal-fired plant is subject to unplanned outages or variable renewable generation such as wind or solar is unavailable. While the electricity Reliability and Reserve Trader (RERT) scheme could be activated to address the imbalance, this would come at a cost. Under a worst-case scenario curtailment of GPG could lead to load-shedding of electricity customers. It is therefore important to maintain optionality between using GPG curtailment and using shallow LNG storage inventory. This allows AEMO to make the most efficient choice in maintaining reliable supply to both gas and electricity customers.

All of the above makes a strong case for having adequate shallow storage inventory to better manage system resilience and reliability risks.

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[17] See Gas inquiry December 2024 interim report, page 48 See also Gas Inquiry 2017-2030 - Interim update December 2023, pages 18-19: "in a recent producer EOI the number of permitted interruptions days for technical and maintenance reasons had increased from around 10-15 days p.a. to 20-40 days p.a. This user noted that the definition of "firm" supply has also changed and stated that it seems "almost impossible" to get a price for firm supply now from Longford."

[18] 2025 Victorian Gas Planning Report Update: Page 52, Table 12. See also Table 14. This table does not include GPG demand which needs to be added to the system demand total. The assessment assumes the high rates of electrification set out under AEMO's step-change scenario are achieved in the expected timeframes. Given the Volatility of GPG demand, AEMO provides a range in its forecasts. Peak GPG demand in winter is predicted to increase by approximately 121% over the outlook period, from a forecast maximum of 254 TJ/d in 2025 to 562 TJ/d in 2029. Annual increases in forecast peak GPG demand vary between 6% (summer 2025 to summer 2026) and 158% (winter 2027 to winter 2028). While coincident 1-in-20 system demand and high GPG demand is less likely, a combination of 1-in-2 and high GPG demand is quite credible.

[19] Note that not all GPG plant has fuel-switching capability.

2.2 The Dandenong LNG Storage Facility and supporting liquefaction services

This section provides an overview of the DLNG facility and BOC liquefaction plants and why they are needed both in terms of system security (ongoing) and reliability (varying over the longer-term but with a strong case to hold a full tank in the immediate term). It also discusses historic changes to the NGR that reduced visibility of the Declared LNG Supplier (BOC) and why this is problematic.

2.2.1. The Dandenong LNG Facility

The DLNG facility is an LNG storage facility owned by APA Group with a capacity of 12,400 tonnes, or 680 terajoules, located on the Melbourne Inner Ring Main. It was built by the former state-owned enterprise the Gas and Fuel Corporation and commenced operation in 1980. In addition to storage, the DLNG facility allows for regasification of the stored LNG once this needs to be reinjected back into the Victorian DTS.

DLNG inventory has historically been used for five key purposes:

1. **Tank integrity** – APA maintains stock to ensure tank integrity. The Rules specify that unless otherwise agreed between AEMO and the LNG Storage Provider, this is to be taken to be 79 TJ of the storage nameplate rating
2. **LNG Tanker Loading** – historically this was undertaken by APA on a commercial basis, however, APA has indicated that it is moving away from this branch of its operations, freeing up this storage capacity and inventory.
3. **Market response –** Gas retailers or other market participants using their inventory to balance their individual supply and demand position and for hedging purposes.
4. **Emergency Safe System Shutdown –** To mitigate the impacts if a major gas emergency occurs. When a major gas emergency occurs, gas load curtailment may be needed to reduce load from the networks, but this process takes time and LNG is needed to maintain the overall safety of the network while this process is being implemented. This is referred to as a 'safe system shutdown'. Approximately **140 TJs** are required for emergency and safe system shutdown through this amount will vary slightly year on year depending on broader system conditions.
5. **Operational and Reliability Needs** – For system security and operational needs[20], often called 'peak shaving gas', which is to provide short duration incident management and to mitigate against the risk of customer curtailment. This could include mitigating against:
    - Short term unavailability of gas plant, including Longford and supply disruptions
    - Transmission pipeline equipment failure
    - Under-forecast demand or a sudden demand increase, for example from higher than anticipated GPG.

APA can inject gas into the DTS at a minimum firm rate of 87 TJ/d[21]. It can inject at a higher non-firm rate of over 200 TJ/d

[20] The term 'threat to system security' is defined in AEMO's Wholesale market procedures as arising if a 'normal operating state' for the DTS cannot be maintained. That is, where there is a threat to: (a) the supply of gas customers (i.e. a threat of curtailment), (b) DTS system pressures falling outside operating limits, or (c) public safety. This implicitly includes reliability, however, there is currently no objective measure to determine a reliability threshold that balances reliability and affordability.

[21] There are three vaporisers at the DLNG facility. This rate is based the two smaller of three vaporisers running. If all three are running (assuming all three are available) the daily rate can increase to over 200 TJ/d. This does, however, mean more rapid depletion of the storage tank.

APA was declared as the Declared LNG Storage Provider via a Ministerial Order issued in 2009 by the Victorian Minister for Energy under Section 41 of the *National Gas (Victoria) Act 2008* (Victoria's application act for the national gas regulatory frameworks).[22]

2.2.2. The BOC liquefaction facility supporting Dandenong LNG storage

To refill the DLNG facility and maintain adequate levels of inventory, gas from the Victorian DTS must first be liquefied.

This liquefaction service is currently provided by the adjacent liquefaction plant. This is owned and operated by BOC. BOC liquefies the gas that is injected from the Victorian DTS; this liquefied gas (LNG) is subsequently injected into APA's storage tank via pipes connecting the two facilities. The LNG is then stored until such time as it is needed, at which point it is revaporised and injected back into the DTS. It should be noted that even where the stored gas is not being used it is subject to progressive 'boil off' (evaporation). This occurs at very slow rates (less than 1 TJ/d), meaning over time inventory will reduce unless it can be topped up.

BOC was declared as the Declared LNG Supplier via the same Ministerial Order issued in 2009. The agreement between the two parties (APA and BOC) was declared as the Declared LNG Supply Agreement.[23]

2.2.3. The ongoing unique and critical role played by Dandenong LNG storage and supporting liquefaction services for system security purposes

DLNG plays a unique and critical system security role in the Victorian DTS due to its geographic location between Victoria's main supply source and its main demand centre in Melbourne (which accounts for approximately 70 percent of overall Victorian peak demand). The DLNG storage facility is located directly adjacent to the Dandenong City Gate (the main supply point into Melbourne). The system is designed to rely on high supply pressures into the distribution networks at this location.

The Victorian DTS has unique characteristics which make management of intraday supply and demand shocks far more challenging than in some other jurisdictions. The DLNG storage facility plays a critical role in mitigating the risk of such intraday shocks. Reflecting this, AEMO is required to maintain some DLNG inventory for system security purposes and this forms part of its Safety Case with the safety regulator, Energy Safe Victoria.

In particular, DLNG inventory allows AEMO to respond to any issues arising from a major reduction in Longford supply – a growing risk noted earlier. These system security risks, which require a rapid response, cannot be addressed by other assets. For example, Iona Underground Storage and the Tasmanian Gas Pipeline (TGP)[24] are not located close enough to the Dandenong City Gate to avoid minimum pipeline pressure breaches.

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[22] The Ministerial Orders defining the Declared LNG storage provider, Declared LNG Supplier and the Declared LNG Storage Agreement were published via Government Gazette on 30 June 2009: S222-09.indd

[23] Ibid.

[24] For Iona: see AEMO modelling of the potential response to a sudden 20% reduction in Longford supply comparing an Iona and DLNG response. This shows that the timing factor is critical and that an adequate Iona response could not be achieved in time to avoid pressure breached. AEMO Winter Outlook 2022: AEMO | Victorian gas operations. Similarly, TasHub and VicHub only have capacity of around 120 TJ/d each. This is less than is needed in the event of a Longford unit tripping (approx. 350 TJ/d). TasHub and VicHUb are also dependent on TGP and EGP linepack which is finite and can vary greatly depending on the day. Importantly, and as with Iona, these sources are located too far away from the Dandenong City Gate (around 200 km away). It is only the DLNG facility that can support Melbourne demand peaks when flow through Dandenong City Gate exceeds the supply capacity of the pipeline – including the Gooding compressor station and available linepack. This is not to say TGP and EGP linepack has no value, but that it does not provide a substitute for DLNG injections.

Further detail on the challenges associated with managing intraday supply in the Victorian DTS when compared with other interstate pipeline systems is provided at Appendix A.

While the need for injections from the DLNG facility for system security purposes has been relatively limited to date, as discussed above, past usage is not a good indicator of future usage. In particular, the level of redundancy at Longford and its ability to flexibly respond to unanticipated events has significantly reduced. The likelihood of needing DLNG inventory for system security purposes has, as a direct consequence, significantly increased.

Given the significant reduction in overall system resilience and increasing risk posed by an outage of one of two remaining Longford gas plants, it is also possible that an emergency safe system shutdown amount may be called upon more than once during a single season. For example, the trip of a remaining Longford unit or offshore production platform at the start of winter may require deployment of a safe system shutdown amount from DLNG storage.

Ensuring sufficient inventory is available for system security purposes means that AEMO, as operator of the Victorian DTS and the party responsible for maintaining system security, needs to have adequate visibility not only of the operations of APA's DLNG storage facility, but also of the adjacent BOC liquefaction plant, as the one is dependent on the other. The need for improved visibility of the interaction between the BOC and APA facilities is discussed in further detail below but is certainly fundamental to AEMO fulfilling its declared system functions. AEMO has virtually no direct visibility of BOC operations and availability under current arrangements.

Over time, new east coast sources of supply may come online and these are likely to assist in reducing reliability risks in supplying end users. However, these new sources would also not be located close enough to the Dandenong City Gate to support system security. Gas, unlike electricity, is a physical commodity that takes several hours to move through the system and to reach the impacted part of the system.[25]

The need to maintain adequate DLNG inventory to manage emergencies and to buy time for safe system shutdown will therefore continue in the absence of another gas supply source directly adjacent to the Dandenong City Gate. There are no known proposals to provide such an alternative service.

To ensure an LNG reserve continues to be available to support system security and safe system shutdown (given there is no known alternative), it is also important to ensure the ongoing reliability of the physical liquefaction and storage assets that enable that reserve to be held. The one is dependent on the other.

2.2.4. The link between system security and safety in gas systems

There is a much stronger link between maintaining security and reliability of supply in the gas system than there is for electricity. This is because in the event of a gas shortfall event and supply demand imbalance it may be necessary to island the gas distribution networks to preserve the integrity of the transmission system. Once this has occurred there is a high risk of air ingress in the distribution networks. In the electricity system large blocks of load can be automatically shut off via a centralised control room guaranteeing a demand reduction. In the case of the gas system, this is not possible. Reducing demand depends on end users actively switching off appliance or meters to reduce demand. This in turn relies on communicating with end users to elicit a response. This takes time and in the interim gas will continue to be drawn from the networks. Once air ingress has occurred, it poses a safety risk to end users. Addressing this safety risk and restoring supply would require the purging of pipelines, a protracted and resource intensive process, followed by a relight process. Maintaining adequate inventory at the DLNG facility is intended to avoid the adverse safety outcomes of a gas supply disruption.

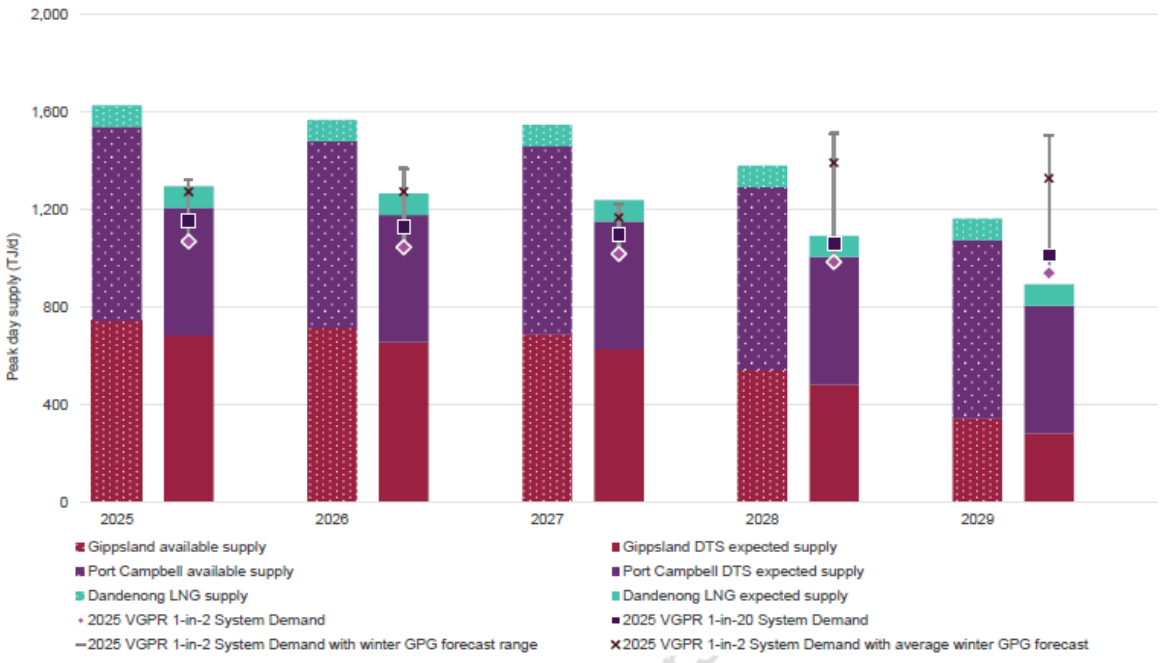
[25] This includes potential projects in the east of the State such as the Golden Beach production and storage. Whilst connecting to the Longford to Melbourne Pipeline, this supply would still be too far from the Dandenong City Gate to address the risk of minimum pipeline pressures being breached.

2.2.5. The need for Dandenong LNG storage for reliability purposes

Maximising DLNG storage inventory and keeping the tank full for reliability purposes is expected to be critical in mitigating the risk of curtailment for end consumers. AEMO's 2025 Victorian Gas Planning Report Update notes that further into the decade and post 2027, the volume that needs to be retained for reliability purposes may change. It should be reiterated, however, that the need to maintain inventory for system security purposes is not expected to change and will be needed on an ongoing basis.

AEMO's 2025 VGPR assumes that 87 TJ/d of inventory will be available from the DLNG storage facility to meet peak day system demand for the five-year outlook period. This system demand forecast, as noted earlier, does not include potential demand for gas-powered-generation which would be over and above system demand. AEMO notes that supply adequacy of forecast to remain tight, and that
supply from the DLNG facility will likely to be required to support the peak day demand and even low levels of gas-powered electricity generation (GPG) on a peak day[26].

Figure 30 Forecast peak day supply and DTS adequacy, 2025 to 2029 (TJ/d)



Note: The forecast peak day system demand shortfall assessment does not include the additional impact of GPG demand. Events in the NEM could result in high GPG demand and total demand that is higher than a 1-in-20 year peak day system demand. Figure 30 includes the Victorian winter GPG demand forecast range coinciding with *a 1-in-2 peak day system demand to illustrate the possible range of resultant total demands.*

AEMO's 2025 VGPR shows a tighter Victorian supply demand balance for 2025 and 2026 than contained in last year's forecast. This can be attributed, amongst other things, to revised production forecasts from Beach Energy's Enterprise field and the redistribution of Gippsland production volumes over the
5-year outlook.[27] This means that DLNG inventory may potentially be needed to meet

[26] 2025 Victorian Gas Planning Report Update: page 4.
[27] See Beach Energy's ASX announcements of 12 August 2024 which noted early pressure data for the Enterprise field indicates a smaller resource pool than originally estimated which has led to a downward revision from 34 million barrels of oil equivalent down 11.5 million BOE. BPT_Beach_Energy_Ltd_FY24_Full_Year_Results.pdf and

system demand under 1-in-20 conditions or where demand falls between 1-in-2 and 1-in-20 projections for 2028.[28]

Additional supply from the committed Kipper Stage 1B and Turrum Phase 3 projects improves the forecasts for 2027 and 2028, however this supply is processed at Longford and is dependent on availability of the Gas Conditioning Plant (GCP). This additional supply is therefore directly subject to the various Longford system resilience risks outlined above.

Given the tightening supply demand balance, the risk of coincident high system and GPG demand and reduced system resilience, it is also highly credible that the DLNG reserve will be drawn upon on more than in a single winter season to support reliability without the opportunity to replenish inventory between events.

Finally, it is important to note that in the absence of an LNG reserve, a reliability event involving planned curtailment may very quickly deteriorate into a system security event requiring safe system shutdown. Unlike the electricity market, large blocks of gas load cannot be shed quickly via a centralised system. Reducing gas load depends on public communications and end users being aware of the issue and being at home to physically turn off appliances or shut off supply at their meter. This is a time-consuming process. Maintaining an LNG reserve buys time for this to occur. If that reserve is not available and the planned curtailment response is too slow, the situation could rapidly evolve into an emergency safe system shutdown scenario.

As the decade progresses, however, it is likely that other sources of supply in the east of Victoria, including supply that is not subject to Longford resilience risks, such as Golden Beach production and storage, will become available[29]. These could better help manage reliability concerns. Other east coast proposals, such as an LNG import terminal, may also have progressed. This could potentially reduce the level of inventory that is needed to be held at DLNG storage for reliability purposes later this decade and into the 2030's.

There is an opportunity to tie future inventory levels to the proposed east coast gas reliability standard and value of gas customer reliability. This would allow for a more nuanced balance between reliability and affordability to be achieved. However, in the interim and based on forecasts by AEMO and the ACCC, the immediate need to maintain a full tank at the DLNG facility for the period 2026-2027 can be clearly demonstrated. DLNG inventory to support system security will be needed on an ongoing basis.

2.3. Why the market is unlikely to provide sufficient response

As outlined above, there is a need to maintain adequate DLNG inventory for both system security and reliability purposes. The question then becomes whether the market will provide a sufficient response if the current rules enabling AEMO to act as supplier and buyer of last resort are allowed to expire at the end of 2025.

From 2020, there was a significant decline in DLNG storage inventory. The decline was so marked that it led to AEMO issuing Threat to System Security notices in both 2021 and 2022. Yet the market still failed to adequately respond. The current DLNG arrangements were introduced in December 2022, as a response to this market failure.

There were a number of contributing factors to low retailer DLNG holdings. It is highly likely that these same factors will come into play if current arrangements were allowed to expire at the end of 2025 and there was a reliance on the market responding. These included:

BPT_2024_Beach_Energy_Ltd_Annual_Report.pdf. Also see coverage in the Australian Financial Review, 12 August 2024: BPT ASX: Beach Energy shares plummet as new Enterprise gas field reserves in Victoria's Otway Basin slashed

[28] See footnote 19 in particular that it is only the DLNG facility that can support Melbourne demand peaks when flow through the Dandenong City Gate exceeds the supply capacity of the pipeline – including the Gooding compressor station and available linepack.

[29] GB Energy has announced it is currently targeting a 2028 date for first gas.

- Concerns about a free-rider effect where those contracting for storage capacity and holding inventory would effectively subsidise other market participants who would benefit from the avoided high prices and avoided customer curtailment;
- A restructure of tariffs at the facility. This on the one hand responded to market participants' desire for greater firm vaporisation and injection rights, but also appears to have led to higher charges and a decline in retailer contracting. AEMC stakeholder consultation in 2022 suggested this was a key factor in inventory decline.[30]
- One stakeholder has argued that reforms to the DWGM that removed congestion uplift fees directly contributed to DLNG inventory decline. This is considered unlikely. Participants hedged against 'congestion uplift' by holding what was known as AMDQ[31], not by holding DLNG inventory. This inventory was instead (and continues to be) held to manage 'surprise uplift', which was not altered in any way by the DWGM reforms in question. Further, the reforms only came into effect in 2023, well after DLNG inventory levels started to drop.

If current arrangements fall away at the end of 2025, the issue of retailers not sufficiently contracting for reliability purposes will highly likely become an issue again. Sufficient market response cannot be guaranteed.

2.4. The need to balance reliability and affordability

There is always a tension in trying to balance reliability and affordability. In the absence of a gas reliability standard and gas value of customer reliability it is still possible to show the criticality of maintaining an LNG reserve to avoid adverse pricing outcomes.

It has been argued that DLNG inventory has only been used on rare occasions and that the cost of maintaining that inventory is therefore not warranted. DLNG inventory acts as an insurance policy. As with any insurance policy, it may not always come into play, but this does not negate the need for insurance. In the past DLNG insurance was there to protect against high impact, low probability events. In the current environment, supply or demand shocks are more likely to occur due to the tightening supply demand balance and as set out earlier, reduced system resilience and Longford resilience significantly increases the probability the LNG reserve will need to be used.

Having an LNG reserve as insurance comes, as with all insurance, at a cost. However, this cost always needs to be compared with the counterfactual. What would occur if the LNG reserve was not in place, noting there is no known alternative insurance to provide the kind of the system security/safe system shutdown functions provided by the DLNG facility.

2.4.1. Cost of maintaining an LNG reserve

According to reporting published by AEMO[32], it has spent approximately $17.6 million over the first 2 years of the 2022 interim rule change fulfilling its buyer and supplier of last resort functions. It has not generated revenue as it has not used its LNG reserve to date (noting the LNG reserve is intended as a measure of last resort). Around 77 percent of the $17.6 million ($13.6 million) has been spent on LNG storage capacity and associated functions[33], 2

[30] The tariff restructure appears to have led not only to higher pricing at the DLNG facility but also appears to have reduced the incentive for retailers to hold large volumes in storage. The previous mechanisms and fee structures provided for injection capacity to be allocated on a pro-rata basis based on contracted quantities, so participants had an incentive to put more in the tank. Following the tariff restructure retailers are now able to obtain firm injection rights commensurate with the storage capacity they hold.

[31] Authorised Maximum Daily Quantity

[32] The most recent available report is for November 2024: 6-monthly-lng-summary-report---1-nov-2024.pdf

[33] The Dandenong LNG storage contract includes storage and associated functions such as control room operation and management of the vapourisation contract and facility.

percent has been spent on liquefaction ($0.4 million) and the remainder has been spent on procuring the gas to place into storage. As at the most recent AEMO reporting period (April to November 2024) AEMO is holding 348 TJ (or 348,000 GJ) of storage capacity. The cost of this can be calculated at around $23.51/GJ. Assuming a gas commodity price of around $11/GJ to fill that storage capacity, and a small liquefaction charge (of around $2/GJ though this will only be incurred infrequently where refill needs to occur, the total cost per GJ of maintaining an LNG reserve could be derived at around $34.51/GJ.

2.4.2. Maintaining an LNG reserve vs curtailing GPG

AEMO can potentially use curtailment of GPG as a first line of defence and direct fuel-switching to diesel. However, this comes with associated risks.

If GPG is running to support the NEM this is likely because it is needed to make up for lack of availability of coal-fired or variable renewable energy (VRE) from wind and/or solar. If GPG is curtailed there is a risk that electricity demand cannot be met. Not all GPG plant has the ability to fuel-switch to diesel so if GPG is directed off because of a gas supply demand imbalance, at least some of that generation may no longer be available to support NEM demand.

The cost of potentially shorting the electricity market and reaching the NEM Market Price Cap, even over an hour, will exceed the cost of maintaining the LNG reserve and injecting it at the gas Market Price Cap[34] into the DWGM.

In any event, the respective contributions of system versus GPG demand in making up aggregate peak day gas demand will vary. In a scenario where a Longford unit trips and supply reduces by up to 350 TJ and there is only 150TJ of GPG demand, fuel switching will be insufficient to restore the supply demand imbalance. In the absence of an LNG reserve the costs of customer curtailment may therefore also need to be factored in.

2.4.3. Maintaining an LNG reserve vs the cost of using RERT

As noted, not all GPG plant has fuel-switching capability, so if all GPG needs to be curtailed but only a portion can fuel switch to diesel, the supply demand imbalance in the NEM may not be resolved. If GPG has been running this is likely because it has been needed to make up for unavailable coal plant or variable renewable generation. With electrification of gas load, it is also likely that winter demand will increase placing increased strain on the electricity system. If GPG curtailment leads to an imbalance in the NEM it may be necessary to invoke the Reliability and Emergency Reserve Trader Scheme (RERT). This also comes at a cost which may need to be added to the cost of maintaining a diesel reserve. AEMO reports on these costs which can vary by event, and the type of RERT that is invoked, but can be significant[35].

2.4.4. Maintaining an LNG reserve versus customer curtailment

In the absence of an LNG reserve and where GPG curtailment cannot restore the gas supply demand balance, customer curtailment may be required. While the Victorian curtailment tables have been amended to try and protect industrial plant that requires time to ramp down or requires uninterrupted supply, the order in which curtailment occurs is largely geographically and physically determined. If plant is located in a vulnerable part of the networks subject to low pressure breaches and air ingress, it could be impacted regardless of where it sits in the curtailment tables. There is therefore a risk not only of lost production but also potentially of damage to costly industrial equipment. This could be expected in some cases to have flow on impacts for broader supply chains. Smaller commercial users,

[34] Also known as Value of Lost Load (VoLL)
[35] AEMO | RERT Reporting

for example in the hospitality industry, could also be impacted in the event of a gas supply disruption leading to adverse economic impacts.

2.4.5 Maintaining an LNG reserve vs unplanned curtailment requiring purging and relight

A gas supply imbalance that initially presents as a reliability event could rapidly evolve into a system security event in the absence of an LNG reserve. If planned curtailment is too slow, and the distribution networks are isolated and air ingress occurs, purging of the network and relight of appliances will be needed.

Analysis undertaken by Concept on behalf of Vencorp to review LNG Reserve requirements for the period 2008 to 2012 shows the potential impact of not maintaining an adequate LNG reserve. The costs were calculated based on a full Longford outage rather than trip of a single unit. However, they were also estimated as at 2007, so these costs will have increased. There is also now a greater interconnection between the gas and electricity systems than in 2007, so flow on costs impacts for the NEM would also need to be considered.

Unmet LNG requirements (tonnes)	Unmet LNG requirements (TJ)	Relight %	Days Off	Estimated Purge and Relight Costs
0	0	0%	0	$0m
500	27.25	1%	1	$1.03m
1,000	54.5	2%	3	$2.93m
1,500	81.75	3%	4	$5.72m
2,000	109	15%	19	$108.00m
2,500	136.25	30%	38	$414.45m
3,000	163.5	100%	126	$4,468.50m

2.5. Lack of visibility of liquefaction services

As noted earlier, the BOC liquefaction facility, co-located with APA's DLNG storage facility. cools and liquefies natural gas provided via pipeline from the Victorian DTS for injection into the DLNG tank. Without a liquefaction service, DLNG storage inventory cannot be replenished once it has been vaporised and injected into the DTS.

The importance of having a functioning liquefaction service was recognised through specific references to this function in both the *National Gas (Victoria) Act 2008,* the Victorian application Act for the NGR, and in pre-2010 versions of the NGR.

The NGVA defines all three of the following terms: Declared LNG storage provider; Declared LNG supplier; and Declared LNG supply agreement. As noted earlier, a Ministerial Order of 2009 defined APA as the Declared LNG storage provider, BOC as the Declared LNG supplier, and the agreement between the two parties as the Declared LNG Supply Agreement.[36]

All three terms were also previously included under Part 19 of the NGR. The definitions for the Declared LNG supply agreement and Declared LNG Storage Provider have survived under Part 19, but not the reference to the Declared LNG supplier. The detailed subrules dealing with liquefaction were significantly truncated with little detail having survived a 2010 rule change.

The inclusion of these terms under the NGVA and NGR shows there was previously a recognition that both the declared liquefaction and declared storage functions play a critical role. AEMO, as system operator with responsibility for system security, needs to have visibility over both aspects and how the two interact in order to adequately fulfil its functions.

[36] The Ministerial Orders defining the Declared LNG storage provider, Declared LNG Supplier and the Declared LNG Storage Agreement were published via Government Gazette on 30 June 2009: S222-09.indd

2.5.1. The 2010 rule change and subsequent loss of visibility of the liquefaction service

In 2010 AEMO submitted a rule change request[37] relating to the DLNG storage facility. At the time it argued that the then rules were 'overly prescriptive and unnecessary in light of a reduced reliance on LNG for system security'[38] and noting that the 'current prescriptive nature of these rules is also hindering the commercial development and operation of the Dandenong LNG facility'.

AEMO noted that BOC had announced a major refurbishment of its liquefaction plant which would allow for significantly increased rates of liquefaction. It was argued that by making the rules less prescriptive in determining how BOC liquefaction capacity would be allocated, this would open up the DLNG facility to more commercial opportunities such as heavy haulage of LNG and truck loading. AEMO argued that the then Rules, by only allowing LNG to be contracted by storage capacity associated with prescribed liquefaction allocations and shared vaporisation capacity, restricted uptake of these opportunities. On this basis, the detailed formulae for allocation of liquefaction services as previously set out under Rule 283 (liquefaction of gas) were removed. However, a number of other provisions including some providing AEMO with visibility of the Declared LNG Supply Agreement and the operation of the BOC plant were also removed.

Prior to the 2010 rule change, the rules included the following specific provisions relating to the Declared LNG Supply Agreement as set out in the then Rule 280 specifying that:

> (1) The LNG storage provider must, subject to the terms and conditions of the declared LNG supply agreement, keep AEMO informed in a timely manner of all matters or circumstances relating to the declared LNG supply agreement or the operation of the LNG storage facility that may affect the ability of AEMO to schedule LNG injection offers or use the LNG reserve.
>
> (2) The LNG storage provider must notify AEMO on or before the twelfth day of each month of the following information relating to the operation of the declared LNG supply agreement:
>
> > (a) the minimum and maximum quantity of gas the LNG storage provider may order for liquefaction by the declared LNG supplier in the following month under the declared LNG supply agreement; and
> >
> > (b) if known, the declared LNG supplier's requirements for gas and LNG stock in the following month.
>
> (3) If any provision of this Part with which the LNG storage provider is bound to comply is inconsistent with any term of the declared LNG supply agreement, then the term of the declared LNG supply agreement will prevail.
>
> (4) The LNG storage provider must not terminate or vary the declared LNG supply agreement without the consent of AEMO (whose consent must not be unreasonably withheld or delayed).

Subrules (2), (3) and (4) were all removed on the grounds that subrules (2) and (3) of Rule 280 breached confidentiality clauses in the Declared LNG Supply Agreement and subrule (4) represented 'a specific intrusion into APA's commercial arrangements with the LNG supplier. Further rationale for removing AEMO visibility of the Declared LNG Supply Agreement was that operational information relating to the DLNG storage facility was more comprehensively handled via an Operating Agreement between AEMO and APA.[39]

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[37] Dandenong Liquefied Natural Gas Storage Facility | AEMC

[38] The 2010 rule change request did not appear to display a sound operational understanding of the system security functions provided by DLNG storage and that these cannot be provided by other supply sources.

[39] Dated 27 November 2008 and as allowed for under Section 91BG of the NGL (Operating Agreement between AEMO and Facility Owner).

However, removing these provisions had the unintended outcome of also effectively removing almost all AEMO visibility of the liquefaction service which in the current context of a tightening supply demand balance and potential shortfalls and reduced system resilience is increasingly hampering its ability to adequately fulfil its declared system functions.

2.5.2. Why visibility of liquefaction services is not adequately addressed by current arrangements

Despite both liquefaction and storage services being needed to support minimum pressures at the Dandenong City Gate and avoid a system security event, AEMO currently has no direct visibility of BOC's operations including plant availability and maintenance. Nor does it have visibility of the facility's longer-term outlook and expected asset life. This significantly impedes its ability not only to perform its day-to-day declared system functions but also its planning and forecasting functions.

Historically AEMO has not been notified of planned or unplanned outages at the BOC liquefication plant that prevent or reduce LNG production capacity even though this has a direct bearing on the management of inventory levels at the DLNG storage facility.

The NGL defines an *LNG facility* as a facility for the processing of natural gas from a gaseous to a liquefied state or from a liquefied to a gaseous state and an *LNG Service Provider* is defined as a person who owns, controls or operates an LNG facility. 'LNG facility' is listed as a specific subcategory under the definition for a *covered gas industry facility*. These definitions apply to the BOC liquefaction service supporting DLNG storage, or indeed any other future liquefaction service potentially providing the same function.[40]

However, references to the LNG Service Provider/Declared LNG Supplier drop away under the Rules. Neither term is included in Part 18 of the NGR which sets out Gas Bulletin Board reporting arrangements, either as a subcategory of *facility* operator, or as a subcategory under *BB reporting entity*.

BOC is not currently a registered gas market participant in the DWGM, nor can it currently be categorised as a facility operator which could allow it to be included as a BB reporting entity under Part 18 of the Rules or a DWGM facility operator. It therefore has no direct obligation to provide AEMO or the wider market with information on the availability of its plant. This is problematic as this information is needed by market participants and AEMO to determine when and how often they can refill DLNG storage and how carefully they should conserve existing inventory.

A slightly modified version of Rule 280 (1) introduced in 2010, and which still forms part of the current Rules states that:

> (1) An LNG Storage Provider must, subject to the terms and conditions of a declared LNG supply agreement *(where relevant)*[41], keep AEMO informed in a timely manner of all matters or circumstances relating to the operation of its LNG storage facility that may affect the ability of AEMO to schedule LNG injection bids or use the LNG reserve'.

[40] The term LNG Service Provider is slightly inconsistent with the term Declared LNG Supplier as used under the NGVA and in previous version of the NGR and as used in the 2009 Ministerial Order via which BOC was declared. The term LNG Service Provider as used under the NGL could presumably be used to refer to any liquefaction service, including for example the Newcastle Gas Storage Facility, whereas the term Declared LNG Supplier as used under the NGVA is specific to Dandenong. Both these definitions are in turn distinct from the term *LNG processing facility* under Part 18 of the Rules which is defined as either an *LNG export facility* or an *LNG import facility* both of which refer to facilities processing LNG exported and imported via ship. There is a strong argument in favour of retaining a distinction between all these different categories to avoid unintended outcomes where any new arrangements put in place are only intended to cover one type of LNG facility and processing and not all.

[41] Emphasis added. This text was introduced as part of the 2010 rule change.

This could potentially be interpreted as requiring an LNG Storage Provider to provide information on the availability of BOC liquefaction services as this impacts on AEMO's use of the LNG reserve but is highly ambiguous. The evidence suggests the interpretation of this rule has been inconsistent.[42]

The current wording is considered inadequate for the following reasons:

- The subrule is subject to the terms and conditions of an agreement that is confidential and where the contents are not known to any parties outside of APA and BOC, including AEMO. This makes it difficult to determine how this agreement may be impacting on the provision of relevant information. It makes enforcing the application of this subrule impossible;
- The subrule was further caveated in 2010 by the introduction of the wording 'where relevant' without making clear how relevance is determined or by whom;
- The focus on scheduling of LNG injection bids and use of the LNG reserve is focused on the storage facility. It does not specify that matters impacting on AEMO's ability to inject or use the LNG reserve should include availability of the liquefaction plant and service. A generous interpretation could be (and appears to have been) made that there is no need to update AEMO where there is still a reserve and the storage facility and vaporisation services are available, even where liquefaction is not available.

The 2010 rule change request suggested that some of the obligations previously included in the Rules were already and more comprehensively covered in an Operational Agreement between AEMO and APA. This included information on planned and unplanned maintenance and plant breakdowns that would materially impact the injection or withdrawal of gas into or out of the Victorian DTS.[43] It again appears that the focus was on the operations and availability of the DLNG Storage facility rather than the adjacent liquefaction plant. It is understood the current Operational Agreement includes little to no requirement to provide information on BOC operations and availability. While a new Operating Agreement could potentially be negotiated, it would likely not provide the same level of clarity and enforceability as if specific information obligations were to be included in the Rules relating to the liquefaction service.

The Service Agreement between AEMO and APA[44] contains some references to liquefaction but these are restricted to specifying a liquefaction charge and setting out the order in which liquefaction services will be prioritised across APA, market participants and AEMO, it does not provide AEMO with operational visibility of the liquefaction plant.

It is increasingly critical that AEMO have visibility of the availability and minimum injection rates of the BOC liquefaction plant to help it determine DLNG refill schedules and how quickly DLNG inventory can be replenished and consequently determine the best response options available to it in managing the system and coordinating maintenance of other plant and facilities. This rule change request seeks to improve AEMO visibility of the liquefaction service as outlined in Chapter 4 of this document.

[42] This is evidenced through APA's Gas Bulletin Board (GBB) reporting. From late 2018 through to late 2024, APA reported a flat maximum receipt capacity from the BOC liquefaction plant, other than a few instances where maintenance was undertaken at APA's end. This would imply that there were no periods of reduced availability or maintenance at the BOC plant for that entire period. It is understood this is not the case. It is only in late 2024 that APA first reports to the GBB on BOC maintenance.

[43] Rule-change-request.pdf: page 3

[44] AEMO_APA LNG services agreement - redacted.pdf and AEMO_APA LNG services agreement variation - redacted.pdf

3. Options considered

In formulating the current rule change proposal, a range of options were considered and assessed. These options and the rationale for why they were not considered to be the preferred solution are set out below. This options analysis is based on the status quo of allowing current arrangements to expire at the end of 2025.

3.1. Option 1: Rely on market and existing AEMO powers pending Stage 2 reforms

One option is to allow current arrangements to expire and to rely on AEMO's generic ability to trade in gas and issue directions as an interim measure while waiting for the development and implementation of the Stage 2 Reliability and Supply Adequacy reforms including a gas reliability standard and Supplier of Last Resort (SoLR) mechanism.

It is understood, based on latest estimates, that work on the Gas Reliability Standard and associated measures and the SoLR rule change request may commence in mid-2025. Both rule change requests touch on complex matters. If the AEMC determines the rules should be changed, AEMO will also need to develop supporting Procedures. The earliest that measures could be implemented therefore appears to be Q2 2027, which will fall too late for physical refill of the Dandenong LNG facility ahead of winter 2027. There is also a credible risk that development and implementation timelines will stretch even further as these are complex matters.

This means that if the current interim DWGM LNG arrangements are allowed to expire, there would be at least a two-year and potentially longer period over which AEMO would need to rely on its generic trading functions and/or direction powers to manage inventory at the DLNG storage facility. Neither of these tools is considered adequate to bridge the gap between current DLNG arrangements expiring and Stage 2 reforms taking effect.

The current DLNG rules as made in December 2022 cover a range of matters that would not necessarily be covered by the trading function. These include:

- Providing AEMO with specific guidance on how to carry out its DLNG functions;
- Addressing any perceived conflicts of interest for AEMO as market operator injecting into the DWGM (e.g. by specifying the price AEMO is to use when injecting into the DWGM);
- Reducing the risk of crowding out other market participants by allowing transfers of AEMO capacity and inventory to retailers should they decide to contract at a later date;
- Requiring AEMO to be accountable for its actions (e.g. through the transparency requirements); and
- Ensuring there is a cost recovery and proceeds distribution mechanism in place.

Further reasoning on why use of generic trading functions and/or direction powers are considered less preferable to the proposed extension are outlined below.

3.1.1. Use of a generic trading function is inefficient and does not provide adequate pricing oversight

Nominally there are two options for AEMO to trade in gas during the intervening period before Stage 2 reforms are introduced:

- The east coast gas system trading fund as established under the new Part 27[45] of the NGR (east coast gas system reliability and supply adequacy); and
- Section 91BA of the NGL. This sets out AEMO's Victorian declared system functions, including that AEMO may trade in covered gas or purchase pipeline services or services provided by a compression service provider, blend processing service provider or a storage provider to the extent necessary or desirable for the safety, security or reliability of a declared transmission system or in an emergency.

Under Part 27 of the NGR, AEMO would tender for services to fulfil the need for system security and reliability services in the DWGM. However, in the immediate term, this function can only be provided by APA and its DLNG storage facility, rendering a competitive tender meaningless. A similar outcome would result if AEMO resorted to its Victorian generic trading functions under 91BA. A tender process, in this instance, would therefore be an ineffective use of AEMO's time and resources.

Allowing current arrangements to lapse would also not provide the pricing protections in place in relation to the AEMO and APA Service Agreement as was set out under Rule 281 which links the terms and conditions back to the terms of the 2022 contract between the two parties.

These costs would then need to be borne by the market and ultimately end consumers. This would be a poor regulatory outcome that does not align with the affordability and efficiency limbs of the NGO.

3.1.2. Use of a generic trading fund will not provide sufficient clarity around ownership of inventory for system security purposes

If the current interim arrangements are allowed to lapse AEMO would still be able to hold an amount of LNG for system security purposes. However, reverting to pre 2022 arrangements may be less preferable than temporarily extending the current arrangements for a limited period. This is because prior to the introduction of the 2022 interim arrangements there was no clarity around ownership of the system security amount and whether this amount did or did not include retailer held gas. The absence of a clear distinction and the risk that AEMO might use retailer inventory purchased for hedging or as protection against surprise uplift could act as a disincentive to market participants to store gas at the facility. There was also no clarity in relation to how AEMO held gas would be injected via-a-vis retailer held gas.

The current arrangements provide exactly such clarity and allowing these arrangements to lapse is therefore counterproductive.

3.1.3. Use of a generic trading fund will not support AEMO in determining inventory levels for reliability purposes

Relying on generic trading functions under either Part under 91BA for reliability purposes is also not considered an adequate solution. While AEMO has a broad head of power under the NGL in relation to maintaining reliability, the rules do not provide any specifics on how this can be exercised.

The trading function under Section 91BA pre-dated the 2022 DLNG rule change request. Despite already having this generic trading function, AEMO did not feel adequately empowered to fill the DLNG storage tank for reliability purposes. This was because it lacked a gas reliability standard that would provide an objective measure allowing it to balance reliability and affordability. These same conditions would reoccur in the event the current

[45] It is not clear that Part 27 is the most appropriate part of the NGR to deal with the DLNG storage facility given the DTS and DWGM have a number of features that are quite distinct from the broader east coast markets.

arrangements were allowed to lapse. The factors contributing to a poor market-led response and low levels of retailer contracting as set out in section 2.2 do not appear to have been addressed and would highly likely reemerge if current arrangements lapse. There is therefore a real risk the LNG storage asset will not be used as effectively as it could be.

AEMO would likely face similar difficulties using its trading function under Part 27 in the absence of a gas reliability standard.

3.1.4. Option 1 would involve significant administrative overheads and opportunity costs

There are existing and proven arrangements currently in place as developed through the 2022 rule change. These arrangements address the requirement to hold adequate DLNG inventory for both system security and reliability purposes over a defined period. They also include pricing guardrails, provide clarity around the transfer of storage capacity and LNG inventory from AEMO to market participants where requested, on how AEMO injections will be prioritised and priced and how associated costs will be allocated. Developing these arrangements, including associated AEMO Procedures, involved a significant investment of time, resourcing and expertise.

If these arrangements are allowed to lapse before Stage 2 reforms are ready for implementation, AEMO would need to invest significant additional effort in developing alternative interim arrangements. To exercise its generic trading functions, it would likely have to issue a Threat to System Security, develop processes to tender for DLNG services, arrange for implementation of any contracted service, work up new Procedures. Even then, these arrangements would likely lack much of the detail included in the 2022 rule change. This additional investment of time, resources and effort, would all be in support of arrangements that would only apply for a short period. With the subsequent introduction of Stage 2 reforms, AEMO would then have to develop further new processes and procedures. This would be a highly inefficient outcome that could impose additional costs on the market. There is also a significant timing risk associated with this approach.

Allowing current arrangements to expire and thereby requiring significant additional effort to put in place interim arrangements, should also be viewed in the context of the extensive east coast gas regulatory reform program that is currently underway. Unnecessarily diverting AEMO gas resources and expertise to developing new interim DLNG arrangements, when there are existing fit-for-purpose arrangements that can be usefully extended for a prescribed period, is counter-productive. It has the potential to adversely impact on the delivery of the broader gas reform program. These are the same resources that are needed to provide expertise into the development and implementation of the Stage 2 reforms and potential expansion of east coast powers for AEMO to help address east coast gas supply issues as set out in the 6 December 2024 communique from Energy Ministers.[46]

This risk can be averted by extending the current rule, with only minor modifications to provide better visibility of liquefaction services, for a nominal three-year period or until Stage 2 reforms or other equivalent measures are implemented.

3.1.5. The opportunity to improve visibility of critical liquefaction services will be foregone

Without the proposed rule change, the opportunity to provide AEMO with much needed visibility of critical liquefaction services relating to the DLNG storage facility will be foregone. AEMO currently has no direct visibility of the liquefaction services provided by the Victorian Declared LNG Supplier (BOC) which negatively impacts on its ability to operate the DTS.

[46] Meetings and communiques | energy.gov.au

3.1.6. Use of AEMO direction powers to provide ongoing management of DLNG storage and liquefaction is inappropriate and erodes trust in the broader regulatory framework

The Stage 1 reforms, implemented ahead of winter 2023, provide AEMO with expanded powers across the east coast of Australia to better monitor, signal and respond to threats including through the potential use of direction powers. These expanded powers were based at least in part on AEMO's response tools and direction powers in the Victorian DTS.

Direction powers are a tool of last resort and should only be used when the market has had an opportunity to respond and/or where other response options are not available. Direction powers are not intended to be used as a primary response avenue where other arrangements can usefully apply, nor are they intended to support what should be day to day AEMO functions, such as having adequate visibility of liquefaction services and managing DLNG storage refill schedules.

When the Stage 1 reforms were introduced, stakeholders voiced concern that the powers conferred upon AEMO were very broad. In the absence of specific mechanisms, triggers and parameters, these new powers could be used inappropriately or inconsistently. It was argued this would introduce greater uncertainty into an already uncertain market. One of the key reasons for the development of the Stage 2 reforms was to allay these concerns by providing the market with greater guidance on how AEMO will use its new powers.

The current DWG interim LNG storage arrangements provide market participants with precisely this kind of certainty. Given delivery of the Stage 2 reforms has been slightly delayed, it appears counterproductive to allow clearly defined arrangements to temporarily drop away post 2025 and to reintroduce uncertainty around how AEMO will manage DLNG inventory. This includes concerns around AEMO's potential use of directions powers that could be perceived as heavy handed with the potential to create unnecessary market distortions.

3.2. Option 2: Extend DWGM LNG Storage arrangements for ten years

Another option examined was a longer-term extension of the current arrangements, for example over a 10-year term[47]. Extending AEMO's buyer and supplier of last resort arrangements over a longer period could provide greater investment certainty to both the storage and liquefaction provider. This in turn, might help underpin maintenance and/or refurbishment of plant to ensure the longevity and reliability of these assets.

There is a strong case supporting the ongoing need for both DLNG storage and associated liquefaction services to support system security (emergency response and safe system shutdown). It is also reasonable to argue this could require further investment in maintenance or refurbishment of plant. It is not clear, however, that a 10-year extension of AEMO's supplier and buyer of last resort functions at the DLNG facility is a suitable way of achieving these outcomes.

The 2022 DWGM LNG Interim LNG Storage measures were designed to address a different problem: that of market participants failing to contract sufficient volumes of storage capacity and LNG inventory to manage growing reliability risks. They also addressed the previous lack of clarity around ownership of LNG inventory for system security purposes. The 2022 rule change was not, however, designed to underpin infrastructure investment, even if a

[47] This is in line with a draft proposal presented by APA Group to AEMO's Gas Wholesale Consultative Forum in December 2024. APA argued that there is an increasing need for investment in the BOC liquefaction facility supporting the DLNG storage facility to maintain its reliable operation.

byproduct of the rule change was to provide certainty around asset utilisation which could help support a business case around further investment.

The 2022 rule change was also designed as an interim arrangement until such time as Stage 2 reforms could be implemented. A 10-year extension would no longer qualify as an interim arrangement.

This does not negate the need for adequate levels of investment in infrastructure and maintenance. It is simply to say that the Interim DWGM LNG Storage Measures are not the right mechanism to achieve these broader objectives.

The cost of additional infrastructure investment and refurbishment has the potential to be significant. Using the structures put in place under the 2022 rule change would mean these additional investment costs, over and above existing fees for storage and liquefaction, could be passed through first to AEMO, and then ultimately the market and end consumers. There would, however, be no means of assessing these passthroughs to determine a reasonable level of cost recovery against the assets in question. The pricing guardrails in place in the 2022 rule change[48] were proportionate to the objectives of that rule change request. They would not be adequate if the existing AEMO buyer and supplier of last resort functions at the DLNG facility were repurposed as a means of supporting long-term infrastructure investment

Nor would locking in current arrangements over a ten-year period ensure that investment takes place. The forms of economic regulation and oversight that typically apply to infrastructure investment, whether heavy or light regulation, do provide for a greater level of accountability in this regard.

While a 10-year extension of the current arrangements would allow for a full tank to be maintained over that period for system security and reliability purposes, it would be pre-emptive to lock this in over the long-term. This is because a gas reliability standard as part of Stage 2 reforms would provide a more nuanced measure and given that other sources of supply such as Golden Beach production and storage may become available over this period. These factors could impact on the level of inventory to be held as an LNG Reserve for reliability purposes. [49]

3.3. Option 3. A three-year extension to the DLNG Measures (preferred)

The Victorian Government assesses a three-year extension to the DLNG Measures as the preferred option. This is discussed in further detail in Section 4 of this document.

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[48] referring to the 2022 agreement between AEMO and APA

[49] Rule 280, Subrule (4) states 'The target level is a quantity of LNG stock held on AEMO's behalf utilising the LNG reserve (taking into account capacity contracted in accordance with this rule and any other capacity contracted by AEMO) that is:

(a) the highest level reasonably possible; or

(b) such other level determined by AEMO and approved by the Minister of the adoptive jurisdiction under subrule (5).

Subrule 5 makes clear that 41 (4) (b) should be used on an exceptions only basis, not to determine an ongoing level of reserve. Moreover, subrule (4) (b) still requires AEMO to determine a level and as argued elsewhere, in the absence of an objective gas reliability standard this will continue to be problematic.

4. Proposed Rule Change and how this addresses the stated objectives

This rule change request has two key objectives:

Maintaining adequate inventory for reliability purposes at the DLNG facility:

- Ensure adequate inventory maintained in the DLNG storage facility for reliability purposes to minimise the increasing risk of unplanned curtailment and the adverse social and economic consequences that would be associated with this. In so doing arrangements must:
    - Provide for a balance between security, safety, reliability, affordability and emissions reduction to contribute to meeting the NGO;
    - Ensure sufficient pricing and arbitration guardrails remain in place in establishing this inventory while still allowing for an appropriate level of flexibility;
    - Be both future-proofed and of a suitable duration, in the context of both further regulatory reform (Stage 2 reforms and the 6 December 2024 directive from Energy Ministers on potential expanded powers for AEMO) and in relation to potential future sources of gas supply;
    - Provide short-term certainty to the market around storage capacity and the LNG reserve, the ownership and ability to transfer storage capacity and the LNG reserve, use of the LNG reserve and how costs are apportioned while other east coast reforms are under development;
    - Provide clarity around the ownership of inventory held for system security purposes;
    - Ensure an efficient and timely approach that minimises the need for unnecessary rework and the development of additional processes and procedures during a period of extensive regulatory reform where resources to develop and implement changes are limited.

Ensuring adequate operational visibility of the liquefaction services supporting the DLNG facility:

- Ensure there is adequate operational visibility not just of the BOC liquefaction plant to allow AEMO to better manage the LNG reserve and LNG refill schedules in support of its declared system functions. The market should also have visibility to manage their refill and inventory management. Visibility should include:
    - Visibility of planned and unplanned maintenance of the liquefaction plant;
    - Visibility of liquefaction capacity and minimum firm liquefaction rates.

A summary of the proposed NGR amendments supporting these policy objectives is included in sections 4.1 and 4.2 below.

4.1. Maintaining adequate inventory for reliability purposes and maintaining pricing guardrails:

Part 19 – Declared Wholesale Gas Market Rules				
Rule	**Proposed amendment**	**Comments**	**Rationale**	**Duration**
Rule 200 – Definitions	Update definition for *relevant year*	Update to include *2026, 2027 and 2028*	Supports improved reliability of supply by maximising inventory and balances with affordability by limiting duration	Interim

Rule 278 – Obligations of AEMO	Retain current wording	Predates 2022 interim measures – retain	Ensures clarity around AEMO being responsible for injecting LNG bids	Ongoing
Rule 282 – Uncontracted LNG storage capacity	Retain current wording for subrules (1) to (8) inclusive but amend sub-rule (9) as required	Currently refers to the LNG storage agreement between AEMO and the LNG Storage Provider for the LNG storage facility at Dandenong dated 20 January 2022 as varied by agreement dated 1 July 2022. Ensure most recent variation is referenced ahead of Rule being made.	Ensures clarity on how AEMO can establish the LNG reserve and the pricing guardrails referencing the 2022 AEMO/APA contract, clarity on capacity and stock transfers	Interim
Rule 284 - Vaporisation of LNG and LNG injection bids	Retain current wording	Predates 2022 interim measures – retain	Ensures clarity on scheduling of LNG injection bids	Ongoing
Rule 285 - Utilising the LNG reserve	Retain current wording	Introduced via 2022 rule change	Ensures clarity on how AEMO will utilise the existing reserve	Interim
Rule 286 - Relinquishment of LNG reserve and disposal of AEMO's LNG stock	Retain current wording	Introduced via 2022 rule change	Ensures clarity on when and how AEMO can relinquish the LNG reserve and dispose of stock	Interim
Rule 286A - LNG reserve procedures	Retain current wording	Introduced via 2022 rule change	Ensures AEMO makes LNG Reserve Procedures	Interim
Rule 286B - Cost recovery and return of proceeds	Retain current wording	Introduced via 2022 rule change	Ensures there is clarity on how AEMO costs recovers and how it distributes any proceeds arising from its use of the LNG reserve	Interim
Rule 286C – Information about the use of AEMO's LNG reserve	Retain current wording for subrules (1) and (2) but make minor amendment to subrule (3)	Update reference to 2026 to 2029. The reports must be published by 1 May in each relevant year and 2028 and by 1 November in each relevant year.	Ensures transparency on AEMO's establishment and use of the LNG reserve through reporting	Interim

The reasoning for the proposed amendments is discussed in further detail below.

4.1.1. Ensuring adequate inventory is maintained for 2026 to 2028 inclusive during a period of tightening supply and significantly reduced system resilience

Extending the interim AEMO buyer and supplier of last resort arrangements to maintain a full DLNG tank, nominally for the period 2026 to 2028 inclusive, will help mitigate the adverse and significant economic impacts of customer curtailment. This is in the context of very limited new supply options in the near-term, an increasing risk of high GPG demand on top of system demand, and reduced system resilience, particularly reduced redundancy at the Longford plant.

A noted in Chapter 2, while there are costs associated with maintaining an LNG reserve, the counterfactual will likely involve far more significant costs to end consumers including:

- The costs of customer curtailment, including lost production/custom, and potential damage to plant;
- The costs of addressing air ingress into the distribution networks (purging and relight);
- The costs associated with GPG curtailment including potential impacts on NEM pricing and NEM supply and the costs of utilising the electricity RERT.

4.1.2. Ensuring ongoing clarity around how the LNG reserve is managed

The current arrangements provide clarity on how AEMO's LNG reserve is established and used. This includes measures to ensure market participants are not crowded out, including relinquishment of capacity and LNG stock where the market wishes to increase its own holdings. It also specifies how the costs of maintaining the reserve will be distributed and recovered, allows for the establishment of AEMO LNG Procedures and reporting to provide transparency on the LNG reserve.

In the event these fit-for-purpose arrangements are allowed to lapse, this clarity would be lost. Use of AEMO's generic trading functions would not provide a substitute or would involve the development of new arrangements during a period where AEMO's expertise and resources are best directed to new elements of the east coast gas reform program, rather than unnecessary rework of existing arrangements.

AEMO direction powers should only be used as a last resort not to manage ongoing operation of the system, particularly where other options (in this case existing) are available.

4.1.3. Ensuring clarity around ownership of inventory held for system security

While AEMO had some ability to store LNG for system security purposes prior to the 2022 Rule Change, these arrangements did not provide sufficient clarity around the ownership of LNG inventory held for system security purposes.

While AEMO was required to ensure an adequate amount was held for system security purposes, there was nothing to specify whether that amount should be AEMO owned or whether AEMO could also draw upon retailer inventory. This lack of clarity could act as a disincentive to retailers to hold stock on the basis they might not receive the full benefits of it if current arrangements drop away before Stage 2 reforms can be implemented. Preserving the current 2022 Interim DWGM LNG Storage measures, whereby AEMO will only contract for any remaining storage capacity not already utilised by retailers provides greater surety as to the use of any inventory retailers may be holding for hedging and peak day purposes.

By allowing AEMO to hold a full tank for 2026/2027/2028, the system security amount is assured and any AEMO holdings are expected to cover this as well as providing for reliability of supply.

4.1.4. Balancing reliability and affordability: Limiting the period of the requested extension

It is proposed that the current arrangements enabling AEMO to act as buyer and supplier of last resort at the Dandenong LNG facility be extended for a nominal three-year period to the end of 2028 by updating the definition for ***relevant year*** under Rule 200 to include 2026, 2027 and 2028. This would then flow through to Rules 282, 285, 286B, 286C.

The arrangements were limited to the end of 2025 on the expectation a gas reliability standard would be implemented by start of 2026. A gas reliability standard would provide an objective measure around the level of inventory to be held at the DLNG facility providing a more nuanced balance between reliability and affordability.

As noted, the Stage 2 reforms have not progressed as quickly as first envisioned. Once a gas reliability standard and interim value of gas customer reliability is in effect, this could be used to inform future inventory levels held for reliability purposes beyond 2028, noting there will be an ongoing need for inventory to support system security. By 2029 other sources of supply that help mitigate if not fully resolve reliability challenges may also have come online. Limiting the proposed extension to a nominal 2 years provides an appropriate balance between reliability and affordability.

There is, however, a risk that the Stage 2 reforms, which are complex, may be further delayed. This means there could be a gap at the end of 2027 and potentially beyond between the expiry of AEMO's buyer and supplier of last resort functions and implementation of the Stage 2 reforms. It is requested that the AEMC consider a way of framing the proposed duration of the extension that allows for this contingency. This should allow some flexibility, should this be needed, around the duration of the extension rather than simply hard coding a three-year term. This would avoid the need to seek a further extension of interim arrangements in the near future.

4.1.5. Balancing reliability and affordability: Maintaining pricing guardrails

The 2022 rule change obliges AEMO to contract for unused capacity at the DLNG facility. In extending this rule for a further three years, the same obligation would apply. It is therefore appropriate that the current guardrails around the terms and conditions AEMO is subject to are also extended. This is to provide reasonable certainty around the terms and conditions that will apply to AEMO as buyer and supplier of last resort over the period 2026-2028.

In the case of the 2022 rule change, Rule 282 (2) (c) specifies that the LNG storage agreement between the two parties must be on:

> substantially the same terms (including as to price and price structure) as the 2022 LNG storage agreement, subject to variations that:
>
> (i) are reasonably necessary for the safe and reliable operation of the LNG storage facility; or
>
> (ii) give effect to terms of the 2022 LNG storage agreement providing for variation in specified circumstances or applying specified methodologies, as if the 2022 LNG storage agreement had continued through the relevant years.

It is proposed that the proposed nominal three-year extension out to the end of 2028 should retain the reference to the 2022 LNG Storage agreement in place between AEMO and APA.

4.1.6. The need to consider an arbitration/dispute resolution pathway

There is a need to ensure an adequate arbitration/dispute resolution is provided in any new version of the Rules to further bolster the pricing guardrails under Rule 282. This is in the best interests of consumers, contributing to the affordability limb of the NGO. It should also

ensure that any potential disagreement by either party in relation to the APA and AEMO LNG storage agreement does not, inadvertently, lead to storage being depleted for winter 2026, 2027 or 2028 because negotiations cannot be finalised.

Under the 2022 rule change request an arbitration pathway was provided for under the Transitional Provisions of Schedule 1 of the NGR. This was intended to cover contract negotiations that occurred in the lead up to winter 2023. The application of these provisions was end-dated and they are no longer in force.

In determining an appropriate arbitration pathway for the current rule change request, there are least two potential scenarios the AEMC should account for:

- A dispute arising during the renewal of the AEMO and APA service agreement or a variation to this agreement that is needed to accommodate the proposed extension of the interim DLNG arrangements;
- A dispute arising from a variation that is requested by either party over the period of the proposed extension (2026 and 2027) that arises from matters not already accounted for in the contract and particularly where there is a risk of a significantly higher cost pass through.

There are various options or a combination of options the AEMC may wish to consider in terms of an arbitration pathway, some of which may not sit within Part 19 of the Rules. For this reason, the question of arbitration is not included in the table above summarising proposed changes to Part 19.

Linkages to the existing Chapter 15C of the NGR (Dispute resolution and compensation claims) might provide one pathway. A variation on the transitional arrangements that were outlined under Schedule 1 of the NGR in the 2022 rule change may also be worth considering. Whatever options are deemed most appropriate, having an arbitration pathway available is an important element of this rule change request.

4.2. Ensuring adequate operational visibility of liquefaction services

Part 19 – Declared Wholesale Gas Market Rules				
Rule	**Proposed amendment**		**Rationale**	**Duration**
Rule 200 – Definitions	Reintroduce definition for *Declared LNG Supplier* or similar wording	'means a person designated as a declared LNG supplier under legislation of the adoptive jurisdiction' (See version 3 of NGR before the 2010 rule change)	Allows for greater operational transparency to support AEMO's declared system functions	Ongoing
Rule 200 – Definitions	Update definition for DWGM facility operator	Update to include an *LNG liquefaction facility provider operated by the Declared LNG Supplier*	Allows for greater operational transparency to support AEMO's declared system functions	Ongoing
Rule 279 - Obligations of an LNG Storage Provider	Retain current wording	Predates 2022 interim measures – retain	Provides clarity on obligations of LNG storage provider	Ongoing
Rule 280 - Provision of information relating	Update current wording of subrule (1)	Reword subrule (1) to include both the Declared LNG	Allows for greater operational transparency to	Ongoing

to an LNG storage facility		Storage Provider and the Declared LNG Supplier and to improve transparency – see Appendix C for sample wording	support AEMO's declared system functions	
Rule 280 - Provision of information relating to an LNG storage facility	Reintroduce and slightly modify previous subrule (4)	The LNG storage provider [or Declared LNG supplier] must not terminate or vary the declared LNG supply agreement without the consent of AEMO (whose consent must not be unreasonably withheld or delayed). (See version 3 of NGR before the 2010 rule change)	Allows for greater operational transparency to support AEMO's declared system functions	Ongoing
Part 18 Gas Bulletin Board				
Rule 141 – Interpretation	Update definition for 'facility operator'	Include subcategory to capture liquefaction plant and consider linking to LNG liquefaction facility operated by the Declared LNG Supplier	Improved transparency for AEMO and market participants to allow for more effective decision making in relation to DLNG refill and injection vs conservation of inventory	Ongoing
Rule 141 – Interpretation	Update definition for 'BB facility'	Include subcategory to capture liquefaction plant and consider linking to LNG liquefaction facility operated by the Declared LNG Supplier	As per the above	Ongoing
Rule 141 – Interpretation	Updated definition for 'BB reporting entity'	Include subcategory for the Declared LNG Supplier operating an LNG liquefaction facility	As per the above	Ongoing
Rule 141 – Interpretation	Consider updates to: 'daily capacity'; 'daily consumption data'; 'daily flow data'; 'daily production data';	Consider in consultation with AEMO whether subcategory should be added for the liquefaction plant linked to the Declared LNG Supplier to obtain the information necessary to support its declared system functions.	As per the above	Ongoing
Rule 141 – Interpretation	Consider whether a subcategory should	Consider in consultation with AEMO whether a new	As per the above	Ongoing

	be included under 'reporting threshold'.	reporting threshold should be added to capture flows from the Declared LNG facility and what level this threshold should be set to.		
Rule 169 - 'Detailed facility information for all BB facilities'	Consider including 'LNG facility' as a subcategory	Consider whether subcategory for 'LNG facility' linked to Declared LNG Supplier is needed to provide AEMO with information to perform its declared system functions.	As per the above	Ongoing

4.2.1 Increased operational visibility of the liquefaction services to support system security and reliability

It is proposed that AEMO, as market operator, be provided with improved operational visibility of the BOC liquefaction plant or any other liquefaction plant which supports refill of the DLNG storage facility. This is critical in allowing AEMO to determine DLNG refill schedules and understanding over how long existing inventory may need to be conserved. This in turn may contribute to decision making on using the LNG reserve versus curtailment of GPG.

AEMO should have visibility of:

- any planned or unplanned maintenance at the liquefaction facility operated by the Declared LNG Supplier;
- a medium-term capacity outlook including the nameplate capacity of the plant and any planned temporary or permanent capacity reductions; and
- a short-term capacity outlook of the availability of liquefaction services.

It is also important that market participants are not disincentivised from using the DLNG storage service and that they have access to information that assists them in establishing and maintaining their own LNG inventory where possible. Providing information on the availability of liquefaction services via the Gas Bulletin Board would assist them with this.

To achieve the above, amendments are proposed to Parts 18 (Gas Bulletin Board) and 19 (Declared Wholesale Gas Market Rules) of the NGR. It is recommended that AEMO be further consulted on all detailed drafting to ensure it is provided with the necessary operational visibility.

4.2.2 Proposed updates to Part 18:

Proposed amendments to Part 18 (Gas Bulletin Board (GBB)) to increase visibility of the liquefaction facility operated by the Declared LNG Supplier:

- Ensuring the Declared LNG supplier is made subject to GBB registration requirements under Part 18, Division 3 (Register and Registration).

- Ensuring the Declared LNG supplier (BOC) is made subject to GBB reporting requirements under Part 18, Division 4 and 5, with information provided in accordance with Rules 165 and 166[50]. This would allow for reporting on the following:

    - (Rule 168: Nameplate rating)
        - facility nameplate rating of the liquefaction plant;
        - planned permanent capacity reductions including timing

    - (Rules 172 and 175: Capacity bookings)
        - BB shippers with primary firm capacity rights
        - the facility's 36-month outlook of uncontracted primary firm capacity

    - Rule 178: Short-term capacity outlook
        - daily capacity of the facility for each gas day for the week ahead

    - Rule 181: Medium-term capacity outlook
        - Information to be reported on the matters expected to affect the facility's daily capacity (e.g. maintenance, other works) for a 24-month outlook period

    - Rule 182A: Nominated and forecast gas use
        - The quantity of gas being nominated or forecast for injection for the week to come.

    - Rule 188: Daily flow data
        - the actual use of the facility (daily production) for the next gas day

To achieve the above, it is proposed that amendments be made to Rule 141. The LNG liquefaction plant operated by the Declared LNG Supplier could be added as a subcategory to 'BB facility'. The Declared LNG Supplier could be added to 'facility operator' and 'BB reporting entity'.[51]

[50] Rule 165 – Standard for Information or data given under this Part or the BB Procedures. Rule 166 – Information to be provided in accordance with the BB Procedures.

[51] Under the NGL, an 'LNG facility' is defined as a facility for the processing of natural gas from a gaseous to a liquefied state or from a liquefied to a gaseous state. This could capture the BOC plant or any future facility performing the same liquefaction function in relation to DLNG storage.

AGL's Newcastle LNG storage would also qualify as an 'LNG facility' but is already captured under the subcategory of c) a BB storage facility given liquefaction and storage are included as part of the same entity and facility. AGL is therefore already reporting against Newcastle and the addition of the proposed subcategory of 'LNG facility' would not therefore impose any additional reporting obligations.

The AEMC may wish to consider whether, to remove all ambiguity, it would be best for the purposes of Part 18 to specify that 'LNG facility' includes the liquefaction plant operated by the Declared LNG Supplier under the jurisdictional application Act – in this case the NGVA.

The existing subcategory under 'facility operator' – f) 'an LNG processing facility' – does not capture BOC liquefaction as it is specific to an LNG export facility or an LNG import facility. The latter two terms reference LNG that is loaded and onloaded from LNG shipping and a distinction between such facilities and a BOC style liquefaction facility should be retained.

It is also proposed that a specific subcategory be included under 'BB facility' and 'BB reporting entity' to capture the Declared LNG Supplier reporting against its LNG liquefaction facility.

Rule 141 includes several definitions relating to daily reporting including:

- Daily capacity;
- Daily consumption data;
- Daily flow data; and
- Daily production data.

These apply to production facilities, pipelines, storage, LNG processing facilities (i.e. imports and exports via shipping) but do not specifically include liquefaction. It is recommended that the AEMC work closely with AEMO to determine the daily reporting the LNG liquefaction facility should provide and how best to define this. In the case of daily flow data, consideration should be given to the benefits of reporting both against outgoing flows of LNG from the BOC liquefaction plant and incoming flows of LNG into the DLNG storage facility.

The AEMC may wish to consult with AEMO on whether amendments will need to be made to Rule 141, Interpretation and the definition of 'reporting threshold' to ensure reporting from the liquefaction facility operated by the Declared LNG supplier is captured.

4.2.3 Option to minimise regulatory reporting burden and costs for GBB reporting

The proposed amendments to Part 18 to ensure information is available to the market and AEMO on the availability and capacity of the Declared LNG Supplier will only apply to the one entity. To minimise regulatory burden on the Declared LNG Supplier and avoid AEMO having to create a new subcategory in its GBB reporting systems, the AEMC may wish to consider allowing for BOC to report via APA. This is because APA is an existing entity and can report the BOC information via its existing reporting process. The requirement on BOC, as the actual facility operator, to provide the relevant information would still remain (and is important from a compliance perspective). But by allowing this information to be passed through to AEMO via APA's existing GBB reporting systems, this would minimise the need for systems rework and associated costs. The information could be reported via the existing allocated receipt capacity point for the DNLNG storage facility.

Part 18, Subdivision 3.3, Rule 162 allows a Bulletin Board (BB) reporting entity to appoint an agent on its behalf to undertake relevant reporting under Rules 168 and 169 (as is proposed for the Declared LNG Supplier). The AEMC may wish to consider whether this Rule provides the most efficient option to place a GBB reporting requirement on BOC without imposing undue additional regulatory burden or triggering upgrades to AEMO's reporting system and associated costs.

4.2.4 Proposed updates to Part 19

Proposed amendments to Part 19 (Declared Wholesale Gas Market Rules) to increase visibility of the liquefaction facility operated by the Declared LNG Supplier include:

- Ensuring the Declared LNG Supplier is subject to participant disclosure information
    - (Rule 324):
        - Forecasts for the liquefaction facility's operating parameters and any liquefaction facility projects
        - Information on the availability of equipment and details of constraints
        - Proposed maintenance, including the time and likely duration, how long it is likely to take to recall equipment, maintenance operational requirements

        - Feeding into the annual Victorian forecasting reports

- Ensuring the Declared LNG Supplier is subject to maintenance obligations
    - (Rule 326):
        - Act in accordance with proposed maintenance unless forecasts are updated in accordance with procedures more than 5 days before the maintenance is due or AEMO's consent has been obtained for updates within 5 days in accordance with procedures.
        - Co-operate with AEMO in good faith to minimise any threat to system security from proposed maintenance
        - Advise AEMO if equipment breaks down or is likely to break down and that could threaten system security.
        - AEMO can also direct Declared LNG supplier to cancel, delay or suspend maintenance in certain circumstances.

It is proposed that this be achieved by the following:

Rule 200 – Definitions:

It is proposed that the definition for Declared LNG Supplier as existed prior to the 2020 Dandenong Rule Change be reintroduced.

The definition for 'DWGM facility operator' should also be updated to include a subcategory specific to liquefaction.

Rule 280 - Provision of information relating to an LNG storage facility

It is also proposed that Rule 280, subrule (1) be updated to specifically reference the Declared LNG Supplier and to remove current ambiguity on the need to report.

The proposed amendments would require both parties to report on any material matter potentially impacting on the LNG reserve and the ability to inject the reserve into the DTS. Opportunities to avoid duplication with GBB reporting or other proposed reporting under Part 19 should be considered by the AEMC. However, the proposed amendments to Rule 280 (1) are intended to ensure the reporting requirement is broad enough to capture any unforeseen circumstances not contemplated under Parts 18 and 19. This should help AEMO better operate the system including organising refill schedules, making decisions around prioritising use of the LNG reserve compared with targeted use of GPG curtailment, and assist it with its medium and longer-term forecasting and planning functions.

The reintroduction of Rule 280 subrule (4) from the pre 2010 version of the Rules (with only very slight modification) requiring both the Declared LNG Storage provider and the Declared LNG Supplier to seek AEMO's consent to any variation to or the termination of the Declared LNG Supply Agreement. AEMO must not unreasonably withhold consent[52]. Noting the Declared LNG Supply Agreement is presumably a key feature underpinning both the ongoing operation of the liquefaction and storage facilities, it is critical that AEMO be made aware of any changes to this agreement in a timely manner.

Sample drafting is available at Appendix B.

[52] Any dispute about whether AEMO is unreasonably withholding consent should be treated as a rule dispute for the purposes of the Rules.

4.2.5 *Costs of proposed changes to provide greater visibility under Part 19 are likely negligible*

While the AEMC is asked to consider whether GBB reporting under Part 18 would best be handled by allowing for APA to be appointed as the BB reporting agent for BOC, to minimise potential associated costs, this is not expected to be less of a consideration for the reporting under Part 19. This reporting will likely be far more infrequent and only needs to be provided in written form, rather than via an automated system. The associated costs are therefore expected to be negligible.

4.2.6 *Why is improved reporting visibility and maintenance oversight of the Declared LNG Supplier requested on an ongoing basis*

It is requested that improved operational visibility of the facility run by the Declared LNG Supplier be provided on an ongoing basis under Parts 18 and 19 of the NGR, not just for the nominal three-year period that the interim extension of AEMO's buyer and supplier of last resort powers is being sought. This is because regardless of what mechanism is adopted post 2027 to ensure the DLNG facility continues to be used effectively, AEMO (and the market) will need to understand when and how often liquefaction services will be available to manage their refill schedules and inventory over the subsequent years.

In the same way it is requested that the liquefaction facility operated by the Declared LNG Supplier continue to be subject on an ongoing basis to Rule 326. This will ensure the liquefaction facility is subject to AEMO's maintenance coordination function, in the same way that other supply infrastructure servicing the DWGM is (i.e. production facilities, pipelines, storage facilities and blend processing facilities). It is important for AEMO to be able to have a holistic view of what assets (production, storage, liquefaction, pipeline, compression) are available at what time. This mitigates the risk of maintenance across critical supply infrastructure overlapping, which could put system reliability and security at risk. While AEMO can potentially direct an asset owner to cancel, delay or suspend maintenance, in practice it will work across asset owners to ensure the timing of maintenance does not pose a risk to the system and supply. The use of a direction would only be used as a last resort, as with any direction powers.

5. Costs versus benefits of proposed rule change

The proposed amendments are expected to achieve a positive outcome for end consumers in line with the NGO when comparing the estimated costs and benefits of the proposed arrangements.

The AEMC noted in 2022 that the value of the final rule, would be positive if gas in AEMO's LNG reserve is required to:

- avoid electricity market curtailment, associated with a system black type event, at least once every 45 years
- avoid gas market curtailment at least once every 28 years.

As outlined in Chapter 2 of this rule change request, the risk of gas customer curtailment is credibly higher than once in every 28 years due to the tightening supply demand balance coupled with reduced Longford resilience.

While specific dollar figures can be attributed to the operation of the LNG reserve based on AEMO reporting for the first two years of the DWGM interim LNG storge measures, estimating the costs of the counterfactual will vary by scenario. However, even using a wide range as included in the AEMC's final determination for the 2022 DWGM interim LNG storage measures rule change, the costs of maintaining the LNG reserve can be seen to

significantly outweigh the benefits to consumers of avoided curtailment in the gas and electricity markets. These are set out in the table below.

5.1. Estimated costs of proposed amendments vs avoided costs of not having LNG reserve in place or allowing current arrangements to lapse

Costs of proposed amendments[53]		**Benefits of avoiding counterfactual – curtailment and purging/relight**	
Total Cost of maintaining the LNG reserve (includes purchase of commodity, liquefaction charges and storage capacity charges)	~$8.8 million per annum[54]	Avoided costs of customer curtailment	$272 million to $1.6 billion[55]
Cost of GBB registration	As per the current GBB fee structure[56]	Avoided cost of purge and relight process if air ingress into distribution networks	See Section 2.4 for Vencorp analysis – dated so now expected to be significantly higher
Cost of reporting functions under Part 18	Not expected to be material where APA appointed as BB reporting entity for BOC	Reduced risk of other system security threats	Qualitative
Cost of Reporting functions under Part 19	Not expected to be material	Economic efficiency benefits	Qualitative
		Other consumer and market related benefits	Qualitative

The proposed amendments seek to extend AEMO's existing buyer and supplier of last resort functions as implemented in late 2022. The $1 million in estimated implementation costs included in the 2022 decision would therefore not be incurred. This has therefore not been included in the table above.

Allowing the current arrangements to prematurely lapse before other east coast arrangements such as a gas reliability standard and SoLR mechanism are in place (Chapter 3, Option 1), would likely mean that AEMO would need to develop and implement a further set of interim measures, including potentially going out to tender under its generic trading function. This would in itself incur additional costs. However, there is a particular risk that these costs will not be as efficient as those incurred under the proposed extension as there are no clear guidelines on how AEMO would use its trading function. There would not be the

[53] The cost estimates are derived from AEMO's reporting on the LNG reserve for 2023 and 2024. AEMO | LNG Summary Report. Note that the liquefaction charges are only incurred when refill is required or to replenish inventory after boil-off or evaporation of inventory. Commodity charges may also vary, even at a higher commodity price, the cost of maintaining the LNG reserve is far less than that of the counterfactual and a potential gas curtailment event.

[54] This figure is less than the AEMC estimated costs of the buyer and supplier of last resort as outlined in its final determination: GRC0065 DWGM interim LNG storage measures - final determination - 15 December 2022.

[55] Ibid. The quantitative and qualitative estimates were provided in the AEMC's final determination for the 2022 rule change. Table 2.1, page 18.

[56] The current structure recovers the Gas Bulletin Board fees on the following basis: 50% from producers on a $ / GJ produced basis; and 50% from wholesale gas market participants on a $ / GJ withdrawn basis. final-report-gas-fee-structures.pdf

proposed linkage to the 2022 AEMO and APA contract, nor would there be the proposed arbitration pathway to mitigate the risk of cost increases.

Most importantly, as also outlined in Chapter 3, allowing current arrangements to lapse would likely mean reverting to a situation where AEMO did not feel adequately empowered to fill the tank for reliability purposes, given the lack of an objective reliability standard. In the absence of a full tank, the ability to manage short-term supply or demand shocks would reduce and the risk of customer curtailment increase. This could significantly reduce the estimated benefits to consumers of avoided curtailment. Option 1 can therefore be considered as providing a less preferable balance between costs and benefits when compared with the proposed solution.

While there would be small costs associated with improving visibility of the Declared LNG Supplier, these are only expected to be minimal and can potentially be reduced even further by considering whether APA could be appointed as the BB reporting entity for BOC under Part 18 of the NGR. The proposed obligations under Part 19 are not expected to be onerous or involve any particular costs fort the asset owner.

5.2. Estimated benefits of the proposed arrangements

In terms of benefits, the potential benefits of avoiding customer curtailment were assessed by the AEMC in 2022 as far outweighing the costs of the proposed AEMO buyer and supplier of last resort measures. The AEMC also pointed to a number of other benefits based on a qualitive rather than quantitative assessment. Both the quantitative and qualitative benefits for end consumers are still expected to accrue under the proposed amendments extending AEMO's buyer and supplier of last resort functions and improvising visibility of the liquefaction service that supports the DLNG facility.

5.2.1. Reduced risk of other system security threats:

The proposed amendments are intended to improve the safety, security and reliability of supply in Victoria over the period 2026-2028 by allowing AEMO to more effectively manage threats to system security in the DWGM by extending its role as buyer and supplier of last resort for the DLNG facility. AEMO's use of the DLNG facility provides the benefit of helping to reduce the risk of curtailment and other threats to system security that could potentially arise.

The proposed amendments to increase operational visibility of the liquefaction facility operated by the Declared LNG Supplier, under Parts 18 and 19, are also expected to support improved system security and reliability by helping inform refill schedules and the management of existing inventory as well as ensuring a coordinated and holistic approach in coordinating the timing of critical infrastructure maintenance.

The principal beneficiaries of any improvement in the safety, security and reliability of the supply of gas over this period will be Victorian gas users and consumers.

5.2.2. Economic efficiency:

The proposed amendments are expected to promote greater economic efficiency by:

- enabling the DLNG facility and the LNG stock contained therein to be established and used more efficiently;
- supporting the efficient operation of the DWGM;
- avoiding the need for unnecessary development of new interim arrangements if AEMO had to rely on generic trading functions, when the current DLNG buyer and supplier of last resort arrangements are already fit for purpose;

- Provide greater market transparency through the proposed Part 18 reporting requirements which will allow market participants to make more informed and efficient decisions about their use of the DLNG storage facility.

5.2.3. Other consumer and market related benefits

By helping mitigate the risk of customer curtailment the proposed amendments are expected to provide a range of other benefits to consumers and the market including:

- Supporting the provision of an essential service used for cooking and heating (as well as mitigating risks to electricity supply), particularly for the more vulnerable such as elderly citizens who may be more susceptible to the ill effects of not being able to heat their living space;
- Minimising the risk of end users adopting unsafe alternatives to gas appliances if there is a disruption to supply;
- Minimising the risk of lost production for industry and manufacturing with potential flow-on impacts for broader critical supply chains including the housing and construction industry and food processing and packaging;
- Minimising the risk of impacts on the commercial and small business sector through, for example the food and hospitality industry;
- Minimising the risk of major market events, such as market suspension, that could adversely impact on smaller energy retailers or direct wholesale customers in particular.

5.3. Potential impacts on parties impacted by the rule change request

The following table sets out in summary form the parties potentially impacted by the proposed amendments and expected impacts:

Potentially affected party	**Impact**	**Reason for impact**
APA	Positive	Provides clarity on use of its facility for the period of the proposed extension and maximises utilisation of the asset for that period Provides for an arbitration pathway.
BOC	Neutral	Imposes new reporting obligations but provides greater visibility to AEMO and the market of the services offered by this facility in support of DLNG storage and therefore system security and reliability The reporting impost can be mitigated by appointing APA as the BB reporting entity for BOC under Part 18
AEMO	Positive	Helps support AEMO in the delivery of its declared system functions including system security and reliability by helping to maximise DLNG inventory Provides clarity on how AEMO should establish, maintain and use the LNG reserve. Provides guardrails around pricing. Provides for an arbitration pathway.
Market Participants	Positive	Provides clarity to the market on how the LNG reserve will be established, maintained and used. Avoids crowing out the market by allowing for the relinquishment of capacity and stock to market participants. Ensures fair distribution of the costs and benefits of the LNG reserve across the market. Helps mitigate adverse major market impacts that could arise from a supply demand imbalance and curtailment event. Transparency under part 18 enables more informed and efficient decisions including to potentially support further investment in the facility.

Victorian consumers	Positive	Mitigates against the major adverse impacts of a curtailment event with potential flow on impacts to electricity supply.

6. How the proposed rule meets the NGO and AEMC rule making criteria

Section 291 of the NGL states that the AEMC may only make a Rule if it is satisfied that the Rule will or is likely to contribute to the achievement of the NGO.

The NGO, as established in the *National Gas (South Australia) Act 2008*, is:

> 'to promote efficient investment in, and efficient operation and use of, covered gas services for the long term interests of consumers of covered gas with respect to:
>
> a. price, quality, safety, reliability and security of supply of covered gas; and
>
> b. the achievement of targets set by a participating jurisdiction—
>
> i. for reducing Australia's greenhouse gas emissions; or
>
> ii. that are likely to contribute to reducing Australia's greenhouse gas emissions." [57]

The proposed rule is intended to contribute to the NGO by:

- improving the security and reliability of the supply of gas to Victorian consumers through both the buyer and supplier of last resort and transparency elements of the rule change;
- maintaining the safety of the supply of gas to Victorian consumers through both the buyer and supplier of last resort and transparency elements of the rule change;
- promoting economic efficiency by:
  - enabling the DLNG facility and the LNG stock contained therein to be used more efficiently through the buyer and supplier of last resort elements of the rule change; and
  - supporting more timely, informed and efficient decision making by market participants and AEMO about the use of the DLNG storage facility, the demand for and supply of gas and the timing of maintenance through the transparency elements of the rule change;
- supporting the energy transition and the achievement of Victoria's emissions targets.

The proposed rule change also embodies principles of good regulatory practice, including by being:

- targeted, fit for purpose and proportionate to the issues it is intended to address
- providing for predictability, stability, transparency and accountability in the market and regulatory arrangements
- minimising the implementation and ongoing costs associated with the buyer and supplier of last resort roles and the transparency requirements.

[57] AEMC, *National Energy Objectives*, accessed January 2025

6.1. Security and Reliability of Supply:

Under Section 91BA of the NGL (AEMO's declared system functions) – clause 1 b) AEMO is responsible for 'controlling the operation and security of the declared transmission system'. It also specifies that AEMO may trade in natural gas— to the extent necessary or desirable for the safety, security or reliability of a declared transmission system. This rule change request is intended to support these critical requirements as outlined in the NGL.

The AEMC has noted that system security 'broadly means that the power system is able to operate with defined technical operational limits, even if there is an incident such as the loss of a major transmission line or large generator. […] In gas, security is achieved when every point across the pipeline network is at acceptable pressure levels'.[58] Commensurately, the proposed Rule is intended to:

- ensure that there is adequate inventory within the declared DLNG facility to minimise risks to system security buying enough time for safe system shutdown of the transmission system in the event of an emergency;
- improve gas supply reliability by maintain pipeline pressures within acceptable levels at this critical point in the Victorian gas transmission system and thereby minimise the risk of customer curtailment[59];
- provide a transparent framework to the market within which AEMO can operate to improve system security and reliability;
- provide a transparent framework to the market within which AEMO can cost recover for the purposes of system security and reliability;
- provide improved visibility of the liquefaction plant that supports the Dandenong LNG facility to inform storage refill schedules and the management of the existing LNG reserve for the purposes of improved system security and reliability;
- provide for the liquefaction facility to be subject to AEMO's maintenance coordination functions to mitigate against the risk of reliability and security risks arising from an uncoordinated approach.

6.2. Safety:

Ensuring adequate inventory is held at the declared LNG facility to allow safe system shutdown is a requirement of AEMO's Gas Safety Case with the technical regulator, Energy Safe Victoria. This is because an uncontrolled curtailment event carries the risk that minimum pipeline pressures will be breached allowing air ingress into the gas networks. This in turn can pose an ignition risk with potential safety impacts for end users. Ensuring a robust framework is in place for safe system shutdown helps mitigate against this risk. Even with curtailment there is a residual risk of air ingress as curtailment relies on customers actively turning off their load which can take time. This is a particular concern in the outlying sections of the distribution networks. Gas curtailment depends on individual end users actively ceasing their gas use. The process is more time consuming than in electricity, where load can be immediately reduced, and may take several hours to enact. In the time taken to enact curtailment, pressure breaches may already have occurred.

The Victorian curtailment procedures seek to ensure critical and essential load and vulnerable users are protected to the greatest extent possible, however, if curtailment does not reduce demand sufficiently to secure the transmission system, distribution networks may be selectively isolated to ensure the integrity of the system. In this event, critical and essential customers falling within these networks, particularly where located at end points of

[58] Australian Energy Market Commission. Applying the energy market objectives (aemc.gov.au)
[59] Noting a reliability event may rapidly evolve into a system security event including increased safety implications because of the time that is needed to effect a customer response in reducing gas load.

the network, might also have to be curtailed. Loss of gas to these critical and essential services could pose its own significant safety risks. Where air ingress has occurred, a prolonged and resource intensive purging and relight process will likely be required. Two relatively recent examples (the Whyalla Port Pirie incident in 2015, the Mount Gambier incident of 2020 and the Bathurst, Lithgow, Oberon and Wallerawang incident of 2022)[60] provide an indication of likely extended restoration timeframes, noting that a pipeline pressure breach and isolation of the distribution networks leading to air ingress in the Melbourne would be at a far larger scale, and restoration times would therefore also be expected to be much longer. The proposed rule change seeks to put in place a robust and transparent framework to ensure additional inventory can be held to mitigate against the safety risks associated with curtailment and air ingress into the system.

6.3. Promoting efficient investment and operation and use of natural gas services:

While the primary purpose of the proposed Rule Change is to promote security, reliability and safety of energy supply in the DTS, it also supports the efficient operation of the declared LNG facility. If current arrangements lapse, this will again likely lead to low inventory levels. This will not allow for the efficient use of this facility, which provides additional gas injection capabilities in one of the most critical parts of the system. The proposed rule change will also allow for the efficient operation of the broader market by continuing to provide market participants with the opportunity to contract for storage and inventory at the Dandenong LNG facility and for injection rights back into the DTS. AEMO will only function as:

- a buyer of last resort once market participants have contracted
- a supplier of last resort once market participants have injected to meet their market needs. This will allow the market to continue to operate as per current arrangements as much as possible while also ensuring the interests of consumers are met with respect to safety, reliability and security of supply.

The rule change also recognises that the energy sector is undergoing a period of significant and rapid transition. In the context of the transition to net zero emissions, it is important that existing assets are used efficiently. This will help avoid unnecessary investment in pipeline or other infrastructure which bears the risk of asset stranding and may come at a greater cost to end consumers over a longer period of time. The efficient use of the DLNG facility thus supports the efficient investment in natural gas services. The rule change request proposes that the rule apply for a period of three years or until such time as other arrangements are put in place. This provides a proportionate response and an appropriate balance between providing certainty to the market, and supporting security, reliability and safety of supply with regard to the immediate operation of the DWGM, without locking in arrangements over the longer term. It will also allow time for the development of a broader package of security and reliability related measures so that ongoing arrangements for the DLNG storage facility, are designed in the most optimal fashion. This will ensure the continuing efficient operation of natural gas services in a transforming system and market.

Under the alternative of allowing the Interim Measures to lapse and relying on other reliability mechanisms (primarily the AEMO trading function), there remain many uncertainties, including what level of capacity AEMO would ultimately contract for through its trading

[60] OTR-Annual-Report-2015-gas.pdf (energymining.sa.gov.au); Australian Gas Networks Media Release, 'Gas Supply Disruption at Mount Gambier' 14 September 2020, Mount Gambier gas supply to return progressively from Friday | Australian Gas Networks and ABC News, 10 September 2020: Gas outage in Mount Gambier sees thousands without hot water, stovetop cooking after meter incident - ABC News ; Gas Supply Outage Update: Bathurst, Lithgow, Oberon, and Wallerawang | Jemena; Oberon, Lithgow, and Wallerawang Residents Asked to Reduce Their Gas Use | Jemena

function, and the price of holding this capacity. This represents a poor outcome for consumers. There would also be a lack of clarity around how the LNG reserve is established, managed, used and relinquished, how the costs and revenue would be allocated and reported on. This represents a poor outcome for market participants including in relation to concerns they could be crowed out and does not appear to support as efficient operation of the market as would be achieved under the proposed arrangements.

The proposed transparency elements of the rule change will also support efficient investment, operation and use of covered gas services, by enabling market participants and AEMO to make more timely, informed and efficient decisions about their use of the DLNG storage facility, the demand for and supply of gas and the timing of maintenance through the transparency elements of the rule change.

6.4. Contributing to the energy transition and decarbonisation pathways:

The proposed amendments also contribute to the NGO's aim of reducing greenhouse gas emissions. There is a clear need for gas to play a role in supporting the smooth transition to other more sustainable forms of energy and storage to help meet Victoria's emissions reduction objectives. By maximising the use of existing assets where possible, and thereby reducing the risk of asset stranding and minimising the need for new build, the proposed amendments support progressive decarbonisation of the gas sector. The proposed amendments do not lead to an increase in the production of gas. Rather they ensure that gas that is already produced will be available when and where it is most needed and that it can be used to greatest effect. The proposed amendments also reduce the need for fuel-switching of gas-powered-generation of electricity to diesel, noting diesel is more emissions intensive than fossil gas.

6.5. Contributing to the National Electricity Objective:

While this rule change request relates to the National Gas Rules and is subject to the NGO, it is important that there is an acknowledgement of the increased interlinkages between the gas and electricity markets. The National Electricity Objective also seeks to promote efficient investment in electricity services for the long-term interests of consumers[61]. Eastern gas and electricity markets are intrinsically linked, with gas-powered electricity generation a frequent price-setter in the NEM and increasingly needed to provide firming where ageing coal plant or VRE is unavailable[62]. Relying on curtailment of GPG will be an increasingly risk strategy with the potential to disrupt the electricity market. Households, including those who consume no gas directly, ultimately bear the costs of such events through higher energy bills.

Appendix A: Challenges of managing intraday supply in the DTS

The Victorian transmission system is quite different from that of NSW or South Australia, for example. These states benefit from very long pipelines (the Moomba to Sydney and Moomba to Adelaide Pipelines (MSP and MAP)) which allows for large amounts of linepack (essentially storage) that can be used to manage the system and buy time in the event of an unexpected supply or demand shock or an emergency situation.

Victoria, on the other hand, has quite short transmission pipeline and can cycle through its available linepack around 3 times in one day under peak conditions. These tighter operating conditions are reflected in the fact the DWGM operates on five scheduling intervals in a single gas day, rather than using day ahead scheduling as occurs in the Sydney, Brisbane and Adelaide Short-Term Trading Markets (STTMs). Victorian arrangements also allow AEMO to issue an ad hoc schedule where it is not possible to wait until the next four-hourly

[61] AEMC, *National Energy Objectives*, accessed January 2025
[62] Australian Energy Regulator, *Wholesale Electricity Market Performance Report 2024*

scheduling window. The tighter operating conditions in Victoria are also reflected in the fact that AEMO has been appointed as system operator for the DTS, managing gas flows through a dedicated Victorian gas control room. This is not the case in the other jurisdictions where AEMO has less immediate visibility of operating conditions.

Because of this, managing intra-day conditions is a much greater challenge in the DTS and DWGM. It is why the DLNG facility plays such a critical role in maintaining intra-day system pressures at the Dandenong City Gate to allow for safe system shutdown in the event of an emergency and to avoid an unplanned curtailment event.

Appendix B: Sample drafting of portions of the proposed changes

The following is intended to provide a sample of what final drafting could look like but is not intended to be prescriptive where alternative drafting better achieves the stated objectives.

Part 19 – Declared Wholesale Gas Market Rules

Proposed updates to Rule 200 – Definitions

Declared LNG Supplier means a person designated as a declared LNG supplier under legislation of the adoptive jurisdiction'[63]

Proposed updates to Rule 280 – Provision of information relating to an LNG storage facility

~~An~~ A Declared LNG Storage Provider and Declared LNG Supplier must~~, subject to the terms and conditions of a declared LNG Supply agreement (where relevant),~~ keep AEMO informed in a timely manner of all matters or circumstances relating to the operation of the LNG storage facility and LNG liquefaction facility operated by the Declared LNG Supplier that may affect the ability of AEMO to refill the LNG reserve, schedule LNG injection bids or use the LNG reserve.

(2) […]

(4) The Declared LNG storage provider or Declared LNG Supplier must not terminate or vary the declared LNG supply agreement without the consent of AEMO (whose consent must not be unreasonably withheld or delayed).

[63] NGR Version 3 Summary - AEMC Energy Rules