AUSTRALIAN ENERGY MARKET COMMISSION

RULE

Consultation paper

National Gas Amendment (ECGS reliability standard and associated settings) Rule

Proponents

Energy Senior Officials
Victorian Minister for Energy and Resources

20 March 2025

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About the AEMC

The AEMC reports to the energy ministers. We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the energy ministers.

Acknowledgement of Country

The AEMC acknowledges and shows respect for the traditional custodians of the many different lands across Australia on which we all live and work. We pay respect to all Elders past and present and the continuing connection of Aboriginal and Torres Strait Islander peoples to Country. The AEMC office is located on the land traditionally owned by the Gadigal people of the Eora nation.

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Summary

1 During winter 2022, wholesale gas prices in the facilitated markets across the east coast gas system (ECGS) reached record highs, triggering administered price caps in some markets. In August 2022 Energy Ministers directed jurisdictional energy officials to progress a package of reforms aimed at supporting a more secure, resilient and flexible east coast gas market. This included introducing a reliability and supply adequacy (RSA) framework for the ECGS. [1]

This rule change is part of the stage two RSA framework reforms

2 The RSA framework implementation was staged, and a Bill giving effect to the first tranche of changes (stage 1) commenced on 27 April 2023, alongside supporting regulations.[2] The corresponding rule amendments came into effect on 4 May 2023.[3] These stage 1 changes expanded the Australian Energy Market Operator's (AEMO) powers under the National Gas Law (NGL) to enable better management of gas supply adequacy and reliability risks ahead of winter 2023 and beyond.[4]

3 The second package of reforms (referred to as the stage 2 RSA reforms) aim to build on the stage 1 reforms, and are being progressed through the AEMC's rule change process. This consultation is in relation to the one rule change request in that second package. It seeks to establish a reliability standard and associated settings in the ECGS, along with robust governance arrangements.[5]

Shortfalls are forecast from 2026

4 AEMO and the Australian Competition & Consumer Commission (ACCC) forecast annual and peak day gas shortfalls in the ECGS southern regions from 2026. These shortfalls are forecast even after assuming gas flows from the north (Queensland) to the south (Victoria) of the ECGS.

5 The forecast shortfalls are driven by higher projected gas demand from gas powered electricity generators (GPG), slow electrification of the residential and commercial sectors, reduced gas production in the south, and existing pipeline and storage capacity constraints.

Have the problems been correctly characterised, and are the proposed solutions appropriate?

6 The general problem that the rule change requests (stage 2) seek to address is the risk that, under current arrangements, inefficient decisions about how to respond to reliability or supply adequacy threats over the short, medium and longer term, may be made by market participants, AEMO and policy makers. The costs of these inefficient decisions would ultimately be borne by gas consumers.

7 The proponents suggest that, in order to address this general problem, additional RSA framework elements are required.

8 According to the rule change request, these additional RSA elements are required because, without those elements:

- There is currently no robust basis for determining appropriate risk and reliability trade-offs.
- Current market settings may be providing inefficient investment signals.

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1 Energy and Climate Change Ministerial Council (ECMC), Consultation on stage 2 of the reliability and supply adequacy framework for the east coast gas market, accessed 3 February 2025.

2 The National Gas (South Australia) (East Coast Gas System) Amendment Act 2023 and the National Gas (East Coast Gas System) Amendments Regulations 2023.

3 The National Gas Amendment (East Coast Gas System) Rule 2023.

4 ECMC, Regulatory amendments to extend AEMO's functions and powers to manage east coast gas supply adequacy, accessed 3 February 2025.

5 Rule change request, cover letter, received 8 July 2024.

- The Gas statement of opportunities (GSOO) and Victorian gas planning report (VGPR) may fail to provide appropriate and consistent planning and investment signals.
- Current risk or threat notices may not provide a clear and objective indication of the nature and severity of identified threats.
- AEMO has insufficient guidance on how and when to exercise its RSA functions.

9 To address these problems the rule change request proposes complementing the stage 1 reforms with the introduction of a reliability standard for the ECGS that reflects the value gas customers place on reliability (VGCR), to allow gas market participants and AEMO make better informed decisions about the trade-offs between reliability costs and supply interruption costs.

10 The request also proposes using the reliability standard and VGCR to:

- update the existing market settings for both the short term trading market (STTM) and the Victorian declared wholesale gas market (DWGM)
- support monitoring and objective identification of risks and threats to reliability and supply adequacy in the ECGS
- support the communication of those risks through a threat signalling mechanism and gas supply adequacy and reliability (GSAR) conferences
- guide AEMO's supplier of last resort function (as proposed in a related rule change request).

11 The rule change request acknowledges that a market-led response will generally result in a more efficient outcome than intervention by AEMO. The stage 2 measures are therefore intended to enhance the timeliness and efficiency of market participants' responses to reliability and supply adequacy threats, and to only require AEMO to intervene as a last resort consistent with the guidance provided by the framework.[6]

Issues that the Commission will consider during assessment of the proposed rule change

12 In line with the proposed assessment criteria, the Commission will consider a range of issues, including the extent to which:

- a reliability standard and related tools will facilitate more efficient trade-offs between the cost of reliability and the cost of supply disruption
- the proposed solutions will promote more efficient investment in, and operation and use of, covered gas services[7]
- changes to GSOO, VGPR and other communication tools can increase information transparency and reduce information asymmetry
- proposed solutions balance the cost and complexity of implementation with ongoing regulatory and administrative costs to all market participants, market bodies and consumers
- frameworks interact constructively with existing gas market tools and other reforms underway, to provide better overall outcomes for consumers.

Submissions are due by 17 April 2025

13 Written submissions responding to this consultation paper must be lodged through the AEMC's website, www.aemc.gov.au, by 17 April 2025.

14 There will be other opportunities to engage with the AEMC throughout this rule change process.

6 Rule change request, p 4.

7 The NGL, section 2 defines a covered gas service as meaning the following: (a) a pipeline service; (b) the supply of covered gas; (c) a service ancillary to the service describe in paragraph (b). Covered gases are defined as a primary gas (which includes natural gas), or a gas blend.

Full list of consultation questions

Question 1: Do you agree with the proponents' reasons for introducing the tools proposed in this rule change request?

1. Why or why not?
2. Are the proponents' concerns sufficiently material to support developing the proposed solutions?

Question 2: Will the proposed reliability standard effectively address the issues raised by the proponents?

1. Do you consider the proposed dual reliability standard will be effective in promoting more efficient, timely and informed decisions that have regard to the value customers place on reliability?
2. Do you think the proposed form of the dual reliability standard is optimal?
3. Do you consider the proposed governance arrangements are adequate?
4. Do you consider an interim reliability standard (informed by an AEMC-calculated interim VGCR) would be an effective tool until a permanent VGCR and reliability standard are calculated by AER and AEMC respectively?
5. Do you think there are reasons for an alternative reliability standard to apply to any particular jurisdiction (e.g. Northern Territory) or type of gas user?

Question 3: Will the proposed VGCR effectively address the issues raised by the proponents?

1. Do you consider a VGCR can be estimated in order to inform an ECGS-wide reliability standard that reflects the value different consumers place on reliable gas supply?
2. What challenges and opportunities do you consider the AER will face when calculating a VGCR?
3. What factors should the AER take into account?

Question 4: Will the proposed approach to reviewing the market settings effectively address the issues raised by the proponents?

1. Do you consider the current market settings (STTM and DWGM) need to be informed by a reliability standard?
2. Is it essential for the market settings to use a reliability standard as an input or can the settings be updated directly to reflect a VGCR?
3. Do you consider the proposed governance arrangements would be adequate?

Question 5: Will the proposed communication tools effectively address the issues raised by the proponents?

1. Do you consider the proposed threat signalling mechanism and GSAR conferences would be effective tools for AEMO to better communicate reliability and supply adequacy threats so that market participants can adequately respond?
2. Do you consider appropriate for the threat level criteria to be set out in AEMO's ECGS procedures?
3. Could a LOR framework for the ECGS allow AEMO to more objectively issue escalating threat signals to market participants without the need for a reliability standard?

Question 6: Will the proposed reliability forecast and or the system resilience risk assessment effectively address the issues raised by the proponents?

1. Do you consider the proposed reliability forecast and/or the system resilience risk assessment will be effective in facilitating more informed and efficient planning and investment decisions across the ECGS?
2. Do you think a reliability standard would materially improve the GSOO and the VGPR forecasts and risk assessments? Could other proposed tools (e.g. VGCR) inform those assessments more directly?

Question 7: What are your views on the expected benefits and costs of the proposed solution?

1. Do you agree with the expected benefits identified in the rule change request? Are there other benefits that may arise to ECGS participants and gas users or are relevant to some specific proposed tools included in this rule change request?
2. Do you agree with the expected costs identified in the rule change request? Are there other costs that may arise to ECGS participants and gas users or are relevant to some specific proposed tools included in this rule change request?
3. What do you consider will be the costs and benefits of the proposed solution in both the short/medium-term and longer-term?
4. Are there different design approaches to any of the proposed reliability tools that could assist in improving benefits or reducing costs?

Question 8: Are there alternative solutions?

Do you consider variations or alternatives to the proposed solutions could solve the issues being presented by the proponents?

Question 9: Assessment framework

1. Do you agree with the proposed key assessment criteria?
2. Are there additional criteria that the Commission should consider or criteria included here that are not relevant?

How to make a submission

Making a submission

Stakeholders can help shape the solutions by participating in the rule change process. Engaging with stakeholders helps us understand the potential impacts of our decisions and, in doing so, contributes to well-informed, high quality rule changes.

We have included questions in each chapter to guide feedback, and the full list of questions is above. However, you are welcome to provide feedback on any additional matters that may assist the Commission in making its decision.

We recommend stakeholders also read the background paper to gain an understanding of the context for this rule change and the relevant features of the ECGS and gas markets.[8]

Due date: Written submissions responding to this consultation paper and the rule change request are sought by Thursday, 17 April 2025.

How to make a submission: Using the AEMC's website, www.aemc.gov.au/contact-us/lodge-submission, find the "lodge a submission" function under the "Contact Us" tab, and select the project reference code GRC0076.[9]

You may, but are not required to, use the stakeholder submission form published with this consultation paper.

Tips for making submissions are available on our website.[10]

Publication: The Commission publishes submissions on its website. However, we will not publish parts of a submission that we agree are confidential, or that we consider inappropriate (for example offensive or defamatory content, or content that is likely to infringe intellectual property rights).[11]

Other opportunities for engagement

During this consultation phase we will hold an information session on this rule change and consultation paper. Details about this information session and how to register for it will soon be available on the AEMC website. [12]

8 See: https://www.aemc.gov.au/rule-changes/ecgs-reliability-standard-and-associated-settings.
9 If you are not able to lodge a submission online, please contact us through the AEMC website.
10 See: https://www.aemc.gov.au/our-work/changing-energy-rules-unique-process/making-rule-change-request/submission-tips
11 Further information see: https://www.aemc.gov.au/contact-us/lodge-submission
12 See: https://www.aemc.gov.au/rule-changes/ecgs-reliability-standard-and-associated-settings

Contents

1 The context for this rule change request

This consultation paper seeks stakeholder feedback on the rule change request submitted by the Chair of the Energy Senior Officials and the Hon Lily D'Ambrosio MP, Minister for Climate Action, Minister for Energy & Resources and Minister for the State Electricity Commission (the proponents) in July 2024, requesting the implementation of a reliability standard and facilitated market reliability settings for the ECGS. In the proponents' view, a reliability standard would facilitate more timely, informed and efficient market-led responses to reliability and supply adequacy (RSA) threats in the ECGS and improve how AEMO currently exercises its RSA function in the ECGS.

1.1 Energy Ministers have proposed a reliability standard and related reliability tools

The *ECGS Reliability Standard and associated settings rule change request* is the first of four rule change requests that together seek to establish specific tools within the existing reliability and supply adequacy framework for the ECGS. These tools would allow AEMO and market participants to better respond to gas supply shortfalls threats.

The RSA stage 1 reforms in early 2023 were made in the face of impending risks of gas shortfalls forecast for winter 2023.[13]

Following implementation of the stage 1 RSA reforms, Energy Ministers considered that additional changes to the National Gas Rules (NGR) were needed to complement the framework and to make it fit for purpose for addressing reliability risks in the short, medium and long term. In December 2023, Ministers directed Senior Energy Officials to progress a package of reforms to implement stage 2 RSA framework through a number of changes in the NGR. [14]

This rule change request is a core component of the stage 2 RSA reform package and takes inspiration, in part, from the reliability framework currently in place in the national electricity market (NEM). [15]

The central problem that the rule change request seeks to mitigate is a risk that, under the current framework, expenditure on reliability and supply adequacy doesn't necessarily match consumers' willingness to pay.

Within this context the rule change request outlines five main reasons for needing additional elements within the current regulatory framework. The rule change request frames these as risks that may arise in the ECGS in the absence of the tools that have been proposed.

The reasons given by the proponents for needing the additional elements proposed in this rule change request are as follows:

- **There is currently no robust basis for determining appropriate risk and reliability trade-offs.** There are risks that, in the absence of a reliability standard, inefficient trade-offs are made (by AEMO, gas sellers or gas buyers) between providing reliable supply and interrupting supply, with extra costs from such inefficiencies ultimately borne by gas consumers. [16]

13 Stage 1 RSA reforms gave AEMO some power to address and mitigate reliability risks and threats in the ECGS, such as powers to issue directions to relevant entities in the ECGS or trade gas where no industry responses to reliability threats are feasible. For more details on stage 1 reforms, see Chapter 3 of the background paper.

14 For more details on the other rule change requests that are part of the framework, please consult Chapter 1 of the background paper.

15 Chapter 4 of the background paper presents an overview of the NEM reliability framework.

16 Rule change request, p 15.

- **Current market settings may be providing inefficient investment signals.** The market settings include market price caps, price floors, cumulative price thresholds, cumulative price period, etc. The proponents noted that "if the STTM and DWGM reliability settings do not reflect the reliability standard and the value customers place on reliability, they will fail to incentivise sufficient investment in supply, infrastructure and demand response over the medium to longer term." [17]
- **The GSOO and VGPR may fail to provide appropriate and consistent planning and investment signals**. The proponents noted in the rule change request that the GSOO and VGPR forecasts on their own may fail to provide appropriate planning and investment signals without referring to a reliability standard. [18]
- **Current risk or threat notices may not provide a clear and objective indication of the nature and severity of identified threats.** Risk or threat notices currently issued by AEMO do not provide a clear and objective indication of the nature and severity of the identified threats, resulting in insufficient market-led responses and AEMO having to intervene. [19]
- **AEMO has insufficient guidance on how and when to exercise its RSA functions.** This is motivated by the concern that without a reliability standard guiding AEMO's decision-making (e.g. in issuing directions or exercising its trading function when needed), AEMO may either decide not to use its functions, or may not use them efficiently. This problem is a corollary of the first point above.[20]

The proposed solution consists of:

- **Introducing a dual reliability standard for the ECGS.** With the level of the standard to reflect the value that gas customers place on reliable supply. The standard would provide "a measure of the sufficiency of the supply of covered gas, the infrastructure capacity used in its supply and demand response to meet both the annual and peak day demand reliability standards in the ECGS."[21]
- **Facilitated market reliability settings informed by the reliability standard.** Such that they provide the appropriate incentives to market participants. [22]
- **Improving current forecasting tools.** With the inclusion of both a reliability forecast and an assessment of credible risks to system resilience in the GSOO and VGPR for more efficient planning and investment decisions. [23]
- **Objective threat signalling mechanism and GSAR conferences.** For clearer communication of the nature and potential severity of reliability and supply adequacy[24]
- **New governance arrangements.** With new responsibilities for the AEMC, AER and AEMO to support the proposed rule changes and the RSA framework.

The proposed solution seeks to implement changes to the NGR in Parts 1, 15B, 15D, 19, 20 and 27.

Subsequently, and outside the scope of these rule changes, on 6 December 2024 at the Energy and Climate Change Ministerial Council (ECMC) meeting, ministers discussed ECGS gas supply and noted the importance of urgent supply and demand side actions. Ministers tasked senior

17 Rule change request, p. 17. For more information on current market settings for the STTM and the DWGM, see section 2.2 of the background paper.
18 Rule change request, p 20.
19 Rule change request, p 21.
20 Rule change request, p 22.
21 Rule change request, p 8.
22 Rule change request, p 40.
23 Rule change request, p 42.
24 Rule change request, pp 47-48.

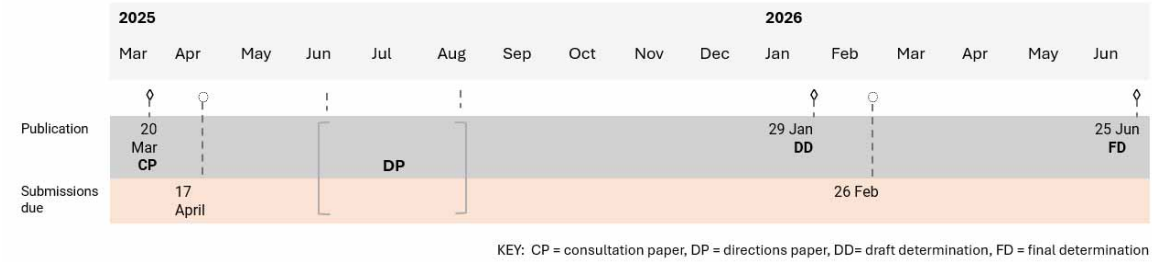
officials to work with AEMO to advise on potential expanded powers for AEMO to address ECGS gas supply issues emerging by 2028 and to recommend policy options to address supply and cost of gas over the medium term. These are to complement market-led solutions, while preserving current export contracts. Ministers will consider this advice at the first meeting of ECMC in 2025.[25]

1.2 DCCEEW has previously engaged with stakeholders

In June 2023 the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) asked stakeholders to provide feedback on the design of the stage 2 RSA framework to complement the stage 1 RSA reforms made by Ministers. This was done as part of a consultation process that ended on 13 July 2023. [26]

1.3 The AEMC plan to process the rule change request

Figure 1.1: Indicative timeline for the ECGS Reliability standard and associated settings



Source: AEMC.
Note: This timeline may vary over the course of each rule change project to account for changes in circumstances.

You can find more information on the rule change process on the AEMC website at Changing the energy rules – a unique process | AEMC.

25 Communique, *Energy and Climate Change Ministerial Council Meeting*, 6 December 2024, pp 2-3.
26 ECMC, Consultation on stage 2, accessed 3 February 2025.

2 The problems raised in the rule change request

This chapter seeks stakeholder feedback on the problem identified in the rule change request, which is that:[27]

> ...the tightening demand-supply balance, together with the energy transition and increasing interrelationship with the NEM, is expected to result in the east coast gas system becoming more exposed to reliability and supply adequacy threats ... There is therefore a much greater risk that inefficient decisions will be made by market participants, AEMO and policy makers about how to respond to reliability or supply adequacy threats over the short, medium and longer term, the costs of which would ultimately be borne by gas consumers.

This rule change request (part of RSA stage 2 reforms) is intended to build on the ECGS RSA functions introduced in 2023 (stage 1). The stage 1 problem statement can be better understood by reading the background paper and the previous consultation information published by officials as described in section 1.2 of this consultation paper.[28]

Please refer to the information in appendix A of this consultation paper for information on economics concepts related to reliability frameworks and related market failures.

The general problem that the rule change request seeks to address is the "risk that inefficient decisions will be made by market participants, AEMO and policy makers about how to respond to reliability or supply adequacy threats over the short, medium and longer term, the costs of which would ultimately be borne by gas consumers".[29]

We interpret this to mean a risk that there is either:

- insufficient expenditure, when consumers would be willing to pay more for greater reliability
- too much expenditure, when consumers would prefer to pay less and have lower reliability
- expenditure on the wrong things, meaning that more money than necessary is spent to deliver particular reliability outcomes.

This rule change request proposes the inclusion of a reliability standard and related tools into the ECGS RSA framework. The reasons given for needing the additional elements are discussed within sections 2.1.1 to 2.1.5 of the rule change request. They can be outlined as:

- There is currently no robust basis for determining appropriate risk and reliability trade-offs.
- Current market settings may be providing inefficient investment signals.
- The GSOO and VGPR may fail to provide appropriate and consistent planning and investment signals.
- Current risk or threat notices may not provide a clear and objective indication of the nature and severity of identified threats.
- AEMO has insufficient guidance on how and when to exercise its RSA functions.

These reasons are discussed in more detail below, following the same order as the subsections in section 2.1 of the rule change request.

The proposed solutions are discussed in chapter 3 of this consultation paper.

27 Rule change request, p 14.
28 ECMC, Consultation on stage 2, accessed 3 February 2025.
29 Rule change request, p 14.

2.1 There is currently no robust basis for determining appropriate risk and reliability trade-offs

The rule change request observes that the demand-supply balance is tightening across the ECGS. The proponents consider this may increase the risk of inefficient trade-offs in determining reliable gas supply, stating:[30]

> ...reliability in the east coast gas system is about having sufficient gas and infrastructure capacity to meet demand over a specified period of time at a very high level of confidence (i.e. at the specified level of reliability).
>
> However, it can be prohibitively expensive and inefficient to maintain 100% reliability and supply adequacy at all times, particularly if it requires costly infrastructure to be built that is only expected to be used on rare occasions. A balance must therefore be struck between the costs of providing reliability and the costs that gas users and other market participants can incur as a result of supply disruptions.
>
> ..in the absence of a reliability standard there is a risk that market participants and/or AEMO could spend more - or less - on trying to address any reliability or supply adequacy threat that arises than the value gas users place on reliable supply.

The rule change request points to AEMO's concern, articulated in its response to the AEMC's 2022 DWGM interim LNG storage measures rule change, where AEMO said that "without a regulatory mandated reliability standard or some other established benchmark, AEMO has no basis on which to model or forecast required capacity against."[31] The rule change request also points to the concern raised in the Commission's determination for the same rule change that "there is no well-accepted reliability standard that AEMO could use to develop a robust forecast of storage capacity requirements."[32]

The rule change request also states that the same issue would apply to retailers and other gas buyers:

> Importantly, the risk of not having a reliability standard to guide decisions is not unique to AEMO's actions. Rather, the same risk applies to market participant actions. That is, in the absence of a reliability standard, there is a risk that retailers and other gas buyers could either:
>
> - over contract gas, infrastructure and/or other services (including demand response) if they assume a100% reliability standard must be maintained, the costs of which would be passed through to gas consumers in the form of higher supply costs, or
> - under contract gas, infrastructure and/or other services (including demand response) if they assume a lower reliability standard that does not appropriately reflect the value gas customers place on reliability, the impact of which would also be passed through to gas consumers in the form of the direct and indirect costs associated with supply disruptions.

Finally, the rule change request states that the lack of a reliability standard could also result in inefficient planning and policy decisions by rule makers.

30 Rule change request, pp 14-15.

31 Rule change request, p 15 and AEMO's responses to the AEMC's questions regarding the Declared Wholesale Gas Market(DWGM) interim LNG storage measures rule change, 8 December 2022, p 4.

32 Rule change request, p 15 and AEMC, Rule determination, National gas amendment (DWGM interim LNG storage measures) rule 2022, 15 December 2022, p 21.

2.2 Current market settings may be providing inefficient investment signals

The proponents note a concern that market settings which are not aligned with the reliability standard may fail to incentivise sufficient investment in supply, infrastructure and demand response over the medium to long term. The "settings in question include the STTM and DWGM market price caps, price floors, cumulative price thresholds, cumulative price period or horizon, administered price caps and administered market state triggers."[33]

The rule change request states:[34]

> There is a risk that if the STTM and DWGM reliability settings do not reflect the reliability standard and the value customers place on reliability, they will fail to incentivise sufficient investment in supply, infrastructure and demand response over the medium to longer term.
> ...
> There is also a question as to whether the cumulative price thresholds are providing appropriate investment signals.

Put another way, unless market participants see the cost that consumers would ascribe to an interruption, they may not make the right cost-benefit trade-off and so may fail to contract optimal levels of upstream gas supply, transport and storage.

The rule change request goes on to note that some market settings have been in place and unchanged since the market was established in 1999, despite significant increases in gas and infrastructure costs over the same period, so that they may not be providing appropriate investment incentives.[35]

The rule change request also states that:[36]

> Material differences in the reliability settings employed across the STTM and DWGM also increase the likelihood of misaligned administered market states across the facilitated markets, which can give rise to a range of other distortionary impacts and issues...
> ...while the rules require AEMO to carry out periodic reviews of the STTM price related settings and set out the matters AEMO is to consider when doing so, there is no equivalent requirement in the NGR for the DWGM settings.

The rule change request also raises questions about whether AEMO should continue to be responsible for reviewing market reliability settings:[37]

> From a governance perspective, questions have also been raised in the past about whether AEMO is the most appropriate market body to review the facilitated market reliability settings, or whether it may constitute a potential conflict of interest for AEMO as operator of these markets.
> In the NEM similar problems to those set out above have been overcome by requiring the equivalent NEM reliability settings to be reviewed periodically by the Reliability Panel as part of the review of the reliability standard...

33 Rule change request, p 17.
34 Rule change request, pp 17-18.
35 Rule change request, p 18.
36 Rule change request, p 19.
37 Rule change request, p 19.

2.3 The GSOO and VGPR may fail to provide appropriate and consistent planning and investment signals

In the GSOO, AEMO reports its assessment of the adequacy of reserves, resources, and infrastructure to meet domestic and export needs for gas over a 20-year outlook period across all Australian jurisdictions other than Western Australia.[38]

The 2023 VGPR provides information about the supply demand balance over the next five years (called the outlook period) in Victoria and the Victorian declared transmission system (DTS). The VGPR complements the GSOO, which assesses wider gas supply adequacy over a longer period.[39]

The proponents consider that planning forecasts need to be in the context of meeting a reliability standard if optimal outcomes are to be delivered.

The rule change request notes:[40]

> One of the problems that has been identified with these tools is that if a reliability standard is implemented and AEMO is not required to expressly consider the standard when developing its GSOO or VGPR forecasts, then they could fail to provide appropriate planning and investment signals.

The rule change request contrasts this against the NEM, where this problem has been overcome by requiring the Electricity statement of opportunities (ESOO) to include the size and timing of forecast reliability gaps against the reliability standard, as well as outlining what would be required to address the gaps. [41]

The rule change request also identifies other potential gaps and standardisation problems with the GSOO and VGPR:[42]

> The other problems that have been identified with the GSOO and VGPR are that:
>
> - they do not include an assessment of credible risks to system resilience (i.e. the ability of the east coast gas system to limit the extent, severity and duration of a reliability or supply adequacy event)
> - the scenarios, assumptions and inputs used in the GSOO and VGPR can differ from those used in the ESOO, notwithstanding the increasing interrelationship between the NEM and the east coast gas system.
>
> Concerns have also been raised about the differences between the way in which AEMO and the ACCC currently assess reliability and supply adequacy and the potential for this to cause confusion and potentially weaken the planning and investment signals that are intended to be provided by the GSOO and VGPR.

2.4 Current risk or threat notices may not provide a clear and objective indication of the nature and severity of identified threats

The rule change request notes that AEMO is currently required to publish a 'risk or threat notice', as soon as reasonably practicable, in accordance with the ECGS procedures if it:

38 AEMO, Gas statement of opportunities, March 2023, p 18
39 AEMO, Victorian gas planning report, March 2023, p.5
40 Rule change request, p 20.
41 Rule change request, p 20.
42 Rule change request, p 20.

- identifies an actual or potential risk or threat to the reliability or adequacy of the supply of gas within the ECGS (an identified risk or threat), and
- considers the identified risk or threat meets or exceeds the criteria specified in the ECGS procedures.

The key issue identified by the proponents is that the market notices "may not facilitate a timely and efficient market-led response, because they do not provide a clear and objective indication of the nature and severity of identified threats".[43]

The rule change request notes that other frameworks have more objective threat signalling mechanisms that incorporate a severity measure, and provides two examples. These are the NEM lack of reserve regime, with three lack of reserve (LOR) levels based on objective reserve criteria, and the European Union's 'Declaration of Crisis' notice framework, which has early warning, alert and emergency threat levels.[44]

Another potential issue raised in the rule change request is that some market participants may not be made aware of a potential breach of the reliability standard communicated to the market through the GSOO, VGPR, the proposed PASA (subject to a related rule change request) or a risk or threat notice.[45]

2.5 AEMO has insufficient guidance on how and when to exercise its RSA functions

Stage 1 RSA reforms, which came into effect on 4 May 2023, focused on creating AEMO's ECGS' reliability and supply adequacy functions under the NGL and the NGR. AEMO is required to carry out its functions having regard to the national gas objective (NGO).[46] While this provides guidance to AEMO in its decision making, the proponents consider that this guidance is not sufficient: [47]

> The final concern that has been raised with the current RSA framework is that it does not provide sufficient guidance to AEMO on how and when to exercise its east coast gas system RSA functions.
>
> While these concerns have principally focused on AEMO's east coast gas system trading function (see Supplier of Last Resort rule change request for more detail), there is a more general concern that without a reliability standard in place to help guide AEMO's decision-making, it may either decide not to use its functions, or may not use them efficiently.

In 2024 AEMO exercised its new ECGS functions in two instances. These experiences may help to illustrate how AEMO's RSA powers are currently exercised.[48]

Question 1: Do you agree with the proponents' reasons for introducing the tools proposed in this rule change request?

1. Why or why not?

43 Rule change request, p 21.
44 Rule change request, pp.21-22.
45 Rule change request, p.22.
46 NGL, s. 91A(2)(3).
47 Rule change request, p 22.
48 See section 1.2 of the background paper.

2. Are the proponents' concerns sufficiently material to support developing the proposed solutions?

3 The proposed solution and implementation

This chapter seeks feedback on the solution proposed in the rule change request and other implementation matters the Commission may need to consider in making its determination. The proposed solution is discussed in detail in chapter 3 of the rule change request.

Please refer to appendix A for information on economics concepts related to reliability frameworks and related market failures.

3.1 Will the proposed solutions resolve the problems?

Stage 2 of the RSA framework comprises four interrelated rule changes. This consultation paper only deals with the *ECGS reliability standard and associated settings rule change request*. The related rule changes, which will be subject to separate consultation processes, have dependencies on the definition of a reliability standard and related components in this rule change.[49]

The solution proposed by this rule change request has five key components which will be assessed separately and together. Each proposed solution component is discussed below in turn.

The core of this rule change request is the introduction of a reliability standard for the ECGS which is intended to measure the sufficiency of the supply of covered gas, as well as the capacity of infrastructure used to supply gas users and/or demand response, to meed both annual and peak day demand in the ECGS. The level of the standard should reflect the VCGR. The request also proposes that the reliability standard is used for the following purposes:[50]

- inform the facilitated market settings (i.e. STTM and DWGM market price caps, price floors, cumulative price thresholds, cumulative price horizons, administered price caps)
- support the monitoring and objective identification of any risks or threats to the reliability or adequacy of supply though the GSOO, VGPR (this rule change request) and PASA (subject to a related rule change request)
- support the communication of those risks or threats through a new objective threat signalling mechanism and GSAR conferences
- guide AEMO's use of its east coast gas system RSA functions and supplier of last resort (SoLR) (subject to a related rule change request).

3.1.1 Reliability standard

The rule change request proposes to change Part 27 of the NGR to introduce a reliability standard that is able to highlight where and when supply inadequacies or threats to supply infrastructure may occur. The details of the reliability standard proposal are set out in section 3.2 of the rule change request.

Form of the standard

The proposed reliability standard is a dual standard consisting of:

1. an annual unserved gas (USG) measure, which focuses on the ability to supply gas, infrastructure capacity and demand response to meet forecast demand across the year.
2. a peak day deliverability measure, which focuses on the ability to supply gas, infrastructure capacity and demand response to meet forecast demand on peak days.

49 See section 1.2.2 of the background paper.

50 Rule change request, p 30.

The proponents explain that a dual standard is sought as a single measure could result in erroneous conclusions being reached about the sufficiency of supply, infrastructure capacity and demand response to meet demand. The reliability standard would not be met (that is, would be breached) if either measure, USG or peak day, or both are not met.[51]

Level of the standard

The rule change request proposes requiring the AEMC to be responsible for determining the level of the standard by having regard to the VGCR. The AEMC would be able to take into account any other relevant matters when determining the level at which the standard is set. The rule change request lists some matters that may be relevant to consider, such as: the time, costs and resources associated with the curtailment and restoration of supply (see appendix B), potential for unintended consequences in related markets if gas demand is not met, the energy market transition and increasing interrelationship with the NEM and participating jurisdictions' emissions targets. [52]

Scope of the standard

The proposed dual reliability standard would apply across all ECGS jurisdictions (NT, Qld, NSW, Vic, SA, Tas).[53]

The rule change request asks the AEMC to consider whether it would be appropriate to apply the same standard in the Northern Territory (NT), given the relatively unique demand and supply characteristics in this jurisdiction. For instance, the demand for gas in NT is relatively low compared to other jurisdictions and gas has to be transported over very long distances to a relatively small number of gas users and while there are some commercial and industrial users, most gas is used by GPGs.[54]

Governance arrangements for the reliability standard

The rule change request describes three key functions that would need to be performed by market bodies if the proposed reliability standard and associated settings are implemented:

1. Determining and periodically reviewing the reliability standard and facilitated market reliability settings.
2. Publishing a gas forecasting best practice guideline.
3. Monitoring, identifying and communicating actual or potential breaches of the reliability standard to the market.

The rule change request proposes for the AEMC to carry out the first of these functions, the AER the second function and AEMO to carry out the third function.[55]

Interim reliability standard

The rule change request proposes that, given it will take some time for the AER to develop a robust methodology and estimates for the ECGS' VGCR, the AEMC calculate an interim reliability standard.[56] It will be open to the AEMC to decide whether to do this by:

1. setting the interim reliability standard without regard to the VGCR,

51 Rule change request, p 35.
52 Rule change request, pp 36-37.
53 Rule change request, p 36.
54 Rule change request, p 36.
55 Rule change request, p 50.
56 Rule change request, pp 38-39.

2. commissioning a high level VGCR estimate as part of this rule change process, or
3. using a proxy value of the VGCR.

The proponents say that the AEMC should also be careful to ensure that any interim value does not provide inappropriate signals to the market.[57]

Question 2: Will the proposed reliability standard effectively address the issues raised by the proponents?

1. Do you consider the proposed dual reliability standard will be effective in promoting more efficient, timely and informed decisions that have regard to the value customers place on reliability?
2. Do you think the proposed form of the dual reliability standard is optimal?
3. Do you consider the proposed governance arrangements are adequate?
4. Do you consider an interim reliability standard (informed by an AEMC-calculated interim VGCR) would be an effective tool until a permanent VGCR and reliability standard are calculated by AER and AEMC respectively?
5. Do you think there are reasons for an alternative reliability standard to apply to any particular jurisdiction (e.g. Northern Territory) or type of gas user?

3.1.2 Value of gas customer reliability

With the purpose of establishing VGCR values and related governance arrangements, the proponents seek to:

- include a VGCR objective in the NGR
- have the AER responsible for developing a VGCR methodology and calculating the VGCR values for each participating jurisdiction in the ECGS and, if feasible to do so, estimating VGCR values for different types of gas consumers
- have the AEMC responsible for using the VGCR in determining the appropriate level of the reliability standard
- have the AER responsible for periodically reviewing the VGCR methodology and the VGCR estimates.

More detail on the proponents' approach to determining the VGCR is available in section 3.2.3 of the rule change request.[58]

Question 3: Will the proposed VGCR effectively address the issues raised by the proponents?

1. Do you consider a VGCR can be estimated in order to inform an ECGS-wide reliability standard that reflects the value different consumers place on reliable gas supply?
2. What challenges and opportunities do you consider the AER will face when calculating a VGCR?

57 Rule change request, p 39.
58 Rule change request, pp 36-38.

3. What factors should the AER take into account?

3.1.3 Facilitated market settings

The rule change request states that the market settings in the STTM and DWGM should be set at levels that:

1. provide medium to longer term incentives for market participants to contract and invest in sufficient supply, infrastructure and demand response to meet the proposed reliability standard, while also
2. protecting and limiting the financial exposure of prudent market participants.

It is proposed that the reliability standard is used to inform the determination of the market settings in both the STTM and DWGM. The details of the facilitated market settings proposal are set out in section 3.3 of the rule change request.

Governance arrangements

The rule change request describes that the AEMC would be responsible for determining and periodically reviewing the reliability standard and facilitated market settings.[59]

The current market settings include the STTM and DWGM market price caps, minimum market price, administered price cap, cumulative price thresholds, cumulative price period or horizon and administered market state triggers. See Figure 3.1.

59 Rule change request, pp 50-54.

Figure 3.1: Current STTM and DWGM market settings

Market parameter	STTM	DWGM
Market Price Cap (MPC) (STTM) Value of Lost Load (DWGM)	$400/GJ (rule 364)	$800/GJ (rule 200)
Minimum market price (MMP) (STTM) Minimum bid price (DWGM)	$0/GJ (rule 364)	$0/GJ (rule 209(5)(a))
Administered price cap	$40/GJ (rule 364)	$40/GJ (rule 224 + Administered Pricing Procedures)
Cumulative price threshold (CPT)	$440/GJ (110% of MPC) (rule 364)	$1,400/GJ (rule 224 + Administered Pricing Procedures)
CPT horizon (STTM) Administered price period (DWGM)	7 days (rule 364)	35 consecutive scheduling intervals (7 days) (rule 224 + Administered Pricing Procedures)
Triggers for administered market states	**APC state** (rule 428): ▪ AEMO fails to publish an ex ante market schedule by required time on D-1 and uses a provisional schedule. ▪ CPT triggered. ▪ A minor retailer of last resort (RoLR) event occurs (STTM Procedures determine what constitutes a minor RoLR). ▪ Technical or operational conditions in a pipeline or distribution system materially affect ability to supply or withdraw gas at hub or to supply end users from STTM distribution system (to be determined in accordance with STTM Procedures) **Market administered scheduling state** (rule 430) ▪ Major RoLR event (STTM Procedures to determine what constitutes a major RoLR) ▪ Government direction.	**Administered price period** (rule 224 + Administered Pricing Procedures): ▪ AEMO fails to publish market price or a pricing schedule by required time ▪ CPT triggered ▪ Market suspension ▪ Minor RoLR and major RoLR events ▪ Material curtailment

Source: Rule change request, p 18

The rule change request proposes that a reliability standard is used to inform the estimation of the settings so that those reflect the proposed reliability standard and the value customers place on reliability.[60]

Question 4: Will the proposed approach to reviewing the market settings effectively address the issues raised by the proponents?

1. Do you consider the current market settings (STTM and DWGM) need to be informed by a reliability standard?
2. Is it essential for the market settings to use a reliability standard as an input or can the settings be updated directly to reflect a VGCR?
3. Do you consider the proposed governance arrangements would be adequate?

60 Rule change request, pp 17-20.

3.1.4 Objective threat signalling mechanism and GSAR conferences

The rule change proposes a mechanism that builds on the existing risk and threat notice framework to provide market participants with more timely and effective communication of any actual or potential breaches of the reliability standard or any other reliability or supply adequacy threats.[61]

The details of the proposed changes aiming to improve the communication of potential breaches of the reliability standard are set out in section 3.5 of the rule change request.

The proposed new arrangement would work with three tiers of escalating notices which would be activated once objective thresholds and criteria are met. This mechanism should allow market participants to quickly understand the significance of the risk and as such facilitate a more timely and effective market-led response.

The proposed levels of notices (risk or threat) would include an:

- early warning notice
- alert notice
- emergency notice.

It is proposed that the criteria for each level would be set out in AEMO's ECGS procedures, which would need to take into account the extent and type of potential breaches of the reliability standard for each level of notice. For example, a minor breach of the reliability standard identified through GSOO may trigger an early warning notice. A more immediate and larger breach, identified through ST PASA (subject to a related rule change) may trigger an emergency notice.[62]

The rule change also proposes improvements to GSAR conference triggers. The proposal seeks to require AEMO to convene a GSAR conference if it identifies an actual or potential breach of the reliability standard expected to occur within the next 12 months. Further, AEMO would be provided the discretion to convene a GSAR conference at any time, including if it finds that an actual or potential breach has not been addressed, or has deteriorated. These changes are expected to ensure the market is well-informed and maximise the time available to market participants to respond to any breaches. [63]

An alternative threat signalling approach is illustrated by the LOR framework used in the NEM. It is a mechanism that is used by AEMO to communicate escalating threats based on objective criteria: [64]

- LOR 1: Signals actual or forecast reduction in pre-determined electricity reserves (i.e. below two largest supply resources in state) but no expected impact on power system security and reliability.
- LOR 2: Signals actual or forecast tightening of electricity reserves (i.e. below the single largest supply resource in a state) but no expected impact to the power system.
- LOR 3: Signals electricity reserves are, or are forecast to be, less than or equal to demand and that load shedding may be required.

The NEM LOR framework is a key mechanism by which AEMO communicates short-term risks of involuntary load shedding to the market. By issuing market notices declaring LORs, AEMO signals to the market that the demand-supply balance is tight at a particular point in time. The purpose of

61 The current risk and threat notice framework is set out in rule 695 of the NGR.
62 Rule change request, pp 47-48.
63 Rule change request, p 48.
64 Rule change request, p 21.

issuing a market notice is to encourage a response from the market in order to address this. As a result, generators may offer in more supply, or consumers can reduce their demand.

Question 5: Will the proposed communication tools effectively address the issues raised by the proponents?

1. Do you consider the proposed threat signalling mechanism and GSAR conferences would be effective tools for AEMO to better communicate reliability and supply adequacy threats so that market participants can adequately respond?
2. Do you consider appropriate for the threat level criteria to be set out in AEMO's ECGS procedures?
3. Could a LOR framework for the ECGS allow AEMO to more objectively issue escalating threat signals to market participants without the need for a reliability standard?

3.1.5 GSOO and VGPR alignment with the RSA framework

The rule change request states that the objective of this change is to facilitate more informed and efficient planning and investment decisions across the ECGS. To achieve this, the proponents seek the GSOO and VGPR to include:[65]

1. A reliability forecast, which will be an assessment of the sufficiency of gas, infrastructure capacity and demand response to meet forecast demand, against the reliability standard.
2. An assessment of credible risks to system resilience that could affect supply of gas to end users.

The details of the proposed changes to the GSOO and VGPR are set out in section 3.4 of the rule change request.

The outlook timeframes for the GSOO and the VGPR are 20 years and 5 years respectively. The proposed reliability forecasts to be included within those timeframes would identify whether the reliability standard is likely to be breached in any participating jurisdiction over equal or shorter periods:

- GSOO — 10 years
- VGPR — 5 years

The assessment would include the expected size, timing, duration and location of the forecast breach of the reliability standard as well as the potential options for addressing such breach. AEMO would need to publish supporting information for its reliability forecast on its website.[66]

The rule change request proposes that the AER will be responsible for developing gas forecasting best practice (GFBP) guidelines to provide procedural guidance for AEMO's forecasting practices and processes in developing gas reliability forecasts. AEMO would be responsible for developing a gas reliability standard and forecasting guideline, to explain how it prepares its reliability forecasts and underlying procedures, information requirements and methodologies, in line with the AER's GFBP guidelines.[67]

65 Rule change request, p 42.
66 Rule change request, p 42.
67 Rule change request, pp 44-46.

As noted in the background paper, demand-supply forecasts contain a high level of uncertainty due to the seasonal factor and nature of gas consumption in the form of space heating in the residential and commercial sectors, and the need for GPG electricity which also depends on renewable energy variability and heating needs of electricity users.

The ability to effectively apply a reliability forecast to planning and investment decisions, depends on the ability to forecast whether gas supply will meet forecast gas demand to the level of the standard. Since total gas demand is highly dependent on space heating and GPG generation needs, this exercise may be uncertain.[68]

As a comparison, the NEM reliability standard, which currently has the form of unserved energy (USE), is expressed as a maximum expected forecast of unmet energy in the NEM. AEMO, as the NEM operator, forecasts over different timeframes the electricity supply-demand balance and advises the market whether the reliability standard is expected to be met. This framework requires AEMO to forecast the NEM demand-supply balance by using market participants' information.[69]

The rule change request also proposes the inclusion of an assessment of any credible risks to system resilience. System resilience risks are described in the rule change request in terms of supply infrastructure outages (e.g. production, transportation and storage facilities).[70]

This system resilience assessment is not intended to form part of the reliability forecast. Rather, it is intended to complement the reliability forecast by providing market participants with additional insights into any potential risks.

Question 6: Will the proposed reliability forecast and or the system resilience risk assessment effectively address the issues raised by the proponents?

1. Do you consider the proposed reliability forecast and/or the system resilience risk assessment will be effective in facilitating more informed and efficient planning and investment decisions across the ECGS?
2. Do you think a reliability standard would materially improve the GSOO and the VGPR forecasts and risk assessments? Could other proposed tools (e.g. VGCR) inform those assessments more directly?

3.2 What are the benefits and costs of the proposed solution?

The rule change request identifies the main benefit of the package of proposed changes as supporting "more timely, informed and efficient decisions by market participants, AEMO and policy makers" about how to respond to reliability and supply adequacy threats over the short, medium and longer term.[71]

More specifically, the proponents state the benefits sought by this rule change request are that:[72]

1. Consumers within the ECGS would benefit from:
   a. a reduction in the risk of supply interruptions

68 See section 2.3 of the background paper.
69 AEMO does this as part of the ESOO and PASA projections depending on the timeframes (T-X). See section 4.2.5 of the background paper.
70 Rule change request, pp 43—44.
71 Rule change request, p 7.
72 Rule change request, p 70.

   b. lower prices, as a result of improvements in the efficiency with which covered gas services are supplied and used
   c. economic efficiency, including as a result of a reduction in the deadweight loss that would otherwise result from an inefficient allocation of resources.
2. Market participants would benefit from lower direct and indirect costs due to being able to make more timely, informed and efficient decisions about the supply and use of gas services.
3. AEMO would benefit from:
   a. having greater guidance on how and when it should use its ECGS functions
   b. being able to make more timely, informed and efficient decisions to address identified threats
   c. informing other functions in the ECGS and the NEM
4. Policy makers would benefit from being able to make more timely, informed and efficient planning and policy decisions.

The rule change request also sets out that the expected costs relating to the implementation and ongoing administration and reporting costs for the AEMC, AER and AEMO.[73] The cost estimates are based on the proposed governance and allocation of responsibilities. The types of costs identified include:

1. Determination of an interim reliability standard and ongoing periodic review of the standard and facilitated market settings (AEMC).
2. Development of VGCR methodology and estimates, and ongoing review of those VGCR estimates (AER).
3. Development of relevant guidelines and procedures and ongoing operation of the reliability standard forecasts and threat signalling mechanisms (AEMO).

The rule change request notes that the costs for AEMO would only be incremental as the proposal builds on existing functions (stage 1 of the RSA reforms) and that some of those costs already exist but would be transferred to a different entity. For example, the cost AEMO incurs in reviewing the current market settings would be transferred to the AEMC. See Figure 3.1.

The request also notes that some administrative and reporting costs would be expected for market participants.

73 Rule change request, pp 71-73.

Figure 3.2: Expected costs for the AEMC, AER and AEMO

Market body		Implementation costs	Ongoing costs	
			Description	Frequency
AEMC		Determination of the interim reliability standard.	Periodic review of the reliability standard and facilitated market reliability settings.	Every 4 years
AER		Development of initial methodology and estimates for VGCR.	Periodic review of the VGCR estimates.	Every 4 years
		Development of initial Gas Forecasting Best Practice Guidelines	Updates to the Gas Forecasting Best Practice Guidelines	As required
AEMO	Monitoring and objectively identifying threats	Development of initial Gas Reliability Standard and Forecasting Guidelines	Updates to the Gas Reliability Standard and Forecasting Guidelines and ECGS Procedures	As required
			Inclusion of reliability forecast + assessment of risks to system resilience in GSOO and VGPR	Annual (or more frequently if AEMO decides to update reliability forecast)
			Publication of information paper and supporting material for reliability forecast in GSOO and VGPR	Annual
			Ex post review of accuracy of demand and supply forecasts and other inputs and identification of any improvements to the forecasting process that will apply to next reliability forecast	Annual
	Communication of threats	Amendments to ECGS Procedures to include the criteria for the escalating threats in the objective threat signalling mechanism + ECGS Guidelines to reflect the changes	**Incremental costs** associated with issuing risk or threat notices in accordance with the proposed objective threat signalling mechanism	As required
		Amendments to the ECGS Procedures and Guidelines to reflect the changes to the GSAR conference triggers.	**Incremental costs** associated with convening GSAR conferences if a breach of the reliability standard is identified within the next 12 months and requires market action	As required

Source: Rule change request, p 72

Question 7: What are your views on the expected benefits and costs of the proposed solution?

1. Do you agree with the expected benefits identified in the rule change request? Are there other benefits that may arise to ECGS participants and gas users or are relevant to some specific proposed tools included in this rule change request?
2. Do you agree with the expected costs identified in the rule change request? Are there other costs that may arise to ECGS participants and gas users or are relevant to some specific proposed tools included in this rule change request?
3. What do you consider will be the costs and benefits of the proposed solution in both the short/medium-term and longer-term?

4. Are there different design approaches to any of the proposed reliability tools that could assist in improving benefits or reducing costs?

3.3 Are there alternative solutions?

The multi-faceted nature of the request raises the question of how the various proposed components relate to each other and whether all components are essential to effectively address the problems being presented by the proponents.

Stakeholders should consider the problems and solutions presented by the proponents (individually and collectively) by also having regard to the market failures that these solutions might be able to address in a more effective way. Stakeholders should also consider whether all the components being proposed are essential or adequate to achieve the objectives of the rule change request.[74] The analysis provided in the 2025 GSOO may also be relevant in considering the proposals set out in the rule change request.

It might be possible to address the issues being presented by the proponents through other means. We are interested in whether stakeholders think variations to what has been proposed could present feasible alternatives to solve the problems presented.

Question 8: Are there alternative solutions?

Do you consider variations or alternatives to the proposed solutions could solve the issues being presented by the proponents?

74 See appendix A for more information of market failures that could lead to reliability issues and possible options to address those.

4 Making our decision

When considering a rule change request, the Commission considers a range of factors.

This chapter outlines:

- issues the Commission must take into account
- the proposed assessment framework
- decisions the Commission can make
- rule-making for Western Australia.

4.1 The AEMC's decision-making factors

The Commission is bound by the NGL to only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national gas objective.[75] The NGO is:[76]

> 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, 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.

The emissions targets statement lists the emissions reduction targets to be considered, as a minimum, in having regard to the NGO.[77]

While the rule change request states that the reliability standard is not intended to affect, in any way, AEMO's system security and public safety related declared system functions (i.e. the functions AEMO exercises in the DWGM and Declared Transmission System (DTS)), the rule change request also notes that there is the potential for consequential amendments to be required to Part 19 of the NGR, and that these are matters that the AEMC may wish to consider when assessing the proposed rule change.[78] If required, the AEMC will have the scope to change rules within Part 19 of the NGR as the Victorian Minister is a proponent of the rule change request.

The rule change request focuses on the new reliability and supply adequacy framework for the ECGS. Accordingly, the WA NGR is not impacted.

4.2 The key assessment criteria for this rule change request

4.2.1 Our regulatory impact analysis methodology

Considering the NGO and the issues raised in the rule change request, the Commission proposes to assess this rule change request with particular reference to the set of criteria outlined below.

The Commission's regulatory impact analysis may use qualitative and/or quantitative methodologies. The depth of analysis will be commensurate with the potential impacts of the

75 Section 291 of the NGL.
76 Section 23 of the NGL.
77 Section 72A(5) of the NGL; AEMC emissions targets statement.
78 Rule change request, p 11.

proposed rule change and can be refined as this rule change process progresses, including in response to stakeholder submissions.

Consistent with good regulatory practice, the assessment of the proposal also includes other viable policy options — that is, not making the proposed rule (a business-as-usual scenario) or making a more preferable rule — using the same set of assessment criteria and impact analysis methodology where feasible.

4.2.2 Proposed key assessment criteria and rationale

The proposed key assessment criteria, rationale for each, and questions that the Commission will consider when assessing are set out below.

- **Safety, security and reliability** are central to the rule change request, as the intent is to "maintain or improve the reliability and security of supply of gas."[79]
  - Will implementing the proposed solution reduce the risk of supply interruptions?
  - Would the proposed reliability standard and/or updated market settings promote efficient investment in, and operation and use of covered gas services?
- **Principles of market efficiency** will be considered, as providing guidance on appropriate balance between reliability and cost would be a key purpose for a reliability standard.
  - Would the proposed reliability standard trigger market-led responses that reduce costs for the market and consumers?
  - Would a reliability standard and/or related proposed tools allow for efficient trade-off between the cost of reliability and cost of supply disruption?
  - Would a reliability standard and/or proposed changes to GSOO or threat signalling mechanism increase information transparency and reduce information asymmetry?
- **Implementation considerations**, including the administrative costs to market bodies and market participants required by the solutions put forward in the rule change request, will be key to our assessment of the costs and benefits.
  - Do the proposed solutions balance the cost and complexity of implementation and ongoing regulatory and administrative costs to all market participants, consumers and market bodies?
  - Would implementation of the proposed reliability tools be likely to achieve the desired outcomes across the ECGS, taking into account specific jurisdictional conditions and outside facilitated markets transactions?
- As the rule change request proposes to expand a new regulatory framework for gas, the Commission will highlight **principles of good regulatory practice**, including considering whether the proposal would:
  - promote predictability and stability in the regulatory framework for stakeholders?
  - promote simplicity and transparency for all stakeholders?
  - interact constructively with other reforms underway?
  - promote a principles-based approach over prescription, except where prescription is necessary?

79 Rule change request, cover letter.

The Commission's guide on *How the national energy objectives shape our decisions* sets out further information on how rule change requests are assessed against the national energy objectives, including the full list of potential assessment criteria.[80]

The other potential assessment criteria, being emissions reduction, innovation and flexibility, and outcomes for consumers, were not proposed as they are less directly relevant than the assessment criteria above.

Question 9: Assessment framework

1. Do you agree with the proposed key assessment criteria?
2. Are there additional criteria that the Commission should consider or criteria included here that are not relevant?

80 AEMC, *How the national energy objectives shape our decisions*, 1 August 2024, p 2.

A Market failures that could lead to reliability issues and potential regulatory intervention options

This appendix describes the market failures that could lead to reliability issues in gas markets. The appendix also describes regulatory interventions that could address such failures depending on whether the failure relates to the commodity market or the infrastructure required to deliver the commodity.

A.1 Market failures that could lead to reliability issues in the gas markets

In most markets for goods and services across the economy, there is no explicit, regulatory framework for the management of 'reliability'. Instead, the price mechanism is relied upon to match an efficient level of supply to demand. If market conditions change, with consumer demand increasing, or supply decreasing, the price mechanism will realign the quantities that consumers are willing to buy and producers are willing to sell. Increasing prices act as a rationing mechanism, allocating goods to those consumers with the highest willingness and ability to pay. Increasing prices will induce additional supply, although this will be limited by existing capacity constraints. In the longer-run, higher prices will incentivise investment in new capacity.

There are common market failures that could lead to reliability issues in the gas markets. Those that appear to be relevant to the ECGS are:

- **Natural monopoly:** Natural monopolies are defined as a situation where multi-firm production is more costly than production by a single firm. This often occurs because there are significant economies of scale combined with high fixed costs of entry. It is possible that pipeline service providers could, in some cases, exercise market power by delivering inefficient levels of service standards (i.e. lower levels of reliability) to reduce costs and increase profitability.

  Furthermore, investments in gas transmission pipelines or storage facilities tend to be 'lumpy' (i.e. large and infrequent rather than smaller, incremental and more frequent). The need for large, lumpy investments can become a natural barrier to entry into the market and create or reinforce a natural monopoly situation. If additional market participants were able to overcome this barrier and undertake alternative investments, more competition to provide services from pipelines and storage facilities could occur. This could then result in lower prices compared to the scenario under a monopoly provider.
- **High impact-low probability (HILP) events:** HILP events may lead to inadequate incentives for efficient infrastructure investment. This may be because market participants:
  - Make poor estimates of costs and probabilities of HILP events. Customers are unwilling to pay a sufficiently high price to ensure reliable supply prior to a HILP event as they underestimate the probability of occurrence.
  - Do not expect to face the full cost of the HILP events. This may be because limited liability or force majeure contract clauses mean that suppliers do not face the full costs of failing to provide a reliable service when a HILP event occurs. Alternatively, suppliers and customers may expect governments to intervene in a crisis socialising costs which without intervention they would have borne themselves.
- **Regulatory risk:** The prospect of changes to regulation is an inherent problem in natural monopoly infrastructure as past investments, such as those in gas production, transportation and storage, require sunk investment. Once made, there is a risk that the value of the

investment is expropriated. This reduces the incentive to undertake the investment in the first place. Two potential areas of regulatory risk include:

  - The 'rules' of the market changing unexpectedly in the future. For example, changes to emissions policy may reduce the market-based incentive for gas investments.
  - The existence of undefined price caps which might be applied in the future. For example, the government may intervene if the price of gas exceeds a certain threshold.

- **Information:** For efficient decisions to be made, market participants (and regulators) require good information. With respect to reliability, this relates to information about — for example — consumption, production, reserves and transportation infrastructure, now and into the future. Making this information readily available can increase transparency, reduce search costs, and avoid inefficient decisions made based on incomplete or inaccurate information.
- **Non-excludability and metering:** Under the operation of a wholesale gas market there is the potential opportunity for gas consumers to have their consumption metered in real (or near to real) time. However, a wholesale commodity market does not extend across all the ECGS and such metering is generally not available. This means that in practice customers cannot be exposed to real-time wholesale prices and, as a result, are not incentivised to respond to short-term fluctuations in the wholesale market. Therefore, when the demand-supply balance is tight, intervention through directed load shedding, instead of price-responsive reduction in demand, is required. It is also not technically possible — at least without additional equipment to overcome safety concerns — for suppliers to ration supply to certain customers who have expressed a willingness to be curtailed at a specified wholesale price. See appendix B.

  The combination of cumulative meters and the technical inability to exclude users from consuming gas has resulted in the charges to small gas users not reflecting short term changes in wholesale gas prices. This in turn results in demand for gas from these users not changing as prices change (that is, demand from these users is inelastic in the short term). In these circumstances the market — and prices — cannot be relied on to deliver efficient outcomes.
- **Geopolitics:** Risks associated with the direct and indirect impact of possible wars, sanctions, trade tensions and supply chain interruptions can disrupt the operation of a gas market. The nature of geopolitical effects on markets means that it can be expensive, or impossible, to obtain insurance cover for extreme events resulting from war, and in other contracts wars may be force majeure events. As a result, market participants may not account for the prospect of geopolitical risk in their decisions to invest in infrastructure, or supply or store a commodity such as natural gas.

A.2 Potential regulatory interventions that could be applied to specific market failures

Regulatory interventions in energy markets are common, reflecting the fact that there are readily identifiable market failures in the gas, liquid fuels and electricity sectors that impact on whether prices successfully manage demand and supply. Regulatory interventions may include explicit arrangements aimed at managing the reliability of services and/or infrastructure.

For any regulatory intervention to be effective, it should be tailored to the specific market failure intended to be addressed, by also considering whether the market failure relates to the commodity (e.g. gas supply) or the infrastructure needed to deliver that supply to meet demand (e.g. pipeline and storage capacity).

Table A.1: Market failures and potential regulatory interventions

	Intervention	Market Failure	Analysis
Commodity market options	More granular metering	Non-excludability and metering	With accumulation meters, there is no way to see when gas was actually used between meter reads. Gas used during a period of high prices and scarcity and gas used during a period of abundance are indistinguishable and customers are charged the same for each unit. During periods of scarcity, some customers would choose not to consume if exposed to the market price of gas, either directly or through time of use or seasonal tariffs. By allowing customers to choose when to forgo consumption rather than pay high prices, more granular metering enables customers to directly reflect their willingness to pay for a reliable supply. This option could address the non-excludability and metering market failure. In the absence of more granular meters, consumers cannot signal the value they place on a reliable service or commodity supply (e.g. gas).
	Price caps	Non-excludability and metering	In the absence of more granular meters, a centrally determined price should be set at a price where consumers would prefer to be curtailed rather than supplied with a service. If a price cap is set too high, consumers may consume at a price greater than their willingness to pay. Conversely, if the price cap is set too low, consumers may be provided an inefficient low level of reliability. Price caps can be set directly at estimations of willingness to pay (WTP) to induce an expected efficient trade-off between the cost of curtailment (load shedding) and the cost of providing supply. However, estimating WTP can be difficult, creating the risk that the price cap is not accurate.
	Reliability standard	Information, non-excludability and metering	This type of intervention works by defining a reliability standard level to reflect the trade-off between the cost of providing a reliable supply and the value consumers place on a reliable service (VCR). The optimal level of reliability should balance the cost of load shedding and the cost to avoid load shedding. For a reliability standard to be effective, it needs to be set with regard to an estimated WTP (VCR or value of lost load - VoLL). This is so that the level of the

	Intervention	Market Failure	Analysis
			standard reflects the value consumers place on a reliable supply. A reliability standard could play a variety of roles: • a key input into the price caps (as in the NEM)— although price caps could be set directly to an estimated WTP/VCR/VoLL • as a trigger, limit or guide for further non-price interventions • a market information role to help signalling the potential occurrence and significance of threats to reliable supply
	Non-price interventions	Non-excludability and metering	This could be in the form of direct government or system operator intervention in the market (either through the direct purchase of commodity gas or contracting with market participants). A challenge with these type of interventions is avoiding undermining the market's incentives to otherwise provide supply of a commodity.
	Information provisions	Information	By market participants providing additional information to the market there can be an increase in more efficient decision-making. Increasing levels of market transparency can become costly for market participants and market bodies.
Infrastructure options	Reliability standards	Natural monopoly or HILP	This could be in the form of transmission or distribution pipelines having a requirement to report reliability on the same basis, allowing comparisons across networks. For example, in electricity networks, a reliability target is set and acts as a baseline that the network can be compared to and the regulator can observe.
	Infrastructure planning standards	Natural monopoly or HILP	This intervention would require the government to ensure that in the event of the disruption of the single largest gas infrastructure in the country that daily gas demand can be met. (e.g. N-1 standards)
	Infrastructure technical standards	Natural monopoly or HILP	Technical standards can be used to increase reliability of infrastructure. Requiring infrastructure to meet certain technical standards reduces the possibility of high impact events and reduces the ability of monopolists to exercise their market power by reducing service standards.

A.3 Relationships between reliability standard, VCR and price caps

The rule change request seeks to introduce a reliability standard that is informed by a value of customer reliability for the gas markets. It also proposes a review of the gas market settings, including the price caps.

The multi-faceted nature of the request raises the question of how the various proposed components relate to each other. An initial view on these relationships is discussed below. This rule change request also links to the proposed solutions set out in the other RSA rule change requests. [81]

A.3.1 Reliability standard and VCR

For a reliability standard to be effective, it should be set with regard to an estimated value of customer reliability (VCR). The reliability standard plays an 'intermediary role' in interventions, instead of interventions being made with direct regard to the VCR. This means that the reliability standard should not be set above a level where the cost of providing reliability exceeds a VCR. This approach is used in the NEM and has been proposed for the ECGS.

However, a reliability standard is not essential to inform the market settings or interventions (such as supplier of last resort) to occur. Market settings could be reviewed with direct reference to the estimated VCR and market interventions could be constrained in a way that reflects the expected VCR.

However, while a reliability standard may not be essential to set market settings or constraint interventions, it can provide the benefit of contextualising information provided to the market by expressing the desired level of reliability from gas supply, demand response, and ability to deliver the supply to meet demand.

Unless the non-excludability and metering market failures are overcome, it is preferable that a central agency estimate the VCR. This is because in the absence of metering, consumers are unable to directly reveal their own value of customer reliability. For the NEM, this agency is the AER.

A.3.2 VCR and price caps

In theory, setting a market price cap at a VCR should result in an efficient trade-off between the cost of load shedding and the cost of providing supply. [82]

At prices lower than the VCR, it would be efficient to increase prices to induce additional supply because the cost of provision of additional supply is less than the cost of load shedding. Conversely, at prices greater than the VCR, the cost of load shedding is less than the cost of the provision of supply. At price caps equal to the VCR, the optimal balance between cost of load shedding and the cost of provision of supply is achieved.

A potential drawback of setting the price cap at the VCR is that it could introduce risk. A high price cap equal to the VCR could result in system risk. System risk is the failure of market participants exposed to high prices, which could lead to an industry-wide financial collapse. In the NEM, the Panel considers it is better to use other interventions such as the reliability and emergency reserve (RERT) to induce efficient levels of reliability despite deliberately setting the price cap below the VCR (i.e. in relation to the intermediary reliability standard). A RERT-like tool has not been proposed as part of the ECGS stage 2 RSA rule changes lodged with the AEMC.

81 See section 1.2.2 of the background paper.

82 See appendix B for more information.

The rule change request proposes that (as it is the case in the NEM), a reliability standard is used as an intermediary step to review the market settings, including the price caps. The reliability standard would be set with regard to a gas VCR, and the market price cap would be set with regard to the reliability standard. Such an approach might not be necessary, and depending on the purpose of the reliability standard, the market price caps could be set directly to the gas VCR instead.

If market price caps are to be set to better reflect a VCR, the market price could be set:

- directly at an estimate of the VCR, or
- deliberately below the VCR to account for system risk.

B Load shedding and restoration in electricity and gas networks

Load shedding or curtailment of demand is in some ways more challenging for gas than electricity, and this may be relevant when considering the problems and solutions proposed in the stage 2 RSA rule change requests.

B.1 Curtailing demand for electricity users

The following procedures are used to manage actual supply shortfalls in the national electricity market:

- The Jurisdictional system security coordinator (JSSC), appointed by the relevant jurisdictional minister (under NEL, s. 110(1)) prepares a schedule setting out the order in which loads in the participating jurisdiction may be shed by AEMO for the purposes of undertaking any load shedding (load shedding schedule).[83]
- AEMO prepares a set of procedures for each participating jurisdiction under which loads will be shed and restored in accordance with the JSSC schedule for that participating jurisdiction (load shedding procedures).[84]
- Transmission network service providers (TNSPs) develop load shedding plans that are consistent with AEMO's load shedding procedures and the JSSC's load shedding schedule.[85]
- If required to maintain power system security, AEMO will issue a direction to a relevant TNSP to manually interrupt load, and subsequently to restore load. A TNSP must utilise its load shedding plan to interrupt suitable load blocks, such that the amount of load shed is not less than the amount specified in AEMO's direction.[86]
- The TNSP will refer to its load shedding plan and will verbally communicate with the relevant distribution network service provider (DNSP) control centres to coordinate the required load shedding.[87]

In practice this may result in initially turning off some very large transmission connected customers, who have arrangements in place for interruptible power supply. If this is not sufficient, TNSPs may instruct DNSPs to start load shedding customers at distribution level. DNSPs have the ability to turn off and on large customers, or small groups of customers, grouped together on a feeder, for a few hours at a time. This way, they can rotate through their customer base, exposing customers to limited duration outages and ensuring that feeders with essential services like hospitals, are not turned off. Not all actual supply shortfalls are foreseeable or provide sufficient time for manual intervention. In an emergency where system frequency unexpectedly falls, load will automatically be shed through an emergency frequency control scheme in similarly prioritised blocks.[88]

B.2 Curtailing demand for gas users

In the context of the gas sector, supply to the distribution system can essentially never be turned off for the purpose of managing reliability. As described in the reliability rule change request, if

83 NER, clause 4.3.2(f)(2).
84 NER, clause 4.3.2(h)(1).
85 AEMO, Manual load shedding standard, 30 December 2019, p 6.
86 AEMO, Manual load shedding standard, 30 December 2019, p 6.
87 AEMO, Manual load shedding standard, 30 December 2019, p 7.
88 NER, clause 4.3.2.

minimum pipeline pressures are breached and air ingress occurs, network purging and repressurising may be required.[89] This can cause a prolonged loss of supply to gas users in the order of weeks.[90] Furthermore, rotational load shedding across a gas distribution system is not possible since individual sections of the system cannot be isolated and turned off (that is, users cannot be excluded from withdrawing gas from the pipeline system).

As a result, in the event of a shortfall, AEMO may request or direct larger users to curtail their usage in order to maintain minimum pipeline pressures under the ECGS stage 1 RSA powers. This is regardless of those users' contracted arrangements with suppliers, storage providers or pipeline operators. However, similar to electricity, some large gas users will have the ability to have supply interrupted (and under what conditions this is possible) reflected in their supply and transport contracts.[91]

For example, AEMO's *gas load curtailment and gas rationing and recovery guidelines* for the Victorian declared transmission system and declared distribution systems contains the table in Figure B.1, setting out the typical order of curtailment.[92]

Figure B.1: AEMO gas load curtailment tables

	Table description	Typical measure type
Table 1	Supply for: (a) Withdrawals into storage. (b) GPG subject to specified considerations. (c) Customers with interruptible supply contracts. (d) Controllable withdrawals to interconnected transmission pipelines.	Directed restriction
Table 2	An appeal for a voluntary reduction in gas consumption.	Voluntary reduction
Table 3	*Tariff D* – Category B Curtailment of high consuming (*tariff D*) customers that will likely have a negligible to low impact to health, the environment or community financial sustainability.	Directed restriction
Table 4	Residential and small commercial (*tariff V*) customers.	Mandated restriction
Table 5	*Tariff D* – Category A Curtailment of high consuming (*tariff D*) customers that will likely have a low to intermediate impact to health, the environment or community financial sustainability.	Directed restriction
Table 6	Priority services, which is formed from: 1. Critical services. 2. Pre-approved customers with a curtailment allowance.	Mandated restriction
Table 7	In order of priority: 1. Medically required residential gas consumption for customers not registered in the gas Life Support Register. 2. Residential customers that are registered in the gas Life Support Register. 3. Essential services.	Mandated restriction

Source: AEMO, Gas load curtailment and gas rationing and recovery guidelines, January 2023, Table 1, p 13

89 Rule change request, p 16.

90 For an illustration on managing a restart of gas supply see: Dawson and Brooks, *The Esso Longford gas plant accident: report of the Longford royal commission*, June 1999, pp 156-161.

91 AEMO also has directions powers for the DWGM.

92 AEMO, Gas load curtailment and gas rationing and recovery guidelines version 9.0, 7 December 2022, p 13.

These AEMO guidelines state that "Tables will typically be curtailed in whole (i.e. all customers within the given Table) from 1 to 7 until the minimum quantity of load reduction has been reached. Multiple Tables may be curtailed in a single direction."[93]

93 Tariff D customers are defined as "Large commercial and industrial customers with an annual consumption exceeding 10 terajoules (TJ). The supply point of these customers is metered via an Interval Meter(refer to AEMO Retail Market Procedures (Victoria))." A directed restriction "is a direction given by AEMO under NGL 91BC for a Registered participant to regulate the supply or use of gas. The direction may require the Registered participant to do any reasonable act or thing that AEMO believes necessary in the circumstances." A mandated restriction is "a direction given by either ESV or the Minister of the Department to implement curtailment, rationing or recovery through the use of Emergency powers."

Abbreviations and defined terms

AEMC	Australian Energy Market Commission
ACCC	Australian Competition and Consumer Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Commission	See AEMC
CPT	Cumulative price threshold
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DNSP	Distribution network service provider
DTS	Declared transmission system
DWGM	Declared wholesale gas market
ECGS	East coast gas system
ESOO	Electricity statement of opportunities
GFBP	Gas forecasting best practice guidelines
GSAR	Gas supply adequacy and reliability
GSOO	Gas statement of opportunities
HILP	High impact-low probability
JSSC	Jurisdictional system security coordinator
LOR	Lack of reserve
MPC	Market price cap
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules
NGL	National Gas Law
NGO	National gas objective
NGR	National Gas Rules
PASA	Projected assessment of system adequacy
Proponents	The proponents of the rule change request
RERT	Reliability and emergency reserve trader
RSA Framework	Reliability and supply adequacy framework
SoLR	Supplier of last resort
STTM	Short term trading market
TNSP	Transmission network service providers
USE	Unserved energy
USG	Unserved gas
VGCR	Value of gas customer reliability
VoLL	Value of lost load