



20 December 2024

Submission: Firm Energy Reliability Mechanism

The Australian Pipelines and Gas Association (APGA) represents the owners, operators, designers, constructors and service providers of Australia's pipeline infrastructure, connecting natural and renewable gas production to demand centres in cities and other locations across Australia. Offering a wide range of services to gas users, retailers and producers, APGA members ensure safe and reliable delivery of over 1,500 PJpa of gas consumed in Australia alongside over 4,500 PJpa of gas for export.¹ We are at the forefront of Australia's renewable gas industry, helping achieve net-zero more quickly and affordably.

APGA supports a net zero emission future for Australia by 2050². Renewable gases represent a real, technically viable approach to lowest-cost energy decarbonisation in Australia. As set out in Gas Vision 2050³, APGA sees renewable gases such as hydrogen and biomethane playing a critical role in decarbonising gas use for both wholesale and retail customers.

APGA welcomes the opportunity to provide a submission to the South Australian Department of Mining and Energy on its proposed Firm Energy Reliability Mechanism (FERM). As Australia transitions to a net zero economy with a high incidence of variable renewable energy production, flexible gas powered generation (GPG) capacity has become increasingly important.

The proposed FERM provides a structured framework to ensuring energy reliability in SA. To ensure the success of the FERM, strict requirements will be necessary such that new scheme participants must guarantee generation on demand at the times required under any contract. For GPG, which will necessarily need to include firm energy supply and transport contracts – which will ensure that supply and transport infrastructure has sufficient capital for investment.

APGA considers that the FERM model can and should be adopted by other jurisdictions, which will need to investigate state-based capacity mechanisms in addition to and succeeding the Federal Government's Capacity Investment Scheme (CIS), which specifically excludes GPG. APGA applauds the SA Government's approach to developing and legislating the FERM within the *National Electricity (South Australia) Act 1996*.

¹ DCCEEW, 2024, *Australian Energy Update 2024*, Figure 3, https://www.energy.gov.au/sites/default/files/2024-08/australian_energy_update_2024.pdf

² APGA, *Climate Statement*, available at: <https://www.apga.org.au/apga-climate-statement>

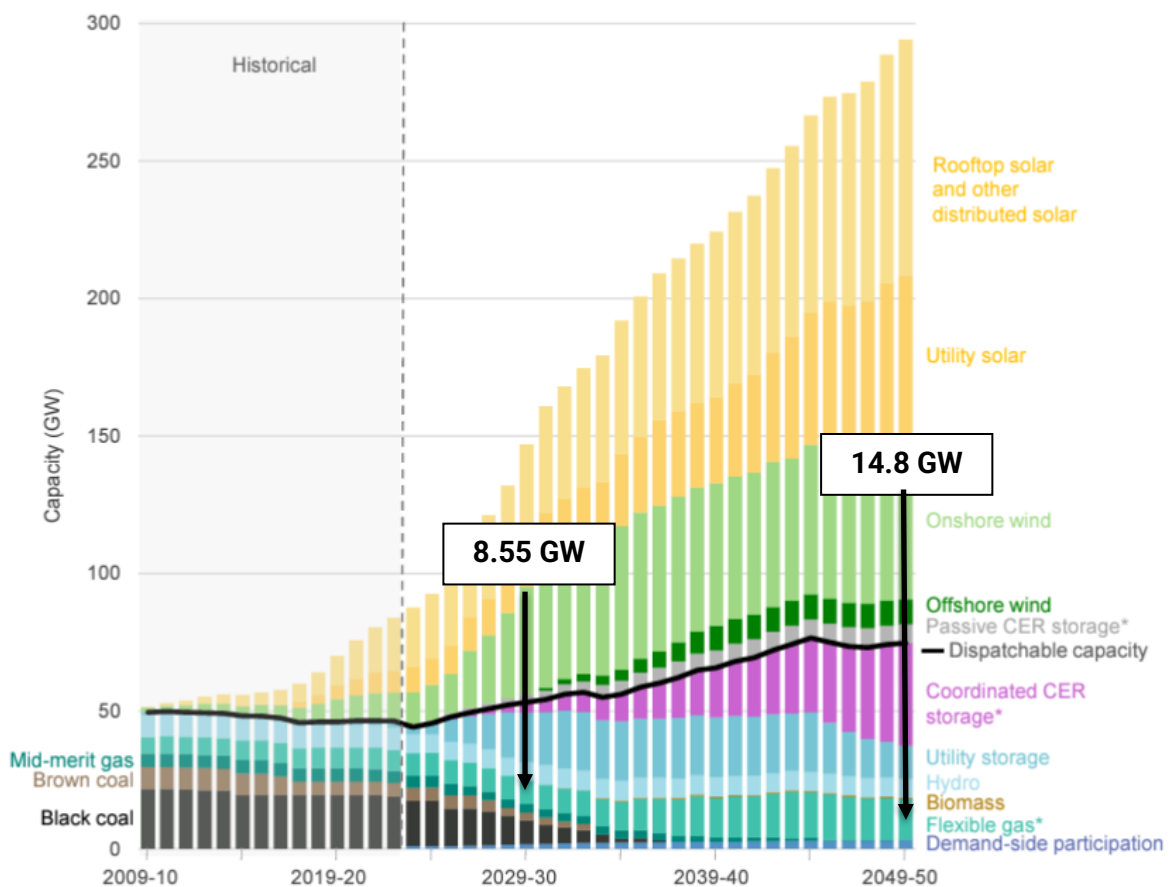
³ APGA, 2020, *Gas Vision 2050*, https://www.apga.org.au/sites/default/files/uploaded-content/website-content/gasinnovation_04.pdf

Gas powered generation is critical for a successful energy transition

As Australia’s energy systems move to being dominated by variable renewable electricity, dispatchable capacity will become critical in ensuring system stability and reliability. Of this, flexible gas will become increasingly influential in providing that stability towards 2050.

AEMO’s 2024 Integrated System Plan (ISP) forecasts that by 2050 under the Step Change Scenario, the National Energy Market (NEM) will need a total of 14.8 GW of flexible GPG (Figure 1).⁴ This trajectory nearly doubles capacity from 8.55 GW in 2030 – at the time when the CIS is scheduled to cease.

Figure 1: Forecast capacity the NEM (GW, 2009-10 to 2049-50, Step Change)

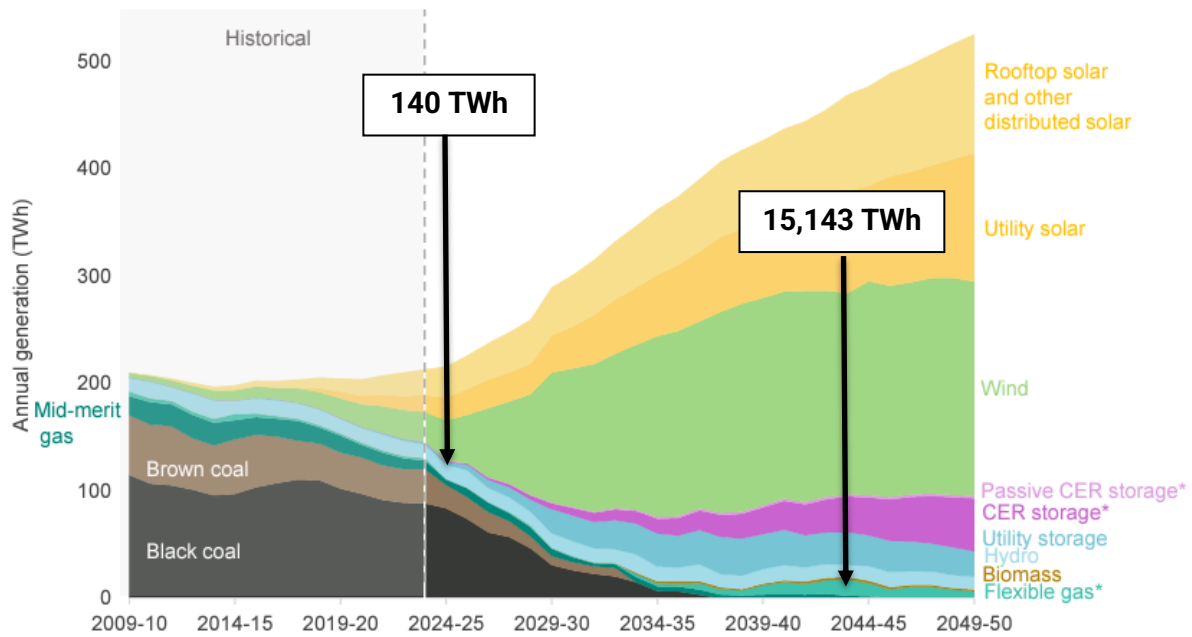


Notes: “Flexible gas” includes gas-powered generation and potential hydrogen capacity.
 “CER storage” means consumer energy resources such as batteries and electric vehicles.
 Projections for “Rooftop solar and other distributed solar” and “CER storage” are forecast based on unit costs, consumer trends and assumptions about payments received to participate in the electricity market.

At the same time, the ISP projects that the actual contribution of GPG to the generation mix in the NEM under the same scenario will fluctuate considerably over the period to 2050. The model predicts flexible GPG will climb from near-record lows of 140 TWh to a peak of 15,000 TWh in 2043-44 (Figure 2).

⁴ AEMO, 2024, *2024 Integrated Systems Plan*, <https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf>

Figure 2: Forecast generation mix in the NEM (TWh, 2009-10 to 2049-50, Step Change)

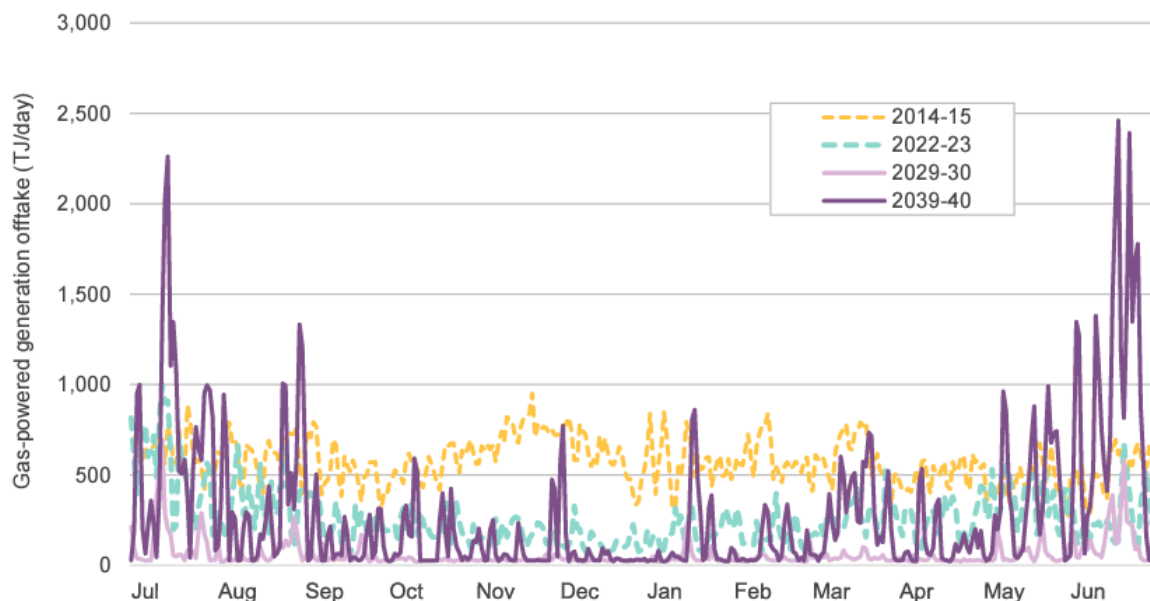


Notes: Annual generation for 2023-24 has been estimated for the full financial year.
 "Flexible gas" includes gas-powered generation and potential hydrogen capacity.
 "CER storage" means consumer energy resources such as batteries and EVs.

The ISP also demonstrates an expectation that GPG will become a critical backstop. Projected winter demand peaks for GPG grow drastically in 2039-40 (Figure 3), with several days requiring close to 2,500 TJ/day.

It is worth noting that this projected offtake is well in excess of current generation capacity, and that additional investments may be required to gas transport and storage infrastructure to meet this peak demand.

Figure 3. Forecast gas-powered generation offtake in the NEM (TJ/day, 2014-15 to 2039-40, Step Change)



Current investment frameworks do not incentivise GPG investment

While the ISP provides a strong signal that investing in GPG is necessary and warranted, the investment case for GPG is turbulent. Because the plants can be only dispatched a few times a year, it can be challenging to recover the investment and fixed costs of power generation, especially considering the expected capacity requirements vs forecast generation in the ISP.

The uncertainty of gas supply and demand volumes and additional costs imposed by emissions reduction policies introduces additional investment risk. For these reasons, it may be difficult to maintain investment in existing GPG or bring GPG projects to FID.

It is also worth noting that the ISP does not consider what incentives or investments would be required to keep *existing* GPG in the market, to both meet near term demand and the ISP's projected demand from 2030. Without such incentives, it is not guaranteed that existing GPG will remain in the market long enough to form a foundation for future capacity investment.

In excluding gas from the CIS, the Federal Government has placed a further barrier for future investors in GPG: they will need to compete against dispatchable investments that have been able to take advantage of the CIS. The FERM provides another pathway for dispatchable investments that may not otherwise reach FID.

FERM provides a capacity investment model for other jurisdictions

The FERM, unlike the CIS – and the Renewable Energy Transformation Agreements – does not exclude GPG, which removes a barrier to investment in those assets. The decision to mandate participation means that the state can coordinate long duration firm capacity in a competitive way, which ultimately will provide consumers value for money that they may not have achieved.

Hence, the FERM provides a model for capacity investment for other jurisdictions. The drafting of the legislation within the *National Electricity (South Australia) Act 1996* will allow other NEM jurisdictions to readily and directly adopt the scheme – and APGA recommends that they do so.

To discuss any of the above feedback further, please contact me on +61 409 489 814 or crafael@apga.org.au.

Yours sincerely,



CATRIONA RAFAEL
Acting Head of Policy
Australian Pipelines and Gas Association



Consultation questions

| DEM Question | APGA Response |
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| <p>1. Do you consider that the proposed framework to support long-duration firm capacity provides a sound basis to meet the challenges to maintaining reliability and resilience for the South Australian power system?</p> | <p>The proposed FERM will assist in supporting South Australia’s energy system manage the transition to one dominated by variable renewable energy, providing the necessary system stability and resilience.</p> |
| <p>2. Do you consider that the Objectives and Core Principles outlined in this chapter provide a sound basis for developing the FERM? Should we be considering others?</p> | <p>The Objectives and Core Principles place appropriate emphasis on ensuring reliability and resilience in the South Australian energy system, and provide strong incentives for investment in firming capacity.</p> <p>It is appropriate that participation in the scheme is mandatory for all new and existing eligible facilities, though the SA Government should be careful to ensure that there are not imbalanced incentives between new and existing participants in the market.</p> |
| <p>3. What factors do you consider most important to encourage the retention or development of long-duration firm capacity in order to meet the Scheme’s objectives?</p> | <p>APGA assumes that the development of the scheme will include a legislated framework outlining the criteria, timelines and objectives and looks forward to engaging with the SA Government on developing them. These factors will be key in incentivising and derisking investment in large, complex, long-term projects, assuming they can be paired with streamlining of planning and approvals processes.</p> |
| <p>4. Do you agree with the proposed standard FERM tender eligibility criteria, relating to technology, location, and operational status, in order to meet the Scheme’s objectives?</p> | <p>APGA agrees with the proposed eligibility criteria. We suggest that participants be required to provide evidence of capability to dispatch for at least 8 hours. For GPG, as noted above, this should include evidence of firm gas supply and transport contracts.</p> |

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| <p>5. Please provide feedback on how the proposed bid options and obligations outlined in this chapter may influence decision-making to operate existing long-duration firm capacity or incentivise the construction of new plants.</p> | <p>Overall the proposed bid options and obligations appropriately balance certainty and flexibility for new and existing operators. The FERM will likely be a significant factor in new investment decisions by de-risking upfront investment in capital, and providing predictable revenue streams.</p> <p>The FERM may disincentivise or delay retirements of existing generators, though these may be more likely to experience reliability issues. The operational obligations framework should be sufficiently balanced to deal with this without overly stringent penalties in cases where “acts of God” or technical failures are relevant.</p> |
| <p>6. How suitable do you consider the LOR 2/3 event performance to be as the primary contract performance obligation?</p> | <p>These are an appropriate trigger for capacity supply given LOR2/3 events signal insufficient reserves.</p> |
| <p>7. Please provide any feedback on the proposed ‘cap and collar’ commercial model. Do you consider it properly balances value for money for consumers with revenue certainty for long-duration firm capacity providers?</p> | <p>The cap and collar model is an appropriate model to balance risk between operators and consumers. The nature of some ‘peaking’ infrastructure can make investment difficult, as usage (and hence revenue) cannot be guaranteed. This model provides protection for participants from significant downside risks, while consumers are protected from excessive upside payments.</p> <p>This model also in some ways levels the playing fields between technologies. BESS systems for example may have a shorter capacity reserve than a GPG peaking plant; the former may however be able to operate in a daily market more readily than the latter.</p> <p>The collar provides certain revenue recovery for capital-intensive investments that may otherwise not be able to recover that capital in years of fewer reliability events or low market prices.</p> |
| <p>8. Does the proposed cost recovery mechanism for the Scheme represent the most effective way to recover Scheme costs and to ensure Scheme costs are evenly shared across all energy users in South Australia?</p> | <p>APGA considers the cost sharing model to be reasonable as long as it is communicated transparently. No single party will experience drastic increases in costs, although this may be felt more keenly by lower-income households and small businesses.</p> |