



APA Submission

Draft 2024 Integrated System Plan

February 2024





Daniel Westerman
Chief Executive Officer
Australian Energy Market Operator

Lodged via email: ISP@AEMO.com.au

16 February 2024

RE: APA Submission to the draft 2024 Integrated System Plan

Dear Mr Westerman,

Thank you for the opportunity to comment on the draft 2024 Integrated System Plan (ISP).

APA is an ASX listed owner, operator, and developer of energy infrastructure assets across Australia. Through a diverse portfolio of assets, we provide energy to customers in every state and territory. As well as an extensive network of natural gas pipelines, we own or have interests in gas storage and generation facilities, electricity transmission networks, and 692 MW of renewable generation and battery storage.

We are actively involved in the energy transition taking place across Australia. In August 2022, we published our inaugural Climate Transition Plan which outlines APA's pathway to net zero operations emissions by 2050. Our asset portfolio across gas, electricity and renewables means we are well-placed to lead future ISP projects which take Australia a step further towards net zero.

The draft 2024 ISP is relied on by a wide range of stakeholders as the roadmap for Australia's pathway to net zero. Faster decisions on future ISP projects will help manage risks associated with project delivery and maintain reliable energy supply throughout the transition. It is also critical that ISP project timeframes accurately reflect current challenges and potential roadblocks when it comes to delivering projects successfully and on time.

As coal power stations retire, we need to make sure we're filling the generation gap left behind. Gas Powered Generation (GPG) can reliably fill this gap and has the advantage of emitting approximately half the emissions of coal fired generation. Therefore, investing in our gas sector helps our net zero journey and will play a critical role in maintaining energy security.

Should you have any questions or queries about our submission, please contact John Skinner on 02 96930009 or john.skinner2@apa.com.au.

Regards,

A handwritten signature in black ink, appearing to read 'Beth Griggs'.

Beth Griggs
General Manager
Economic Regulatory & External Policy

1 Submission

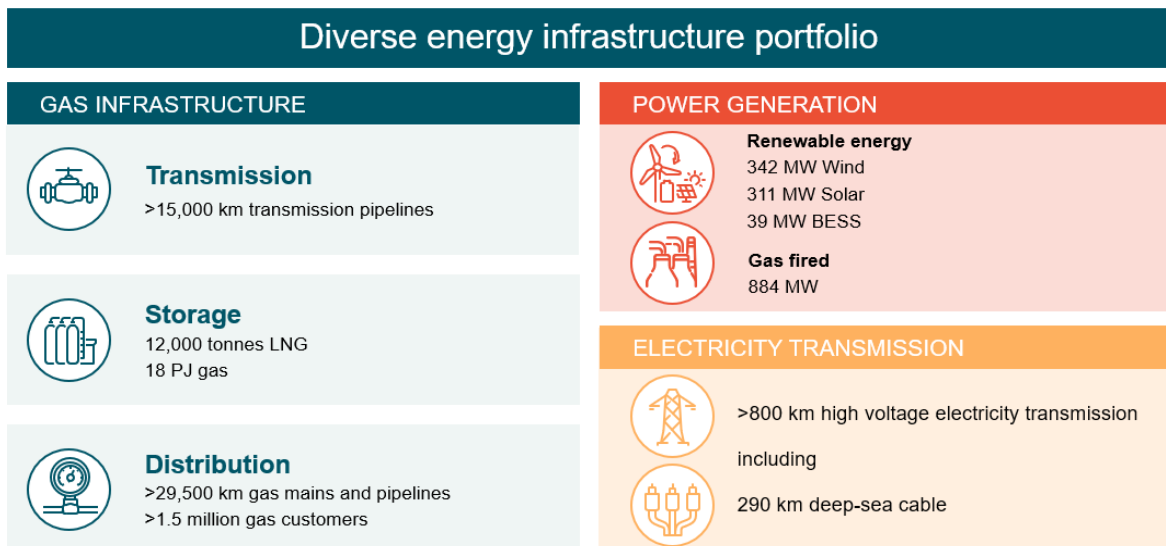
Key points

- Faster decisions and more accurate timeframes on ISP projects will help industry deliver what’s needed for the transition. In particular, we encourage AEMO to progress decisions needed to develop future ISP projects in Victoria to address reliability risks.
- Timeframes should take into account significant challenges faced by project proponents – including land access (e.g., easements), approvals and social licence.
- Retiring coal and closing the capacity gap with GPG can help us get to net zero faster. GPG emits half the carbon emissions of coal.
- It is essential that GPG forecasts are accurate under the ISP, given how important gas is, and will continue to be, for Australia’s net zero journey.
- Ensuring energy security and reliability throughout the transition means increasing investment in GPG, developing new gas supply and continuing to invest in our gas sector.

1.1 APA as a partner of choice in Australia’s energy transition

APA is a leading Australian Securities Exchange (ASX) listed energy infrastructure business. Consistent with our purpose to strengthen communities through responsible energy, our diverse portfolio of energy infrastructure delivers energy to customers in every Australian state and territory.

Figure 1: APA’s portfolio



Our 15,000 kilometres of natural gas pipelines connect sources of supply and markets across mainland Australia. We operate and maintain networks connecting 1.5 million Australian homes and businesses to the benefits of natural gas. And we own or have interests in gas storage facilities and gas-fired generation.



We also operate and have interests in 692 MW of renewable generation and battery storage infrastructure, while our high voltage electricity transmission assets connect Victoria with South Australia, New South Wales with Queensland and Tasmania with Victoria.

APA actively supports the transition to a lower carbon future. In August 2022, we published our inaugural Climate Transition Plan which outlines our commitments to support Australia's energy transition and pathway to achieve net zero operations emissions by 2050. In September 2023 we released our first Climate Report disclosing our progress against our Climate Transition Plan.

In late 2022, we completed the acquisition of Basslink Pty Ltd, which owns and operates the 370km high voltage direct current electricity interconnector between Victoria and Tasmania. The acquisition adds a third electricity interconnector to APA's energy infrastructure portfolio.

In early 2023, APA established an Electrical Transmission business unit with a focus on electrical transmission infrastructure across Australia. We have recruited a team of established industry professionals to lead APA in playing a pivotal role in the energy transition. In line with our strategic focus, we have also announced a partnership with leading global infrastructure organisation EDF Group. This partnership synergises EDF's global experience in electricity transmission delivery and operations, with APA's strong local experience in the construction and operation of linear energy infrastructure.¹

In November 2023, we completed the acquisition of Alinta Energy Pilbara, an energy infrastructure business in Western Australia (WA) with gas and solar generation, battery storage and electricity transmission assets. Alinta Energy Pilbara also has an extensive pipeline of wind, solar, gas and electricity transmission projects.

With our extensive portfolio of assets and expertise across gas, electricity and renewables, we are well-placed to lead future ISP projects and other projects which take Australia a step further towards net zero.

1.2 Faster decisions on ISP projects help us deliver on what's needed for the transition

APA understands the unique complexities of delivering large-scale energy infrastructure assets and is well-placed to play a leading role in electricity transmission projects that support the energy transition. Also, as the sole operator of high voltage direct current (HVDC) transmission assets in Australia (Basslink, Directlink and Murraylink), we have unique insights and skills in the development and implementation of HVDC infrastructure.

We broadly support the ISP projects under the Optimal Development Pathway (ODP) and recognise that delivering electricity transmission projects will be critical for the energy transition. We recognise Australia's net zero targets also depend on their success and efficiency.

In particular, we encourage AEMO to urgently progress decisions needed to develop Victorian projects currently classified as future ISP projects (e.g., Western Victorian Grid Reinforcement) to become actionable, noting:

¹ APA, 'APA Group and EDF Group to pursue electricity transmission projects' (Media Release, 31 October 2023).

- AEMO's 2023 Electricity Statement of Opportunities has identified significant risk of reliability issues in Victoria, and the disproportionate risk of late delivery compared with early delivery²
- Existing network constraints in the area are binding with current level of generation, even before currently committed projects are connected.

To support timely and effective delivery, ISP project planning should also:

- prioritise the efficient use of existing easements and co-location with existing infrastructure where feasible, enabling the timely delivery of transmission projects while minimising broader impacts
- consider options such as HVDC that deliver additional value and support higher levels of renewable generation.

1.3 More accurate project timeframes help all of us deliver on critical milestones

Businesses, governments and market bodies are all working towards delivering on projects under the ODP for an orderly, safe and affordable energy transition.

ISP projects under the ODP have the best chance of delivery when they are supported by accurate forecasts, especially when it comes to project timeframes. Accurate forecasts for timeframes ensure timely and cost-effective delivery of the necessary transmission augmentation needed. A recent study completed by the University of Western Sydney (Western Sydney Study) found that meeting our near-term renewable energy targets will depend on more accurate project lead times for renewable energy projects.³

In the draft 2024 ISP, we recognise that AEMO has revised project lead times for nearly all of the projects under the ODP. However, these timeframes are likely to need further extensions to reflect significant challenges faced by project proponents. Actionable ISP projects have already experienced schedule delays. AEMO also agrees that planned projects are not progressing as previously forecast due to 'approval processes, investment decision uncertainty, cost pressures, social licence issues, supply chain issues and workforce shortages.'⁴

1.3.1 Project delivery relies on approvals

The Western Sydney Study found that approvals processes were a key determinant for project lead times. Among other conclusions, the study found that:

- Rule changes to the commissioning and administrative approval processes increased lead times.
- On average 65%-85% and 50%-83% respectively of the total lead time for wind and solar projects were consumed as pre-construction lead time.

² AEMO, '2023 Electricity Statement of Opportunities' (Report, August 2023) 5, 59-61.

³ Lachlan Clapin and Thomas Longden, 'Waiting to generate: An analysis of onshore wind and solar PV project development lead-times in Australia' (2023) 131 *Energy Economics* 1.

⁴ Ibid 14.

- There is evidence of longer lead-times for renewables projects nearing completion, especially for solar projects – estimated to be impacted by final approvals processes.
- Many economic models ignore approval process lead times and only incorporate construction lead times.
- Regulatory uncertainty is a major source of investment risk and can delay projects.⁵

The recent rejection of the Victorian Government’s Port of Hastings Corporation’s application to develop the Victorian Renewable Energy Terminal exemplifies how approvals processes could materially impact not just project lead times, but overall project success.⁶ Renewable energy projects face complicated and lengthy approvals processes that projects must go through before construction can even begin.

In its Offshore Wind Energy Implementation Statement 3, the Victorian Government described the terminal as ‘critical to ensure the achievement of at least 2GW of offshore wind generation by 2030’ – in line with their renewables targets enshrined into legislation in November 2023. The Victorian Renewable Energy Terminal was identified as the preferred primary construction port for the 2.2GW Star of the South, likely to be Australia’s first offshore wind farm.

1.3.2 ***Social licence key to project success and timely delivery***

As a leading energy infrastructure business, our experience has shown that maintaining and strengthening social licence is key to the success of energy infrastructure projects.

Community acceptance of both infrastructure development and orchestration of consumer energy resources is essential to meet the ODP. On the other hand, community opposition to the development of new transmission infrastructure is one of the key reasons why many projects are delayed. Delays to the delivery of transmission infrastructure will impact the speed at which new renewable generation can be connected to the NEM.

We note that the following were excluded from modelling in the draft 2024 ISP:

- Reduced social licence for GPG and batteries
- Reduced social licence due to Native Title and Indigenous Land Use agreements
- Undergrounding transmission options
- Reduced social licence for offshore wind
- Reduced social licence for non-REZ-based generation.

While we appreciate the complexity of obtaining and analysing relevant data to the above, this means that project lead times under the ODP does not provide for any contingencies in the event the above sensitivities materially impact projects under the ODP.

⁵ Ibid.

⁶ Minister for the Environment and Water, The Hon Tanya Plibersek MP, [Port of Hastings Corporation] *Victorian Renewable Energy Terminal Proposal - Rejection Decision* (8 January 2024).

1.4 Retiring coal and closing the gap with gas can help us get to net zero faster

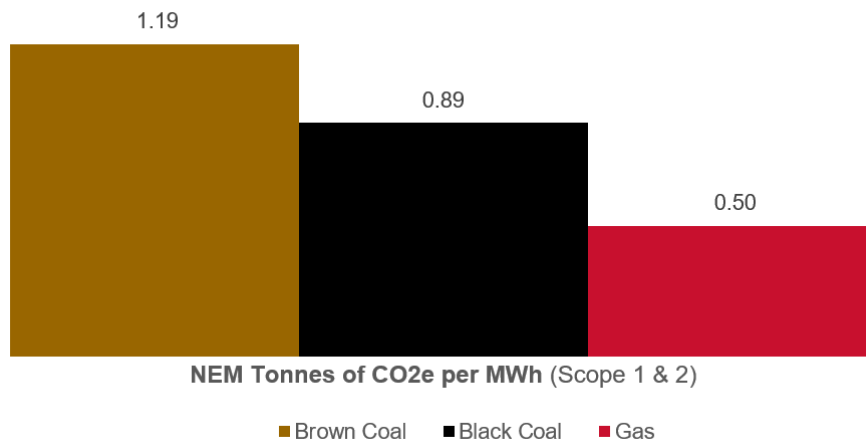
Jurisdictions and market bodies recognise the need to retire coal as fast as possible, as it is likely the fastest pathway to reaching our emissions reduction targets and a net zero future. As coal power stations retire, it becomes even more critical to invest in GPG, new gas supplies and other gas infrastructure. This is because as coal exits, we need to make sure we are filling the generation gap left behind.

Black and brown coal provide almost 50% of electricity generation in Australia and are also one of the biggest sources of carbon emissions.⁷

The existing electricity generation mix in the NEM has a higher carbon profile than natural gas. Both black and brown coal generation have much higher carbon emissions than energy produced by a combined cycle gas turbine (CCGT) (see Figure 2 below).

Figure 2: Carbon intensity of coal and gas powered generation

Source: National Greenhouse and Energy Reporting Data, Clean Energy Regulator



Overseas jurisdictions, including the Netherlands and the UK have recognised that the early retirement of coal generation is one of the biggest single emissions reduction initiatives that can be undertaken.

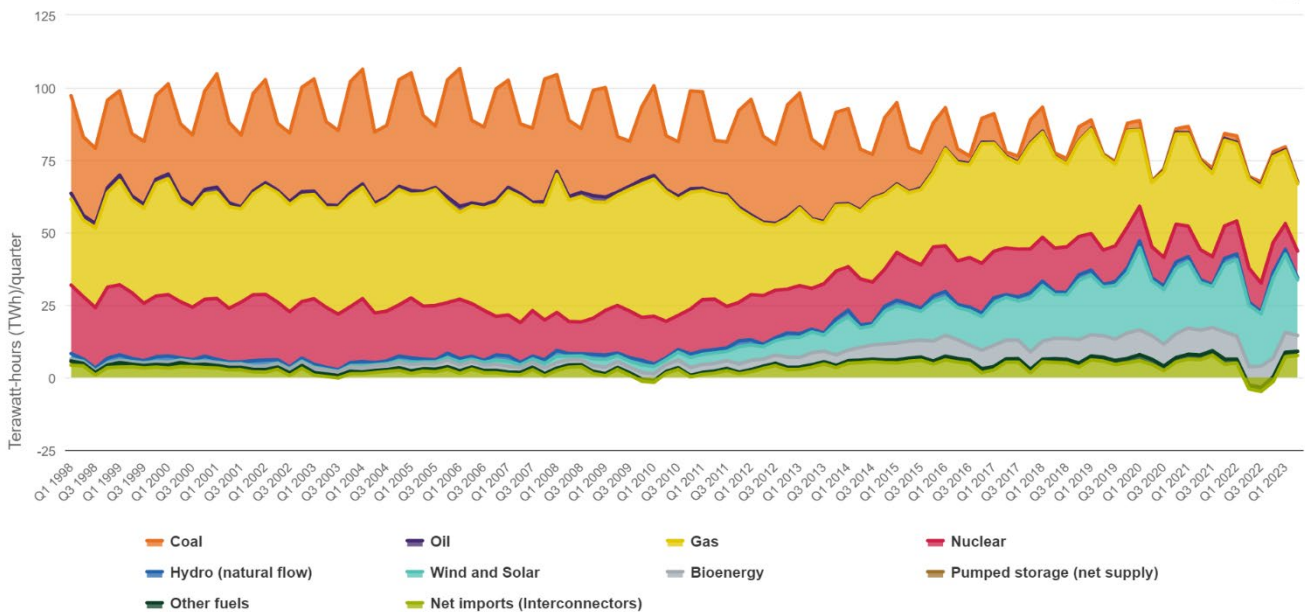
The UK has been progressively phasing coal out of its energy system. However, gas remains an integral part of the energy mix, and major upgrades of the natural gas network are continuing until the 2030s, to reduce methane leakage and provide options to switch to hydrogen in the future.

As shown in Figure 3, renewables now make up around 30% of UK energy generation, while GPG provides around 35%.

⁷ Commonwealth Government, 'Australian Energy Update 2023' (Report, September 2023) 9.

Figure 3: UK energy generated by quarter and fuel source (TWh)

Source: Ofgem.gov.uk, Energy and Data Research, Data Portal



1.5 The ISP needs to better reflect GPG's important role in our net zero journey

As stated in the draft 2024 ISP, we appreciate that any delay to the delivery of the ODP risks the likelihood of interruptions and higher energy costs, where the benefits of a secure energy transition cannot be fully realised.⁸ GPG has proven to step up and address these risks with flexibility and efficiency.

Greater accuracy in forecasting GPG in the ISP is essential, given how important gas is, and will continue to be, through Australia's energy transition.

The recently published report by Boston Consulting Group, 'The role of gas infrastructure in Australia's energy transition' (BCG Report), found that displacing coal first while maintaining the role of natural gas enables emissions reduction to occur sooner and supports an orderly transition to net zero.⁹ This is because without a reliable alternative for coal, governments may have to keep coal power stations open longer than forecast, which will further delay Australia's decarbonisation journey.

Since the 2022 ISP, GPG has been recognised as playing an even greater role during the transition:

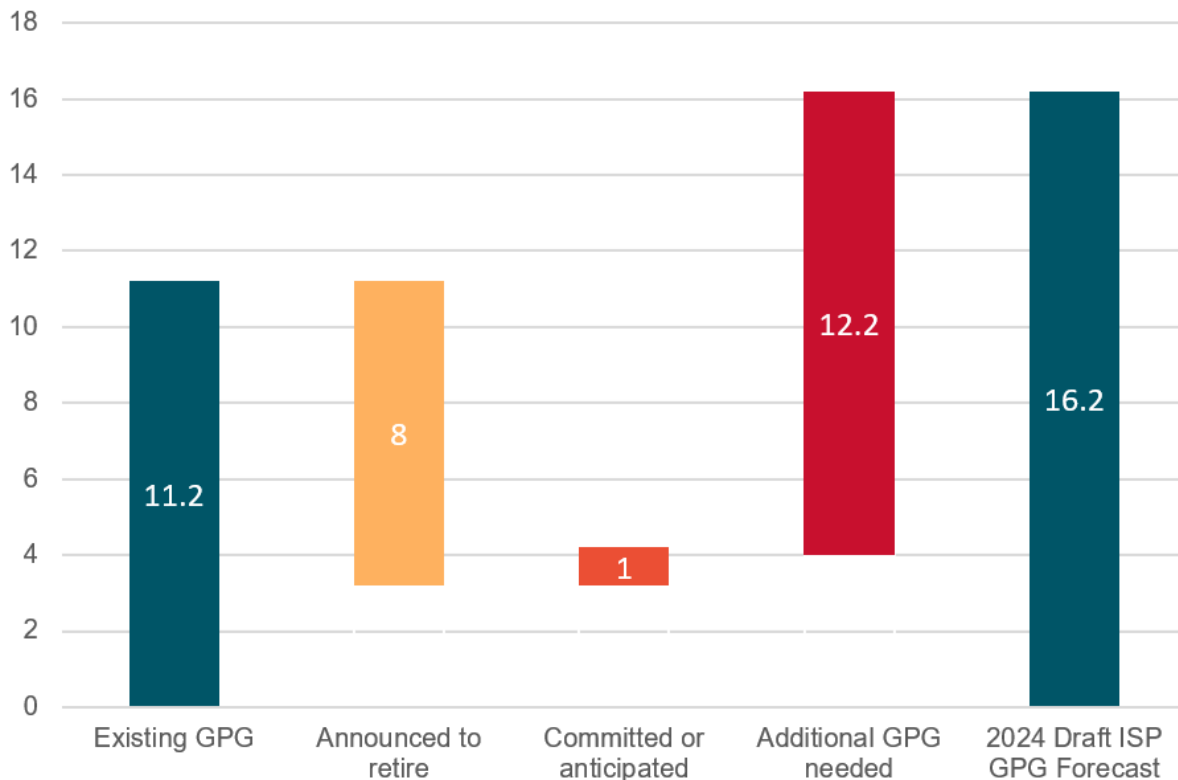
⁸ AEMO, 'Draft 2024 Integrated System Plan (ISP)' (Report, December 2023 - January 2024) 14, 74.

⁹ Boston Consulting Group (BCG), 'The role of gas infrastructure in Australia's energy transition' (Report, June 2023).

- In 2022, AEMO flagged that without coal-fired generation, the NEM would require 10GW of GPG by 2050 for peaks loads and firming.
- In the draft 2024 ISP, AEMO has since revised its forecasts, with the NEM now expected to require 16.2GW of GPG by 2050 – a 60 per cent increase.

Given around 8GW of the existing 11.2GW of GPG capacity already in the system is also expected to retire, we need around 13GW of new GPG to come online to support the massive increase in renewables.¹⁰ This highlights the extent of the challenge before us.

Figure 4: NEM GPG requirements (GW) – draft 2024 ISP



However, just 1GW of dispatchable GPG is currently expected to come online over the next 10 years, according to AEMO.¹¹ This includes Tallawarra B, a 320MW peaking power station in NSW that started testing in December 2023, and the 750MW Kurri Kurri Power Station in NSW that is expected to come online in December 2024. We are aware that CS Energy has announced plans for the 400MW Brigalow peaking power plant, and this is yet to appear in the projections.

Another study which forecasts GPG capacity is the Net Zero Australia Study (Study). The Study's modelling suggests that significantly higher GPG capacity is required to be operational in 2050 to firm electricity generation. The study's modelling of the NEM's electricity system supply and demand balancing shows that open-cycle gas turbines and closed-cycle gas

¹⁰ AEMO, 'Draft 2024 Integrated System Plan (ISP)' (Report, December 2023 - January 2024) 10.

¹¹ AEMO, 'Electricity Statement of Opportunities' (Report, August 2023) 46.

turbines of around 5-15 GW in each of Western Australia, Queensland, New South Wales and Victoria, and 1-5 GW capacity in South Australia, Tasmania and the Northern Territory is required for the transition.¹²

Therefore, it may be that the draft 2024 ISP continues to under forecast the amount of GPG that is required in the NEM, and the important role of GPG in the transition overall.

1.5.1 **Gas steps up when wind and sun aren't there**

Recent publications and announcements have outlined the importance of gas and GPG, as coal exits the system.

The NSW Electricity Supply and Reliability Check Up stated:

*As coal exits and wind and solar increases, the role of GPG as a peaking generator and as back-up during periods of low renewable output will become increasingly important.*¹³

The Hon Chris Bowen, Federal Minister for Climate Change and Energy also stated:

“Domestically, the Government has a target of 82 per cent renewable energy in our energy mix by 2030. As big and ambitious as this lift is, it will leave 18 per cent of our electricity mix as non-renewable...

And as aging coal-fired power stations leave the grid, that 18 per cent will increasingly be focussed on gas. Gas is a flexible fuel necessary for peaking and firming as we undertake this transformation....

“Unlike coal fired power stations (or, for that matter nuclear power stations), gas fired power stations can be turned on and off at very short notice, making them vital for peaking and firming. This is before we get to the needs of industrial manufacturers for gas as feedstock and direct energy.”¹⁴

GPG is expected to play a key role in navigating an orderly and secure energy transition, as well as helping Australia meet its net zero ambition targets.¹⁵

This is already being played out in South Australia, which closed its last coal power station in 2016. As recent experience has shown, periods of low wind and solar availability require significant volumes of long duration dispatchable resources to be available to support the reliability and security of the system. Without GPG providing long duration dispatchable generation, South Australia is unlikely to have developed its renewable energy capacity to the extent that it has in such a short time frame.

Despite the introduction of synchronous condensers in South Australia, GPG remains critical in ensuring sufficient electricity supply, including system strength and long duration firming, and during periods of low wind and solar generation. For example, in the period from 28 April

¹² Net Zero Australia, 'Modelling Summary Report' (Report, 19 April 2023) 60.

¹³ Marsden Jacob, 'NSW Electricity Supply and Reliability Check Up' (Report, August 2023) 85.

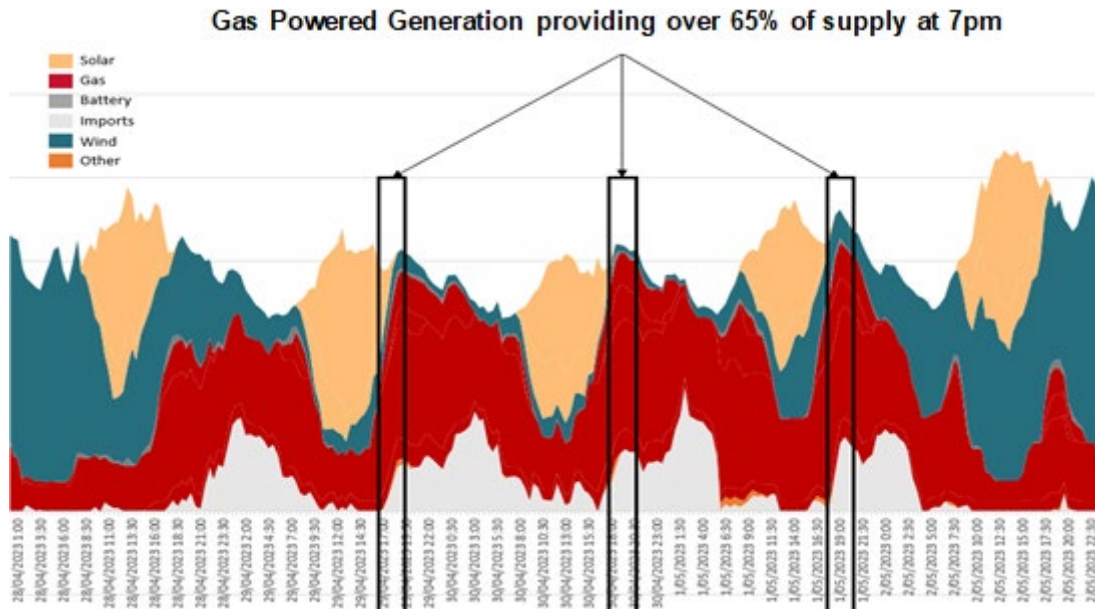
¹⁴ Chris Bowen, 'Speech to CEDA WA Energy Transition Summit' (Speech, CEDA WA Energy Transition Summit, 17 November 2023).

¹⁵ Commonwealth Government, 'Future Gas Strategy Consultation Paper' (Consultation Paper, September 2023) 7.

2023 to 2 May 2023, GPG was critical to supply adequacy due to periods of low wind and solar generation.

As shown in Figure 5, on three out of five days, GPG provided over 65% of peak electricity consumption at 7pm.

Figure 5: GPG supporting energy reliability in South Australia



Source: OpenNEM

The gas network is a flexible, affordable, and safe store of energy, making it ideal to help support energy supply during extreme weather or periods of reduced supply. Locating GPG close to major demand centres also reduces exposure to electricity transmission capacity and frequency constraints often experienced by the overconcentration of renewable generation in common areas of the grid.

1.5.2 Gas must be there to power industries still on their decarbonisation journey

Many Australian industries will need gas for many years to come, especially if there is no alternative energy source available. A net zero outcome will not materialise without a viable solution to decarbonising industry in Australia. As stated by The Hon Madeleine King MP:

“Gas is also indispensable in the processing of critical minerals and technologies such as wind turbines and solar panels.”¹⁶

Modelling results from the BCG Report found that displacing coal should be prioritised before displacing gas end uses and mandating electrification for all gas uses.¹⁷ This is given natural gas’ role in serving critical end uses and heavy industry, which currently do not have alternative energy sourcing options.¹⁸

¹⁶ Madeleine King, ‘Gas market code secures supply for domestic market’ (Media Release, 22 January 2024).

¹⁷ Boston Consulting Group (BCG), ‘The role of gas infrastructure in Australia’s energy transition’ (Report, June 2023).

¹⁸ Ibid.

Even with high levels of electrification in industry over the next 10-15 years, BCG's modelling shows that an additional 200PJ of renewable gas will still be needed.¹⁹

1.6 Ensuring reliability in energy supply means maintaining investment in the gas sector

1.6.1 We need to increase investment in GPG

For the 13GW of new GPG needed to meet the outcomes forecast by the draft 2024 ISP, we need to increasing investing in our GPG industries and help operators deliver the capacity needed.

The operating profile of GPG is very uncertain. Many factors will influence the utilisation of a GPG facility, including the cost of gas, unpredictable weather patterns, coal power generation outages (which may increase demand for GPG), and delays in building electricity assets.

As increasing volumes of renewable energy come online, the pressure on thermal power station operators is expected to increase. The completion of the NSW to South Australia interconnector (Project Energy Connect) and other interconnectors, which will increase the amount of energy that can be imported between jurisdictions, will compound the problem.

While governments are taking steps to incentivise the introduction of new renewable generation projects (such as through the Capacity Incentive Scheme), GPG is not being incentivised through similar mechanisms.

This means that GPG operators will need to recover their costs and risk premium through high prices in the NEM. Often, this will involve bidding in capacity at the Market Price Cap (MPC), which is increasing to \$22,800/MWh by 1 July 2028.²⁰ When the NEM dispatches capacity at the MPC, all capacity is dispatched at that price, regardless of whether the capacity is underwritten or not.

In its July 2022 Consultation Paper, the Energy Security Board (ESB) also recognised that the NEM's energy only design and existing MPC may not be sufficient to encourage investment in enough generation to maintain a reliable system.²¹ The ESB's modelling suggested that the existing MPC is materially too low to give a high likelihood of meeting the current reliability standard.

Ministers and governments should consider whether long-term availability or capacity payments for GPG operators are required to ensure we maintain a reliable energy system.

1.6.2 Developing new gas supply is critical for energy security

Both AEMO and the Australian Competition and Consumer Commission (ACCC) have recently flagged the risk of East Coast supply shortfalls this decade.²² At the current rates of production, Australia is likely to face gas shortfalls from the medium term.²³ This puts at risk

¹⁹ Ibid 11.

²⁰ AEMC, 'Amendment of Market Price Cap Final Determination' (Final Determination, 7 December 2023) 8.

²¹ Energy Security Board, 'Capacity Mechanism, High-level Design Paper' (Paper, June 2022) 13.

²² AEMO, '2023 Gas Statement of Opportunities' (Report, March 2023); ACCC, 'Gas Inquiry 2017-2030' (Interim Report, December 2023).

²³ Ibid.

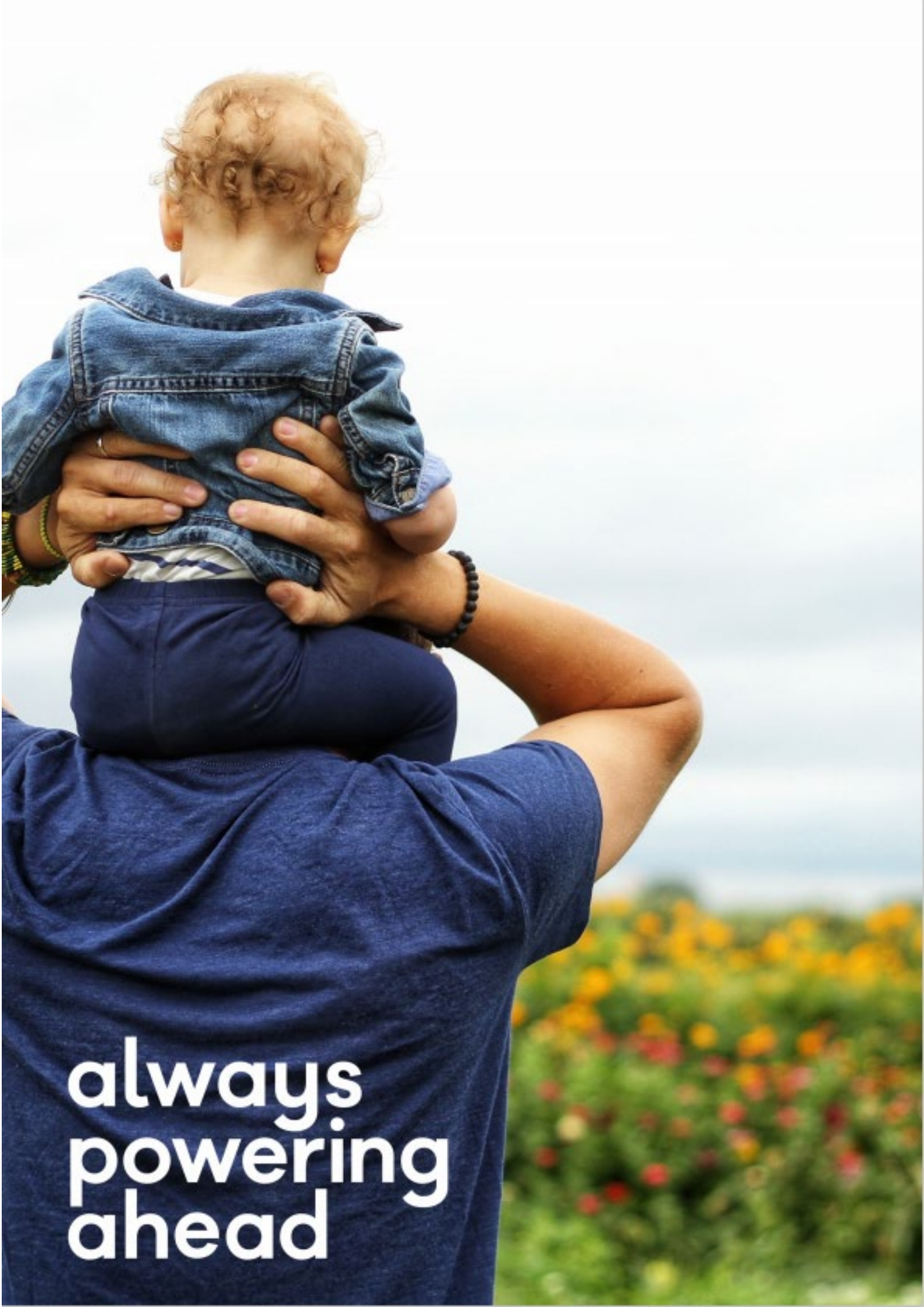


the vital role gas will play in ‘unlocking’ renewables for a secure energy transition, and supporting the decarbonisation of other states beyond South Australia.

Our recent submission to the Future Gas Strategy made several recommendations to ensure this risk doesn’t eventuate. In particular, we noted Governments have a role to play in expediting approval processes to ensure that frontier basins can be established and connected to the interconnected gas grid. We need to fast-track the development of new gas resources to avoid potential gas shortfalls.²⁴

Governments should work closely with industry partners to support and fast-track the development of new gas reserves, including the Beetaloo Basin. The Beetaloo, in particular, is a natural gas resource of potentially significant scale and can help offset the very significant gas supply shortfalls that may commence later this decade.

²⁴ APA, Submission to Future Gas Strategy, ‘Future Gas Strategy Consultation Paper’ (13 November 2023).



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