SQUADRON ENERGY

13 November 2023

Department of Industry, Science and Resources (DISR)
Australian Government

Dear Madam/Sir

RE: Future Gas Strategy: consultation paper

Squadron Energy welcomes the opportunity to respond to DISR's *Future Gas Strategy – Consultation paper*.

Squadron Energy is Australia's leading renewable energy company that develops, operates and owns renewable energy assets in Australia. We have 1.1 gigawatts (GW) of renewable energy in operation and an Australian development pipeline of 20GW. Our development pipeline has projects at differing stages of development and includes wind, solar and firming capacity such as batteries and gas peaking plants with dual fuel capability.

We are also constructing Australia's first LNG import terminal at our Port Kembla Energy Terminal (PKET). Once constructed, Squadron Energy's PKET will include a floating storage and regasification unit (FSRU) to enable LNG to supply the domestic market.

In this submission we would like to raise several general points for consideration in the development of any Future Gas Strategy (FGS), including the importance of:

- gas powered electricity generation for accelerating the decarbonisation of the energy system, and;
- flexibility in midstream infrastructure (transport and storage) to support access to capacity during shortfall periods.

Gas powered generation is critical for electricity firming and to accelerate the decarbonisation of the energy system

As coal exits and variable renewable energy sources increase, the role of gas-powered generation (GPG) as firming during times of low renewable output will become critical. While other stored energy sources such as batteries and pumped hydro can also provide firming services, the limited duration of current battery technologies and the delivery risks of pumped hydro present commercial challenges and limit their full contribution at present. Nevertheless, the need for the timely deployment of lower emissions technologies with firming capabilities remains and is critical to meet our decarbonisation ambitions. It is therefore important to consider more fully the role of GPG in the context of potential delayed emission reduction associated with coal extensions and delays in the deployment of renewable firming technologies. Put another way, GPG is a flexible dispatchable source capable of being deployed at speed while producing fewer emissions than coal burning. As such, increased investment and support for GPG will help avoid significant delays in coal exits, reducing emissions, until such time as zero emissions technologies and fuel sources are more readily available.[1]

In this context, the current investment case for firming technologies is also an important consideration:

[1] Modern GPG technologies also typically have dual fuel capability and can operate on biofuels or, in future, hydrogen blends.

- Long duration storage projects such as **pumped hydro**, given cost and engineering complexity, do not align with the risk appetite of private investors and this is reflected in the level of government ownership of these projects. The long lead time of pumped hydro assets also means their contribution to the 2030 target will be limited, while their contribution to the 2050 target will be critical.
- For **battery technologies** the commercial model currently relies on arbitrage and/or contracted revenue for services such as frequency and voltage regulation to balance the grid. As a technology for providing firming, batteries remain limited by their ability to only do so on a short timescale and/or at a reduced capacity. The implication for battery assets contracted to provide firm capacity is that they only provide a short-term hedge, leaving energy providers highly exposed to wholesale prices during periods of low renewable output and high demand. Many companies will not be willing to take on that level of exposure.
- **GPG** commercials are also changing under current market conditions - notably, the underlying fuel costs make competing with zero marginal generation cost of renewables a short-term outlook. While the asset lives of GPG can extend for as much as 50 years[2] they are unlikely to have an equivalent economic life. This is a central consideration for investors as the long-term value GPG assets will ultimately be eroded, presenting an increasingly challenging investment case.

Importantly, GPG, battery and pumped hydro technologies are largely complementary. Any shortfall in one area will require additional investment in another, and potentially significantly more in some cases, to cover any resulting gaps. In the current environment of limited duration batteries and delayed pumped hydro, GPG provides a means to support the timely retirement of coal-fired power stations, limiting overall emissions, until such a time renewable firming technologies are capable. As such, GPG is crucial to manage the exits and entry of generation, meet our decarbonisation commitments, without compromising on electricity system reliability. Current Commonwealth government policies, programs and initiatives to support firming technologies have focused on bringing zero emission dispatchable technologies to market, however given the capacity, timing and delivery limitations outlined above it is prudent to consider the expansion of these schemes, notably the Capacity Investment Scheme, to include GPG as an eligible technology.[3] Further, future investment in gas infrastructure should take account of future uses (such as switching to biofuels and/or hydrogen). As these uses may not yet be commercially feasible there is an opportunity cost for early movers and therefore it is important that incentives are available to support future-proofing any new investment.

Flexibility in gas transport and storage is critical to support access to capacity during shortfall periods

With gas supply in the southern states of Australia declining faster than projected demand a key challenge of peak day shortfall risk is ensuring sufficient capacity when and where it is needed. While existing transmission infrastructure presents logistical transport barriers in getting gas from across Australia to southern states, PKET provides flexibility where capacity in the transmission pipelines is constrained and, in the longer-term, reduces the need for new gas fields and additional transmission to support north-south flows.

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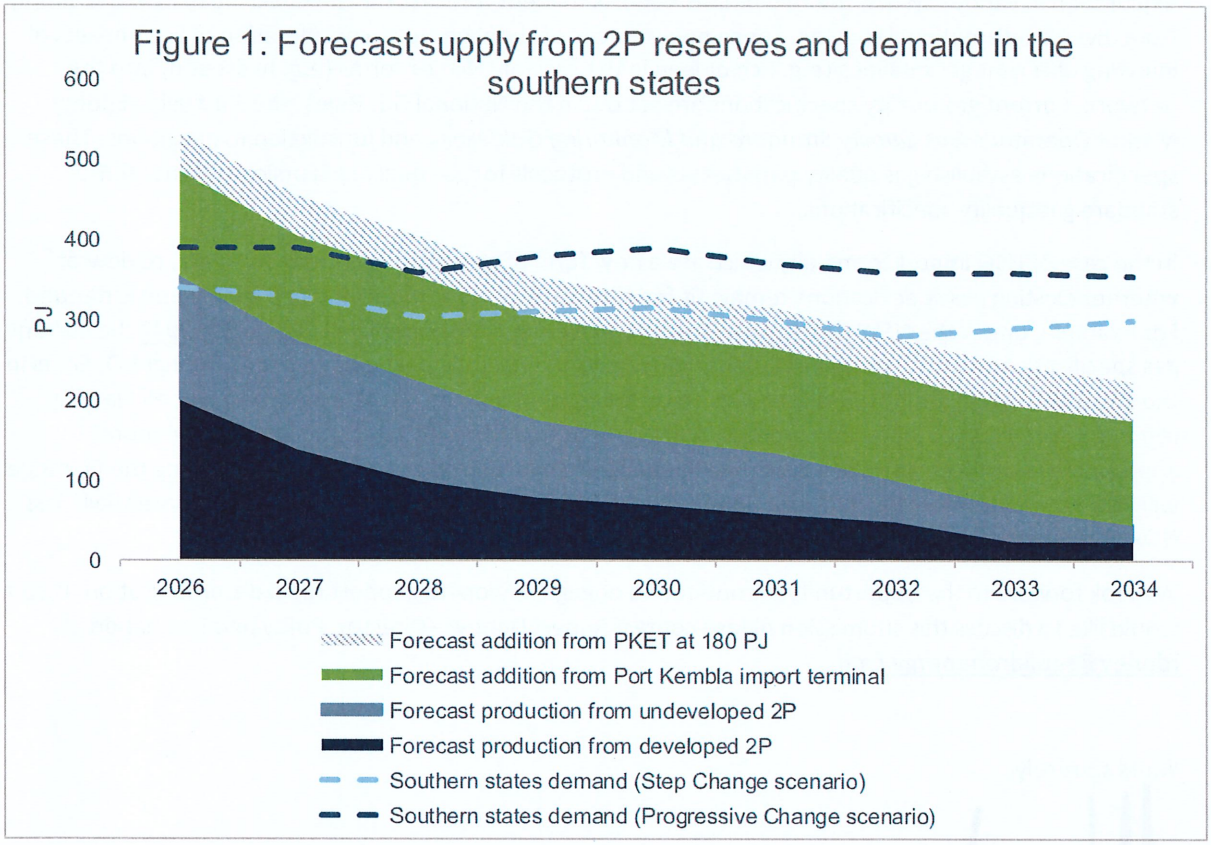
[2] For example, the last units of Torrens Island A Station closed in September 2022, after 55 years of operation.

[3] Note that under the round of the NSW Long-term Energy Service Agreements (LTESA) Scheme for firming infrastructure GPG remains eligible on the basis that the Scope 1 emission of the project are supported by commitments to procure and/or surrender Australian Carbon Credit Units (ACCUs) to offset the impact on emissions.

Once constructed, Squadron Energy's PKET will include a FSRU to enable third party LNG producers to increase supply to the domestic market. The PKET is expected to store and deliver up to 130 petajoules of gas per annum, or more than 70% of the total gas needs for NSW. For NSW, which currently has no gas production, and Victoria and South Australia where gas fields are depleting rapidly, new gas from PKET is a supply solution for short to medium-term gas shortfalls (see Figure 1) or until such time as hydrogen is commercially viable.



Although PKET will help bring in new gas, the capacity of Eastern Gas Pipeline (EGP) and adjacent pipelines to deliver the required gas to southern states remains a priority. The EGP presently only flows north towards Sydney, but the PKET project has associated EGP modifications to allow bi-directional flow, so gas can be transported both north (to Sydney) and south (to Victoria) simultaneously. Additional modifications to adjacent pipeline infrastructure and/or storage facilities would further increase the capacity to southern states. It is this midstream infrastructure that we consider should be a core focus of any FGS to set a clear plan for:

- where minor pipeline upgrades can unlock capacity and to avoid over investment in pipeline infrastructure, and;

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- whether additional storage is needed in areas where gas generators are located to ensure gas capacity is available to support electricity firming needs.[4]

Gas specifications and parameters should be reconsidered given future supply needs will bring in gas from diverse sources and with different qualities

In the context of the long-term reduction of domestic gas reserves and moratoriums on new gas exploration in various states, the role of LNG imports to meet forecast shortfalls will mean new gas supply from diverse international sources. These new sources of supply require consideration of the impacts of injecting different gas qualities (e.g. rich or lean in the case of LNG) or forms (e.g. hydrogen) into the network. Current gas quality specifications are set out in the National Gas Rules, the Australian Energy Market Operator's *Gas Quality Standard and Monitoring Guidelines* and jurisdictional regulations. These specifications establish gas quality parameters and protocols for gas quality excursion outside of the standard gas quality specifications.

In the case of LNG import terminals, which are a new form of gas infrastructure in Australia, review of whether existing gas specifications remain fit for purpose given plant type and processing unit is needed. For example, under the NSW ***Gas Supply (Safety and Network Management) Regulation 2022*** the current gas specification requires inert gas dilutant injection to the lateral pipeline is required. The tight O_2 limits in the gas specification are historically related to water content and are not relevant to LNG as all water is removed during LNG liquefaction process. A movement to perhaps 2% upper limit would be more appropriate and still ensure the gas was well below the Lower Explosive Limit of 5%. Widening the O_2 range will also be environmentally beneficial in the reduction of energy for N_2 compression and potentially less NOx production by end users who combust the gas.

We look forward to the opportunity to continue to engage in work to support rapid decarbonisation. If you would like to discuss this submission please contact Rupert Doney – Director, Policy and Regulation at rdoney@squadronenergy.com.

Yours sincerely,

Daniel Newlan
EGM Public Affairs

13/11/23

[4] The NSW Electricity Supply and Reliability Check-Up, led by Cameron O'Reilly, made a similar recommendation, suggesting that AEMO be commissioned to undertake an NSW gas infrastructure review to advise whether additional storage will be required for gas generators given an impending supply gap in east coast gas markets. This recommendation could be expanded to cover all eastern states.

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