Department of Industry, Science and Resources (DISER)

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DISER Future Gas Strategy – Consultation paper

The Australian Energy Council (AEC) welcomes the opportunity to make a submission in relation to the DISER Future Gas Strategy – Consultation paper (Consultation paper)

The AEC is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. AEC members generate and sell energy to over 10 million homes and businesses and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 per cent emissions reduction target by 2035 and is committed to delivering the energy transition for the benefit of consumers.

The AEC is pleased that DISER has commenced consultation on the development of a future gas strategy for Australia. During Australia's decarbonisation journey gas is going to continue to play a critical role and considers this is captured in the strategy's key objectives:

- support decarbonisation of the Australian economy
- promote Australia's energy security and affordability
- enhance Australia's reputation as an attractive trade and investment destination
- help our trade partners on their own paths to net zero.

Wholesale matters

Ensuring there is adequate supply of gas should be the primary focus of any gas strategy. To achieve this explorers, developers and financiers need to have confidence that they will receive an adequate return on their investments. Therefore, governments need to ensure there is a stable and investor friendly environment. Regrettably, recent policies such as the $12/GJ wholesale price cap are completely counter to achieving this.

The East Coast Gas Market (ECGM) needs continuing development of new sources of gas supply and urges governments to ensure that the policy landscape does not undermine investor confidence. Ideally ECGM supply increases such that there is ample supply for domestic demand and any excess is exported as LNG. Having ample supply for domestic usage is likely to reduce the pressure on prices.

Alignment of gas market settings and electricity

The AEC has been consistently arguing for the Reliability Panel's remit be expanded to include gas market settings as well as electricity. The govt has also been consulting on the introduction of a reliability standard for the ECGM and the AEC cautiously supports this concept subject to what form of standard is proposed.

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2. What role do you see gas-fired generators playing in supporting Australia's 82% renewable energy targets and beyond?

Unfortunately, there is currently no economical or practical substitute for GPG and as more VRE enters the NEM and coal plants retire, GPG will become increasingly important as it will be the only dispatchable technology that is theoretically not energy constrained. In practice GPG can be curtailed due to either a shortage of gas or production and/or transportation constraints. Therefore, adequate GPG capacity, readily available fuel supply and adequate production and transportation infrastructure will need to be maintained to ensure the security and reliability of the NEM's electricity supply. Without this, as the NEM enters uncharted waters in terms of high VRE penetration consumers and business will be exposed to increased risks of blackouts.

It is expected that GPG will primarily operate in peaking mode however during 'dunkelflaute' events it may operate in more of a mid-merit or baseload manner. One of the benefits of GPG firming when compared to coal-fired generation is GPG's ability to ramp up and down rapidly because this results in less VRE involuntary spillage. In contrast base load coal-fired generation needs to be run at a minimum level of generation and is much slower to ramp up and down and these constraints result in VRE spillage.

While it is widely acknowledged that GPG will be critical in supporting the transition for many years to come, this is not currently reflected in the design of the Commonwealth's Capacity Investment Scheme (CIS), which excludes GPG from participating. The government should be mindful of the fact that underwriting any form of investment in firming capacity will be challenging as the market transitions toward higher levels of VRE given the inherent reliance on uncertain revenue streams, and that GPG can support a least cost transition, so any support mechanisms like the CIS should not unnecessarily exclude that technology.

Another issue that the strategy needs to consider is the role that liquids (ie, diesel and kerosene) may play in generation. This could potentially increase the due to inadequate gas supply infrastructure.

Supporting infrastructure for GPG

It is important that supporting infrastructure such as production facilities and pipelines remain economically viable and investors have adequate certainty to ensure they invest to maintain or possibly augment these assets. Failure to achieve this could impair GPG's ability to support VRE. As such the AEC would like to see the government development a clear and measured strategy for gas that includes timelines.

3. How will the expected trends in demand from gas-fired generators impact other gas users?

As more coal plant retires there may be more demand for gas to power generation although this could be partially mitigated if Victorian commercial and household demand declines as

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part of the state's gas decarbonisation policy. Nevertheless, if GPG is generating more than currently this will place pressure on other gas users either through price or availability.

4. What should government do to consider managing these impacts and to mitigate energy peaks caused by regional or seasonal variations?

The AEC believes the best way this can be achieved is to let competitive markets function. Market participants are naturally incentivised to manage these variations as part of managing their business risks. It is also worth noting that the ECGM has ample storage capacity (Table 1). If there is adequate supply and these assets are used effectively stable supply should be achievable.

Table 1: ECGM Gas Storage Facilities and Maximum Capacities (Terajoules)

STORAGE FACILITY	CURRENT TJ	% OF CAPACITY	CAPACITY TJ
NEWCASTLE NSW (LNG)	196	13%	1,508
DANDENONG VIC (LNG)	602	88%	684
IONA VIC	19,947	82%	24,326
ROMA QLD	27,620	51%	54,157
SILVER SPRINGS QLD	13,666	30%	45,553
MOOMBA SA	10,839	15%	72,260
TOTAL	**72,870**	**37%**	**198,488**

Source: AEMO

5. How feasible, and at what scale, are alternatives to natural gas for the electricity sector? You may wish to consider renewable gas alternatives for peaking generation, for example, biomethane and low-emissions hydrogen and other forms of grid-firming technologies like batteries and pumped hydroelectricity. What barriers exist to using these alternatives?

The AEC supports biomethane where it is economic and for certain generation projects this has already been proven by currently operating and committed projects both in Australia and overseas. Biomethane is a limited resource and it will not be able to fully displace gas but it can make a valuable contribution to decarbonisation.

Batteries are clearly going to play a large role in the transition through the provision of short to medium term storage. Furthermore, they can supply FCAS and grid forming batteries produce inertia which will become an increasingly scarce resource as coal plant retires. Furthermore, they have relatively short lead times from planning to commissioning and appear to have relatively fewer social licence issues when compared with transmission and VRE projects. The key limitation for batteries is that they require energy to recharge and in an energy constrained situation their utility is limited.

Pumped hydroelectricity (PHES) will play an extremely important role in the transition because depending on the scale of the project it offers long duration high output (ie, GWs) storage. The key drawbacks of PHES are its cost and very long lead times. The latter means that it is unlikely major PHES projects will be commissioned until the 2030s.

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From the perspective of the NEM, the AEC sees a role for hydrogen but notes the cost is extremely prohibitive within the current technological envelope. Nevertheless, as the technology improves and costs reduce, hydrogen may be able to provide firming capacity in similar manner to batteries and GPG.

As part of our submission to the National Hydrogen Strategy we noted that co-locating an electrolyser with an ammonia plant can offer benefits for the NEM through firming and demand response plus other downstream industries such as fertiliser, methanol, steel, alumina, cement and explosives production can co-locate.[1]

Ammonia has a value in Australia and is a globally traded commodity. There is significant demand in Australia and ammonia is a readily exportable commodity in contrast to bulk liquid hydrogen export. If an ammonia production facility is paired with an electrolyser it expands the scope for demand response. For example, if there are high prices in the NEM that significantly exceed the value of ammonia production and any costs associated with ramping down the plant, it can offer demand response. Although it needs to be noted that there are currently technical limits on the level of ramp up and down capability. When the ammonia plant is producing it is creating a valuable tradeable commodity. Furthermore, co-locating an electrolyser with an ammonia plant has the potential to reduce the amount of costly large scale hydrogen storage infrastructure.

Retail matters

40. What do you see as the biggest risk to the ongoing affordability of Australia's domestic gas supply? For example, what are risks to affordability in the wholesale or retail market?

There were multiple factors that led to the high prices in the facilitated markets, including international / domestic market dynamics , and the tight supply conditions being driven by declining production from the southern fields.

In the gas wholesale market, an increase in demand for gas-fired electricity generation drove a sharp increase in domestic wholesale gas prices, which reached $40/GJ by the second week of May 2022. The AEC considers natural gas fired generation will continue to have a role in providing support to renewables and storage in the electricity system for decades to come, even after a net-zero 2050. In this role these generators will provide critical back up in extended renewable energy droughts, but in a role with only very short running durations. This will however contribute to continued volatility in wholesale gas markets.

In the Eastern states, in addition to price volatility from increased generator demand, general increases in the price of natural gas are expected as the increased capacity at gas export terminals leads to a tightening of local supply. This could also be balanced if new gas resources come online, however there is a gap emerging there, and its arguable that Government policy is not making new supply easy or quick. AEMO's GSOO outlook says that new supply is needed from 2027 to support domestic demand, including for GPG. OIf given

[1] https://www.energycouncil.com.au/media/giepmeoe/20230818-aec-sub-h2-strat-review-final.pdf

practical effect, this should in turn mitigate the risks of tight supply / demand conditions and new supply could mitigate the risks of conditions like those of May 2022.

In the retail marketplace, policies and regulations that smooth out anmy transition away from gas are essential. The regulator acts as the arbiter of the bargain between current and future gas consumers. This is because consumers that remain connected to gas networks as demand falls through decarbonization are logically exposed to price increases as the cost burden shifts away from consumers that are no longer connected to the regulated network and on to the smaller number of consumers that continue to be so. In theory these higher prices that are charged to consumers who remain connected to the gas network may result in price increases resulting from falling demand, in turn accelerating the rate of those leaving the gas network, a kind of spiral. The AER has considered these issues in its regulatory resets.

The proposed alternative to natural gas to fill gas pipelines with low carbon gas is hydrogen. However, the AEC is doubtful of hydrogen's relative practicality as a low intensity heat source compared to electric heat pumps, particularly for building and water heating. For this reason, the AEC does not support schemes that require small customers to subsidise the blending of renewable hydrogen into the gas distribution network.

Nor does the AEC support clean hydrogen targets (for example a scheme like the renewable energy target). A hydrogen target, like the RET, would create an early demand for pilot hydrogen but our key concern about such an approach is that it results in current natural gas users paying for the development of an industry that they may/will not be the long-term beneficiaries of. This is especially so given the challenges of converting reticulated networks and end user appliances to full hydrogen consumption. These targets will in practice make "gas" more expensive in the transition than is otherwise necessary.

In the presence of electricity as a more practical and economic alternative, most experts now doubt that anything greater than a trivial blend (in energy terms) of hydrogen in the gas distribution network is realistic. Hydrogen is also currently expensive. The AEC has supported the Victorian Government's development of a "Gas Substitution Roadmap", which guides a long-term path away from the fuel. Whilst the AEC understands some governments have no immediate plans to ban new connections as has occurred in Victoria and the Australian Capital Territory, it would be appropriate for any energy planning process to consider when and how to begin this ultimately necessary part of the journey to net zero.

41. What reforms can be made at a Commonwealth, state, territory, or industry level to allow gas supply to be more responsive to domestic demand signals?

On the supply side, the price cap pushed gas producers to sell gas at a lower price domestically in an environment that was not perhaps encouraging increased development to bring on more supply, while at the same time there is demand for gas generation in the transition. Price signals to invest in supply are important in markets, and to signal to developers and producers with a price cap that benefits will be socialized, and risk and cost privatized, perhaps creates a chilling effect on development that will not be in the long term interests of consumers.

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The Gas Market Code does not appear to provide any additional incentives to develop that new supply. De-linking domestic and international markets (which is seemingly an underlying objective of the Code) could also directly undermine the economics of investing in LNG import terminals, which as outlined in AEMO's 2023 GSOO, could play an important role in addressing supply gaps, particularly in southern states from 2027.

On the demand side, inconsistent government/s gas policies have created uncertainty leading to increased difficulty in volume forecasting. Any volume risk (or uncertain gas demand) will result broadly in both increases in price and volatility in price. Both merchant and regulated businesses are also required to address degasification but achieving "alignment" between regulatory controls and the largely fluid multiple federal and state environment policies seems implausible now.

42. What actions are available to lower gas costs, including substitution and new supply, to provide certainty to consumers? How would these actions further the Australian Government's decarbonisation goals?

The key here is not to lower *gas* costs, but for actions to keep *energy costs* as low as possible and to decarbonize. By this we mean electrification. Substitution via hydrogen mixes (cost and practicality issues) or biogas (which is a small resource) are not supported actions. New supply as an interim measure and for GPG is important.

Therefore, actions that provide relief for conversion (electrification), and sufficient gas for interim and transition GPG needs to help control peak electricity costs, and actions that improve energy efficiency at a consumer level are much more likely to assist small to medium consumers. Those consumers with high heat or specific gas manufacturing applications are a separate consideration and an industry policy to enable their transition or continuity is outside the retail scope of this consultation but is urgently required by governments.

Any wholesale questions about this submission should be addressed to Peter Brook, Wholesale Policy Manager by email to peter.brook@energycouncil.com.au or by telephone on (03) 9205 3103. Retail questions can be addressed to David Markham, DER and Networks Policy Manager by email to david.markham@energycouncil.com.au.

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