

16 February 2024

AEMO
Email: ISP@AEMO.com.au

Dear Sir / Madam,

Re: Draft 2024 ISP Consultation

I am the Director of the Centre for Natural Gas (the **Centre**) at the University of Queensland (UQ). The Centre conducts multi-disciplinary research across a range of themes relevant to the gas, resources and energy industries and is co-funded by the University and industry partners. This letter represents my personal views, unless expressly stated otherwise, and does not necessarily represent the views of the University or the Centre partners.

The purpose of this letter is to comment on the Draft 2024 ISP (**ISP**). There are many areas of overlap between the Centre's research and matters raised in the ISP. However, there are two specific areas that I consider most relevant to the ISP and this submission; i) the importance of "Flexible Gas" to the NEM in the AEMO optimal development path (ODP), and ii) Social Licence.

Flexible Gas

1. The ISP anticipates substantial (16.2 GW) gas-powered generation (GPG) capacity, including plant renewals and expansions, to "...back-up supply during long periods of 'dark and still' renewable droughts...".
2. The ISP explicitly states that the GPG is a "strategic reserve for...reliability and security, so is not forecast to run frequently..." at "...just 5% of its annual potential...". That GPG may be able fulfil such a role, in the right market, supply and infrastructure circumstances, is not disputed, however the economic viability of this scale of "strategic reserve" warrants closer attention. The magnitude of a 16.2 GW GPG "strategic reserve" would require substantial infrastructure investment (not only in power plants), and the economics of existing GPG generators are (in many instances) marginal at utilisation rates much higher than 5%, especially where price control "caps" are part of the system.
3. Setting aside the economic challenges of low utilisation, there is also a fundamental risk that focussing on average annual utilisation disguises that as overall GPG usage declines, the system becomes more likely to be exposed to demand peaks that can't be met without substantial changes in pipeline infrastructure and/or gas storage and/or gas field/supply locations. The vulnerability of the NEM in the face of this uncertainty and volatility is an area of active research by the Centre and we seek to complement the work of AEMO.
4. Although a number of risks are identified and discussed throughout the ISP, the availability of gas supply, storage and pipeline networks, as well as GPG facilities, are not explicitly discussed as risks within this ISP. We believe that our research in GPG volatility will benefit AEMO's ability to assess long-term system reliability risk.
5. The Centre is using a NEM model based on high-quality, open-source dispatch/expansion software, and novel tools, to test various energy transition scenarios for sensitivities to weather, gas supply and other uncertainties. Key contributions will be to quantify the uncertainty around future volatility in demand for gas-powered generation (GPG), quantify the potential limits to gas supply system responsiveness, and develop tools that can implement

this within long-term energy transition scenario analysis. Our goal is to transparently publish and share this work, to support more systematic uncertainty analysis. This uncertainty and sensitivity analysis is critical to ensuring risk is fully characterised, particularly for outlier events. We encourage AEMO to consider providing greater transparency regarding the assumptions in the ODP scenario and all other published scenarios to ensure our Centre research, and the research of other institutions, is fit for purpose.

Social Licence

1. While we note that 'social costs' are not included in the least cost optimisation approach we welcome the explicit inclusion of social licence in the ISP.
2. We concur that Australia's energy transition and emission reduction goals require landholder, community, and First Nations peoples' acceptance of new energy projects, particularly renewables and electricity transmission projects as well as for the anticipated increase in minerals exploration and development.
3. The Centre has been conducting longitudinal research on the cumulative socioeconomic effects of resources development in regional communities for over a decade. There are key lessons to be learned from this ongoing body of work in terms of stakeholder engagement, land access, social license and community benefits.
4. The need to address cumulative impacts of the numerous new energy projects required to reach emission reduction goals is a growing legal as well as moral imperative. Cumulative impacts fall outside the responsibility of any single project and their management requires strong leadership and potentially regulatory intervention. The Centre has developed a participatory, multi-stakeholder method for identifying and monitoring cumulative social and economic impacts of natural gas development which can be translated to other resource and energy developments. The Centre has long-established relationships with local participants in this research, and has acquired detailed local and contextual understanding of the complex interactions between energy projects and local communities, which can be leveraged to maximise benefits and minimise negative impacts.
5. In addition to research the Centre has led in gas and resource projects, we have collaborated successfully with future fuel and renewable energy focused research centres to assist with research on social acceptance of hydrogen and the role of renewable gas and electrification. This has included leadership of programs to undertake nation-wide citizens panels.
6. In summary, we too are supportive of the development of national efforts "...to build societal awareness and understanding of some of the broader issues of the energy transition...". Our experience and capabilities provides a unique opportunity to share lessons learnt and best practices to decrease the risks of social licence caused delay risks as identified in the ISP.

We would welcome the opportunity to share and discuss the Centre's research program with AEMO with the intent of ensuring that it is complementary and of use to AEMO and other stakeholders. We are available to meet in Brisbane or Canberra, or remotely, to promote effective collaboration.

Yours sincerely,



Professor David Close
Director, Centre for Natural Gas