

GEA Submission: National Electricity Market Wholesale Market Settings Review

Gas Energy Australia (GEA) represents Australia's liquid gas supply chains including Liquefied Petroleum Gas (LPG) and associated gases. Our members span from producers to retailers and everything in between. The LPG industry safely and securely supplies 43PJpa of energy to industrial, commercial and residential consumers nationwide, including around 30% of regional households where electricity can be unreliable or unavailable¹.

GEA welcomes the opportunity to comment on the Department of Climate Change, Energy and Water (DCCEEW) National Electricity Market (NEM) wholesale market settings review. It is important to develop market settings in the context that not all energy supply is sourced from the NEM – either today or in a net zero future.

LPG plays a vital role supplying energy to Australian industrial, commercial, residential, transport and recreational energy users today. Through the supply of drop-in renewable forms of LPG, energy consumers can continue to receive reliable, affordable energy via LPG while supporting emissions reduction targets².

General Feedback

The proposed reforms, including the Electricity Services Entry Mechanism (ESEM), Market Making Obligation (MMO), and extension of the Medium-Term Projected Assessment of System Adequacy (MT PASA), provide a robust framework to strengthen investment signals and improve market integrity.

Framing Risk – Electricity as the only future energy vector

While these reforms are robust, GEA flags concerns about the framing of NEM review which risks acting in opposition to the National Electricity Objective.

¹ DCCEEW, 2024, *Australian Energy Update 2024*,

<https://www.energy.gov.au/publications/australian-energy-update-2024>

Australian Bureau of Statistics, 2014, *Environmental Issues: Energy Use and Conservation*,

<https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4602.0.55.001Main+Features1Mar%202014?OpenDocument>

² Frontier Economics, 2023, *Pathways to Zero Emissions for LPG*,

<https://www.gasenergyaus.au/get/2016/pathway-zero-emissions-for-lpg-frontier.pdf>

Like many NEM consultations to date, the Review appears to consider a world in which electricity is the sole energy supply vector both today and into the future. While it is reasonable to restrict reforms to the National Electricity Law to those relating to electricity, it is not in the best interests of electricity customers to amend electricity law on a basis of electricity as Australia's sole energy vector – broader context is required.

By doing so, the review risks changing law on the assumption that higher cost electricity supply, infrastructure, storage or utilisation options will be chosen in place of lower cost fossil or renewable fuel options. Amending law based on an incomplete picture of the whole energy market risks baking decisions into law which unnecessarily increase cost for electricity customers, acting in opposition to the National Energy Objective.

This is particularly true considering energy customers in regional and off-grid communities. Here, LPG not only provides energy access, but energy security and even energy availability where electricity supply can be unreliable or unavailable.

Basing a NEM and other NEL related reviews assuming a future where electricity is the only energy vector greatly misrepresents the lived experiences of regional Australia. In these instances, Renewable Liquid Gas (rLG) has the potential to offer a practical, low-emission pathway – a fact missed by consulting on an electricity-only basis.

Example – energy storage assumptions

One example of an assumption which could mislead the NEM review is the assumption that energy is only able to be stored via electricity storage technologies.

The standard residential LPG bottle installation can store around 1.25MWh of energy and is rented for \$100–\$200 per year. This is three orders of magnitude cheaper than home battery systems. Publicly available data indicates that to achieve the same household energy firming with solar, batteries and backup generation can cost \$50,000–\$80,000. For many, connecting to grid electricity or increasing grid capacity would cost even more.

Without serious policy intervention, there is a very low chance that a regional Australian energy customer would choose to electrify their LPG demand at this cost. Even if BioLPG retails at twice the current LPG price, it may remain the least-cost decarbonisation pathway for regional and off-grid users³.

This is just one example of an assumption which, if considered in electricity law reform, could deliver a different set of outcomes – outcomes which may result in amendments to the NEL with lower electricity customer cost impacts.

LPG today, renewable forms of LPG tomorrow

Just like electricity, natural gas, aviation fuel and diesel, LPG also has drop-in renewable alternatives. BioLPG and Renewable LPG (rLPG) can be used with no changes in LPG

³ *Liquid Gas Europe (2025), Outlook for Renewable Liquid Gas in Europe*, https://www.liquidgaseurope.eu/wp-content/uploads/2025/03/Outlook_lge_digital.pdf.

infrastructure or appliances. Dimethyl Ether (DME) can be blended into LPG for use with existing appliances and infrastructure or used in its pure form with minor changes to existing LPG or LPG appliances and infrastructure.

For many energy customers, these options can have much lower upfront and lifecycle decarbonisation cost than electrification. This is especially true in rural Australia where electricity can be unreliable or unavailable, making electrification less practical.

BioLPG – produced as a co-product of renewable fuel pathways such as HEFA/HVO and Alcohol-to-Jet (AtJ) – could play a critical role in decarbonising energy to hard-to-electrify sectors and regional energy use.

Ensuring BioLPG is recognised alongside electrification will be essential to enabling the investment decisions required to see coproduction of BioLPG. Without recognition, it will be difficult to create a market for this critical renewable energy option for regional Australia. This in turn risk BioLPG being redirected to heat production within HEFA/HVO processes rather than being available to support regional decarbonisation.

Recommendations

GEA recommends that policy reform for electricity markets considers electricity markets as part of the future energy system – not the entirety of the future energy system. This can be achieved by:

- Recognising energy consumers beyond the NEM in market reforms to avoid policy settings that assume their electricity use.
- Ensure technology-neutral pathways beyond electricity are embedded in reform analysis to consider customer choice of lower-cost pathways beyond electricity.
- Consider the least-cost decarbonisation pathway for regional and off-grid communities, where LPG already provides essential energy access and resilience.
- Acknowledge the role of renewable fuels such as rLG in providing firming, backup and resilience, particularly in hard-to-electrify sectors and locations.

To discuss any of the above feedback further, please contact me on +61 422 057 856 or via jmccollum@gasenergyaus.au.

Yours sincerely,



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The Role of LPG in Australia's Energy Landscape

Liquefied Petroleum Gas (LPG) plays a vital role in Australia's energy security and net zero transition. As a versatile energy source with drop-in renewable alternatives, LPG provides essential energy services to millions of Australians, particularly in regional and remote areas where it serves approximately 30% of households⁴. The LPG industry safely and securely supplies 43 petajoules of energy annually across industrial, commercial, and residential applications nationwide⁵. A further 120 petajoules of LPG is exported annually, with the LPG sector as a whole contributing over \$5bn of GDP and 20,500 FTE to the Australian economy⁶.

LPG stands out as a cleaner alternative to many traditional fossil fuels, producing 14% fewer greenhouse gas emissions than diesel⁷. The industry is actively embracing Australia's transition to net zero through the pursuit of renewable forms of LPG⁸. These include bioLPG (a co-product of Sustainable Aviation Fuel) and renewable LPG (rLPG) produced from hydrogen. These alternatives reduce scope 1 emissions by 99% while utilizing existing infrastructure and appliances.

One of LPG's most significant advantages is its superior energy storage capability in cheap, transportable LPG tanks. This is key in regional areas where mains power may be unreliable or unavailable. A standard residential LPG tank installation provides energy storage equivalent to more than 42 Tesla Powerwall 3 home battery systems at around one-tenth the cost⁹. This storage capacity, combined with the portability of LPG tanks, makes it an invaluable resource for energy security and emergency resilience.

The LPG industry is uniquely positioned to support Australia's energy transition without requiring government funding or subsidies. As the nation moves toward net zero emissions, renewable forms of LPG complement renewable electricity, offering a practical decarbonisation pathway for applications where electrification may not be feasible or cost-effective. By recognizing and supporting the development of renewable forms of LPG, Australia can ensure a diverse and resilient energy mix that retains energy security while achieving its climate goals.

⁴ Australian Bureau of Statistics, 2014, *Environmental Issues: Energy Use and Conservation*, <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4602.0.55.001Main+Features1Mar%202014>

⁵ Australian Federal Department of Climate Change, Energy, the Environment and Water, 2024, *Australian Energy Update 2024*, <https://www.energy.gov.au/publications/australian-energy-update-2024>

⁶ ACIL Allen, 2022, *Economic contribution of the Australian gas economy in 2020-21*, <https://www.gasenergyaus.au/get/2123/economic-contribution-of-australian-gas-economy.pdf>

⁷ Australian Federal Government, 2024, *National Greenhouse and Energy Reporting (Measurement) Determination 2008*, <https://www.legislation.gov.au/F2008L02309/latest/text>

⁸ Frontier Economics, 2023, *Pathways to Zero Emissions for LPG*, <https://www.gasenergyaus.au/get/2016/pathway-zero-emissions-for-lpg-frontier.pdf>

⁹ Elgas, 2025, *LPG Gas Bottle Sizes*, <https://www.elgas.com.au/elgas-knowledge-hub/residential-lpg/lpg-gas-bottle-sizes-gas-bottle-dimension-measurements/>