Retail renewable gas forecast to cost customers less than retail renewable electricity

The Australian energy industry is working to simultaneously address the energy trilemma – specifically, energy security and reliability, affordability, and the pathway to net zero emissions. While full electrification of Australia's electricity grid offers many benefits toward the domestic decarbonization journey, this option cannot fully address the energy trilemma on its own. Instead, the use of renewable gases can offer a cost-effective way to deliver carbon-free energy to Australian consumers and industry.

Gaseous energy has historically been cheaper for wholesale and retail energy customers compared to electricity. Biomethane production cost can be as low as $12.20 per gigajoule today and $9.80 in 2030, at which point hydrogen is anticipated to cost as low as $13.31 per gigajoule. That said, projections could also see hydrogen figures double and biomethane figures triple. These wholesale prices can be compared to estimates of wholesale net-zero electricity in the NEM to demonstrate that wholesale net-zero gas is anticipated to cost approximately the same as or less than wholesale net-zero electricity in Australia.

New hydrogen infrastructure is forecast to cost up to 68 per cent more than natural gas infrastructure according to a recent survey. However, repurposing of existing gas infrastructure can cost up to 28 per cent of the cost of new infrastructure. Alternately, renewable methane would require zero changes to existing infrastructure or appliances. Combining these figures provides a conservative estimated that gas infrastructure transporting net-zero gas may cost between 19 per cent and 68 per cent more than natural gas infrastructure does today.

Figure 1: Modelled wholesale net zero energy prices Victoria
(Modelled on AER FY2020-21 base)

Retail energy price data is released by the Australian Energy Regulator on an annual basis. This can be used in conjunction with anticipated wholesale net zero energy prices and the relative costs of net zero gas infrastructure to forecast retail energy prices for net-zero gas and electricity.

Retail electricity is significantly more expensive than retail gas today. Retail electricity prices are expected to rise due to net-zero targets while retail net-zero gas prices are projected to rise at a faster pace. However, retail net zero gas prices will remain equal to or lower than retail net zero electricity.

The cost of energy will always be relative to the appliances in which it is used, as well as their overall costs and efficiencies. However, retail net-zero gas prices can be expected to remain significantly lower than retail net-zero electricity. This information is key to making informed decisions about the least-cost approach to Australia's energy decarbonisation challenge. Through the development of complementary net-zero gas and electricity systems, Australian households and businesses can be assured access to the least-cost net-zero energy that best suits their individual circumstances and appliances.

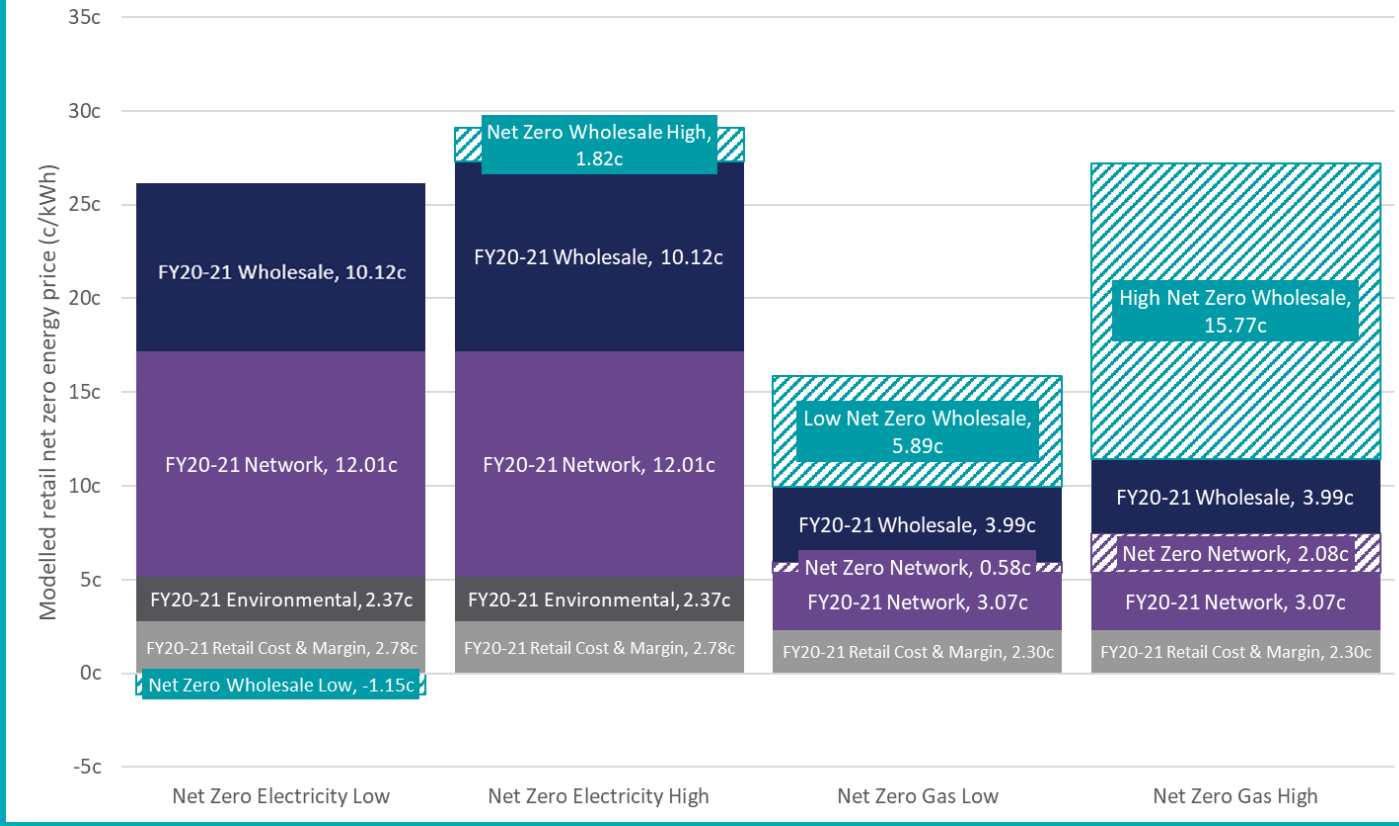

Figure 2: Modelled retail net zero energy prices Victoria
(Modelled on AER FY2020-21 base)

References:

1 Australian Bioenergy Roadmap and CSIRO biomethane and hydrogen cost projections.

2 Go for Net Zero, The Grattan Institute

3 State of the Energy Market 2021 – Retail energy markets, Australian Energy Regulator

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