

# Gas is part of the future energy solution...

Here are 6 reasons why

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Gas provides more affordable energy to the home

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Gas is cleaner than the current alternatives

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The electricity network is not ready for rapid electrification

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It's expensive to switch from gas to electricity

# FACT: Australians love gas

More than two million Victorian households and businesses use gas to heat their homes or for cooking and hot water. Victorians love the quality, consistency and reliability of gas appliances. There is nothing that compares. Across the nation, almost 50% of Australian homes are connected to the gas network, with 12 million household appliances used for cooking, heating and hot water.

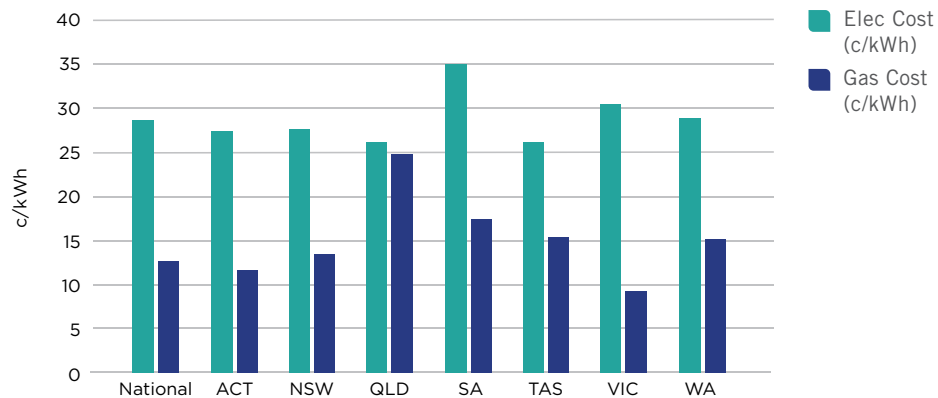
And rest assured, it's not going anywhere, anytime soon. Here's 6 reasons why:



## Gas provides more affordable energy to the home

The average cost to use gas in your home is less than half of what it costs to provide the same amount of energy when using electricity. In Victoria, the difference is dramatic: The average cost of gas is **65% lower** than the cost of electricity supply.

Electricity and gas cost delivered to the home



Source: Energy Networks Australia - Reliable and clean gas for Australian homes document



## Gas is cleaner than the current alternatives

Natural gas provides energy to homes with an average **75% fewer** greenhouse gas emissions than grid electricity.

Given Victoria's electricity generation is dominated by brown coal, emissions from electricity are five times higher than direct use of gas in the home.

Comparison of electricity and gas emission factors



Source: Energy Networks Australia - Reliable and clean gas for Australian homes document



### The electricity network is not ready for rapid electrification

The Victorian electricity grid is already under significant strain thanks to the early closure or mechanical breakdown of Victoria’s coal-fired power plants. The Yallourn coal-fired power plant for example has struggled to run at capacity all year because of its aging generation assets. It usually produces around 20% of Victoria’s electricity.

Add the recently announced early closure of AGL’s coal-fired power plant Loy Yang A (brought forward ten years to 2035), and you have a substantial erosion of baseload power from the electricity grid, with renewable generation on current trends, unable to keep up with diminishing coal-fired electricity.

How would this fragile electricity grid cope with an additional two million households and businesses moving from gas to electric appliances? For this to happen there is a need for billions of dollars and many years of investment in Australia’s electrical grids before they can possibly cope with full electrification. Half of the energy currently supplied to homes in Victoria is gas, and there’s no way the electricity grid can cope with double the current demand any time soon. The consequences would be dire.

National Statistics by region

	Australia	ACT	NSW	QLD	SA	TAS	VIC	WA
Homes connected to gas ('000)	5,163	153	1,491	211	450	13	2,089	757
Percentage of homes connected to gas	48%	73%	43%	10%	56%	5%	76%	68%
Average household gas consumption (GJ pa)	32	33	20	9	17	30	54	13
Percentage of total jurisdictional household energy from gas	45%	54%	30%	4%	36%	5%	71%	35%
Percentage of energy from gas for average electricity and gas connected household	63%	62%	50%	31%	51%	49%	76%	44%
Length of distribution gas mains (km)	97,646	4,933	27,566	7,123	8,420	839	34,203	14,362
Estimated residential gas network-connected appliances* ('000)	12,169	286	3,302	643	1,003	33	5,233	1,669

Source: Deloitte Access Economics - Analysis for Gas Vision 2050 Update (2019), DNSP data, AER Regulatory Information Notices



### It’s too expensive to switch from gas to electricity

The Victorian Government has come under fire for the modelling used in its Gas Substitution Roadmap, which industry experts have deemed misleading and inaccurate. Using Climate Council modelling, the government estimated homeowners would only need to spend between \$6700 and \$12,900 to replace gas appliances in their home with electric appliances.

But according to modelling commissioned by Gas Energy Australia from Frontier Economics, the estimates failed to include the cost of replacing appliances, upgrading wiring, and the work associated with removing gas infrastructure from the home.

It’s estimate was between \$21,555 and \$41,430 per dwelling - a prohibitive price for the vast majority of Victorian homeowners.



### Many industries cannot use electrification to decarbonise

Heavy industry makes products that are essential for our modern lives like steel, cement and chemicals. These materials are part of our sustainable future, including steel to make wind turbines.

Heavy industry often requires extremely high heat levels which necessitate gas, and they also use gas in the physical manufacturing process itself.

These industries are likely to decarbonise using biomethane, carbon storage and hydrogen. It cannot be achieved through electrification.



### The renewable gas future is coming

Gas has a future, and that future is clean and green. The gas industry is committed to decarbonising, inline with its Gas Vision 2050, with gas network businesses that supply over two-thirds of Australian residential customers committing to net zero by 2050.

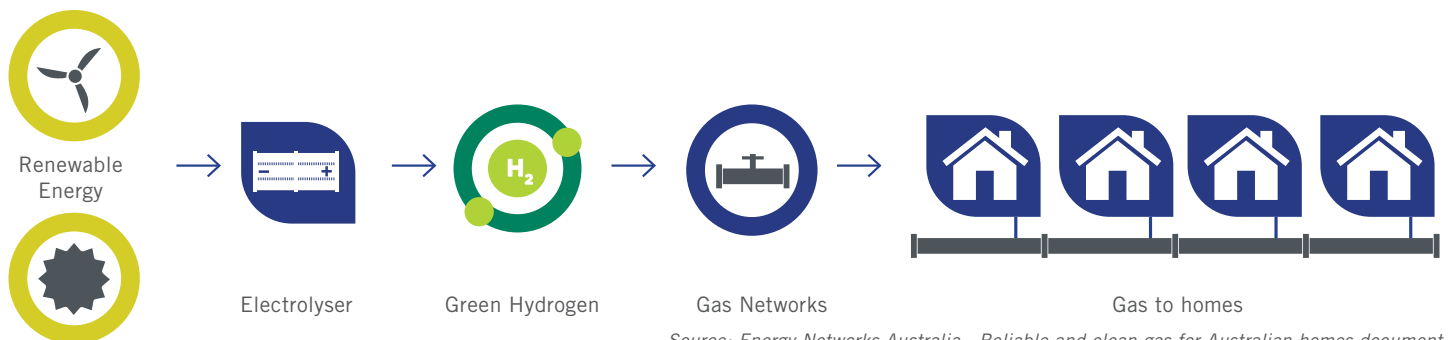
The answer is embracing the transition from natural gas to green hydrogen or renewable gas like biomethane. Using the infrastructure and appliances we already have, in a cleaner, greener way. This is a transition already under way in Australia.

Gas distributors are aiming to fully decarbonise their distribution networks by 2040 as a stretch target, with the Australian Gas Infrastructure Group aiming to deliver at least 10% renewable gas across its distribution networks by 2030, and 100% by no later than 2050.

Renewable and carbon-neutral gas such as hydrogen and biomethane can be used in the same way as natural gas is today, but do not result in additional carbon emissions into the atmosphere. Hydrogen does not contain any carbon and can be produced using renewable electricity, while biomethane is carbon neutral, it harnesses the energy potential from organic materials such as agricultural waste and sewage, supporting the circular economy.

By blending and ultimately replacing natural gas with renewable gas we can use our existing infrastructure to supply carbon neutral gas supply to our customers. It also means customers retain their choice of energy supply, and those industries relying on gas can continue to access it.

### Renewable hydrogen pathway



Source: Energy Networks Australia - Reliable and clean gas for Australian homes document