

# **DRAFT FUTURE GAS STRATEGY FOR TASMANIA**



# Contents

<b>Executive Summary</b> .....	<b>1</b>
<b>Gas in Tasmania</b> .....	<b>3</b>
The Tasmanian natural gas network .....	3
Bottled gas.....	4
How gas is used.....	4
Gas powered electricity generation .....	5
Challenges facing natural gas in Tasmania.....	6
Tasmania’s natural gas market is small and relatively undeveloped .....	6
Gas supply security .....	7
Gas prices .....	8
<b>The Future of Gas in Tasmania</b> .....	<b>10</b>
Decarbonisation pathways .....	11
Electrification .....	11
Bioenergy and Biogas.....	12
Hydrogen.....	12
Renewable methane.....	13
Blending .....	13
<b>The Government’s Vision for Gas in Tasmania</b> .....	<b>15</b>
A continued role for gas in Tasmania’s energy mix.....	15
There is a role for Government in actively supporting the transition to renewables...	16
Stages of transition.....	17
<b>Government Actions</b> .....	<b>18</b>
1. Supporting consumer choice: No mandates or moratoriums against natural gas connections .....	18
2. Continuing to support the development of green hydrogen.....	18

3. Supporting the development of Tasmania’s domestic bioenergy and biogas industries .....	19
4. National gas reform agenda .....	19
5. Tasmania’s hydrogen regulatory review .....	20
6. Supporting energy efficiency .....	20
7. Help low-income and vulnerable consumers to transition .....	21
8. Emissions Reduction and Resilience Plans .....	21
9. The adoption of renewable gases by Government.....	22
10. Working with industry .....	22
11. Reviewing the Tasmanian Future Gas Strategy within five years.....	22
<b>Other Market Measures Supporting a Transition .....</b>	<b>24</b>
Energising Tasmania initiative .....	24
Certification schemes .....	24
GreenPower renewable gas certification pilot .....	24
Hydrogen Guarantee of Origin.....	24
Voluntary zero emissions gas market .....	25
<b>Have Your Say .....</b>	<b>26</b>
How to Make a Submission .....	26
<b>Definitions.....</b>	<b>27</b>

# Executive Summary

The Tasmanian Government has developed the draft Future Gas Strategy to outline its vision for the future of gas in Tasmania over the next 20-30 years. The Strategy aims to help gas market participants make informed choices and investment decisions at a time when the industry is facing a period of rapid transition related to global efforts to decarbonise, the development of new renewable energy sources and changes in the broader Australian and international gas markets.

Countries around the world are looking to a greater role for cleaner, renewable sources of energy in order to decarbonise their economies and Tasmania, as Australia's leading renewable energy state, has set a clear policy agenda to reduce greenhouse gas emissions, promote renewable energy and transition away from fossil fuels.

Gas consumption is a small but not insignificant source of greenhouse gas emissions in Tasmania, accounting for around five per cent of Tasmania's gross emissions (excluding the contribution of the *Land use, land use change and forestry* sector). It is therefore important to consider the role that gas might have to play in Tasmania's decarbonisation pathway, while ensuring that the costs of measures to reduce emissions from gas are proportionate to the sector's contribution to overall emissions and do not adversely impact on economic growth and employment in the State.

There are also vulnerabilities and uncertainties related to the structure of Tasmania's gas industry and developments in the broader Australian and international gas markets. Tasmania is a small gas market that lacks economies of scale and, with no local gas reserves, is dependent on imported gas at a time of high global gas prices and forecasts of potential future supply shortages in southern Australia<sup>1</sup>. Concerns about the continued reliability of access to reasonably priced gas have the potential to impact on investment decisions and add weight to the need to consider the role of gas in Tasmania's longer-term energy mix.

Due to the important role of gas in some industrial processes and limitations of current alternatives, gas will continue to form part of Tasmania's energy mix until alternative renewable fuels become available on a sufficient scale and at an acceptable cost. To this end, the Government does not intend to introduce mandates or moratoriums that interfere with the ability of energy users to choose the fuel that best meets their needs, but nor will it prolong the use of natural gas and LPG beyond the time it is needed. This approach balances the need to minimise greenhouse gas emissions in the energy sector with the need to ensure a stable energy supply for businesses and households.

In the meantime, the Government will continue to support the development and take-up of alternative renewable gases, such as hydrogen, biogas and renewable methane, address barriers to gas users switching to low-emission fuels if and when they wish to do so, encourage energy efficiency, and examine options to replace the Government's own gas consumption with low-emission alternatives.

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<sup>1</sup> See Australian Energy Market Regulator, Gas Statement of Opportunities 2022

A Working Group has been established to support the development of the Strategy which includes key industry and consumer representatives.

Following on from a Discussion Paper published in November 2021, this draft Strategy is the second phase of a consultation process to understand the views of business, households, and the community about the future role of gas in Tasmania.

Information on how to provide feedback on this draft Strategy is provided at the end of the document.

After considering the feedback received on this draft, the Government is aiming to release its Future Gas Strategy by early 2023.

# Gas in Tasmania

## The Tasmanian natural gas network

Since 2003, natural gas has been supplied to Tasmania through an underwater pipeline from Victoria.

The Tasmanian Gas Pipeline (TGP) is the only transmission pipeline operating and transporting gas to Tasmania. The pipeline runs from Longford in Victoria to Five Mile Bluff (near Bell Bay), then west to Port Latta and south to Bridgewater.

Some major industrial customers are supplied directly from the transmission pipeline, with smaller industrial customers and commercial and residential customers being supplied via the distribution network.

The distribution network transports gas at lower pressures than the transmission network. It is 840 km in length and delivers around 3.54 PJ per annum of natural gas to approximately 15 000 customers.

Tasmania's gas distribution and transmission pipelines are regulated by both state and national regulatory instruments. The *Gas Industry Act 2019* (Tas) covers licensing for gas retailing, and the building, operation, and maintenance of gas infrastructure. The *Gas Safety Act 2019* (Tas) regulates safety and technical standards to ensure the gas infrastructure is constructed, maintained and operated safely. The Director of Gas Safety is responsible for performing the functions imposed by this Act.

The National Gas Law (NGL) and National Gas Rules (NGR) were adopted by Tasmania in 2008. Under this framework, Tasmania's pipeline operators are subject to the lightest form of regulation set out in Part 23 of the NGR, and are required to comply with information disclosure requirements (subject to any exemption) and an arbitration framework for users of these pipelines to resolve disputes.

Given Tasmania's gas pipelines are subject to the lighter form of regulation, pipeline operators are not subject to pricing regulation. The pipeline operators negotiate with users of the pipelines for the supply of gas on a commercial basis, with contracts typically being three to four years in length.

Full retail contestability applies to the Tasmanian gas retail market. The price of natural gas is not regulated in Tasmania with Aurora Energy and Tas Gas Retail, the two main natural gas retailers, offering a single residential tariff and a single business tariff.<sup>2</sup>

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<sup>2</sup> Tasmanian Economic Regulator, Comparison of Electricity and Gas Prices Available to Smaller Customers in September 2021

## Bottled gas

There are some areas of Tasmania that are not connected to the main gas network and instead use Liquid Petroleum Gas (LPG), Liquefied Natural Gas (LNG) or Compressed Natural Gas (CNG) supplied in bottles or cylinders.

LPG and LNG are used for similar purposes, but natural gas is comprised mostly of methane, while LPG is a combination of flammable hydrocarbon gases, primarily butane and propane. These gases are liquefied using pressure (LPG) and temperature (LNG), and transported in tanks or large cylinders.

Tasmania has an LNG plant at Westbury that currently supplies natural gas fuel to a range of customers across several industries, including agriculture and transport. The plant takes natural gas from the TGP, which is processed and then liquefied to be stored in tanks and transported to road tankers for distribution around Tasmania.

LPG is imported into Tasmania via sea transport and to households and businesses via road transport around Tasmania.

The price of LPG can vary and is dependent on the global market supply and exchange rates.

## How gas is used

Gas is a versatile fuel and while gas consumption is comparatively small in Tasmania, it currently plays an important role in our energy mix.

Industrial users account for a relatively high proportion of the gas consumed in Tasmania compared to the other states, with approximately three quarters of Tasmania's reticulated natural gas consumption attributable to 16 large industrial users.<sup>3</sup>

Many of Tasmania's large industrial operations, which are significant employers of Tasmanians, rely on natural gas as a fuel source for heat purposes, while natural gas can also be used as a feedstock for the manufacturing of plastics or other organic chemicals.

Households in Tasmania commonly use gas for space heating, water heating and cooking. LPG is also used as a fuel for barbecues and vehicles. Similar to households, the main uses of gas by commercial users include space heating, water heating and cooking. Gas boilers are often used to heat large premises.

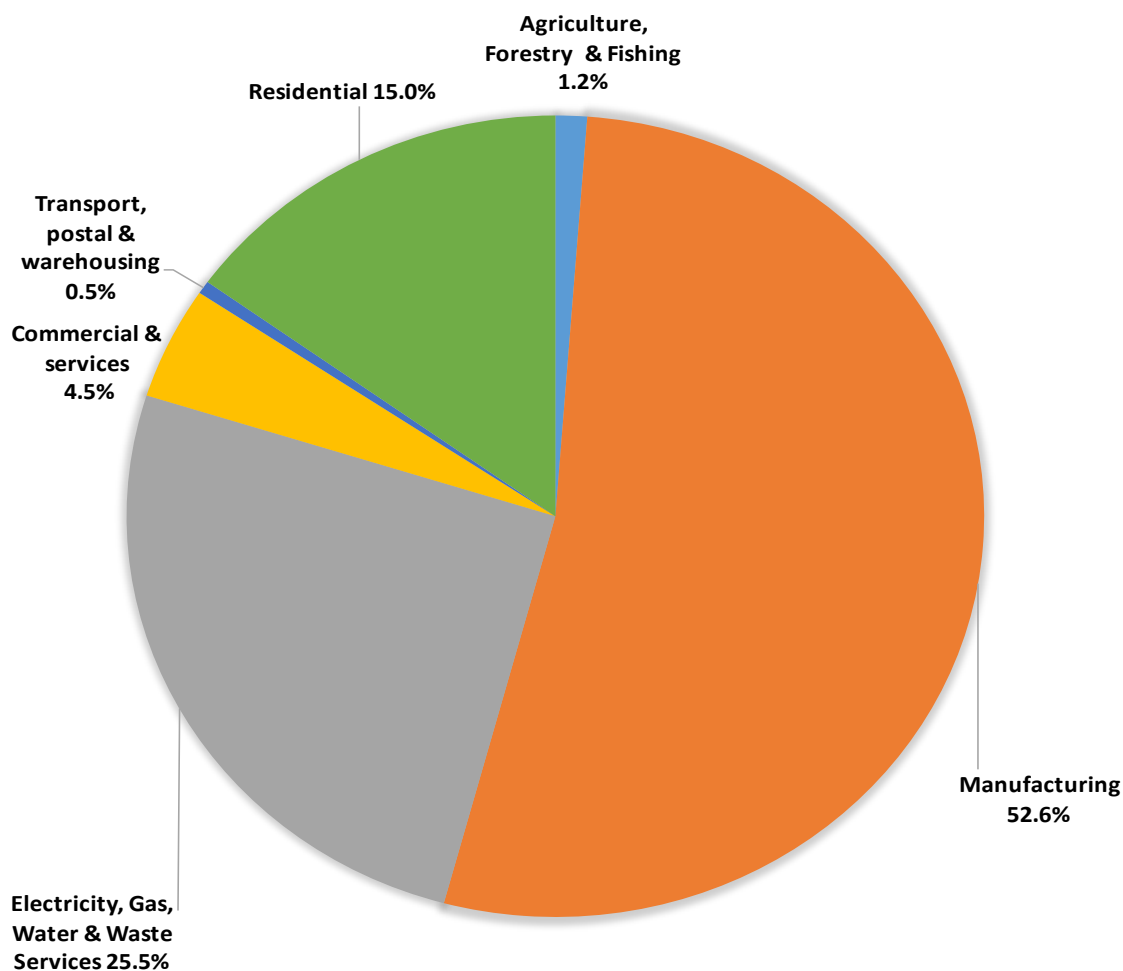
There is comparatively high residential use of LPG in Tasmania with more LPG being consumed by households than natural gas.<sup>4</sup>

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<sup>3</sup> Tas Gas submission, 2022

<sup>4</sup> Department of Climate Change, Energy, the Environment and Water, Australian Energy Update 2022, Table F and ReCFIT calculations

**Figure 1: Industry share of total gas use (LPG and natural gas) in Tasmania, 2020-21**



Source: Department of Climate Change, Energy, the Environment and Water, Australian Energy Update 2022, Table F and ReCFIT calculations.

Note: The use of natural gas for electricity generation fluctuates significantly from year to year and has accounted for a much larger share of total gas use in some previous years.

## Gas powered electricity generation

Gas has played an important role as a back-up source of energy for electricity generation in Tasmania. The Tamar Valley Power Station (TVPS) is the largest single gas consumer in Tasmania when in operation. AETV, a subsidiary of Hydro Tasmania, operates the TVPS. It consists of a combined cycle gas turbine (CCGT) and four open cycle gas turbine units (OCGT) with a combined generating capacity of 372 MW.

Gas fired power generation in Tasmania is highly variable. The variation is dependent on a range of factors including the availability of hydro and wind generation, relative power prices and demand in Tasmania and Victoria, rainfall and the availability of the Basslink interconnector.

While the use of gas powered electricity generation has been decreasing, particularly as new renewable generation assets are constructed on-island, the generation fleet at the TVPS continues to



be available and operating on a commercial basis. This includes both gas-fired electricity generation, as well as the provision of system strength. The Government committed to retaining the TVPS at the 2021 election, and the combined-cycle turbine remains available should it be required, including for energy security purposes.

Construction of the Marinus Link interconnector may mean that gas will play a less important role in electricity generation for energy security in the future as Tasmania will have greater capacity to import electricity from the mainland when needed and/or mainland prices are lower. However, gas could continue to have an important role in providing dispatchable electricity generation at times of high demand.

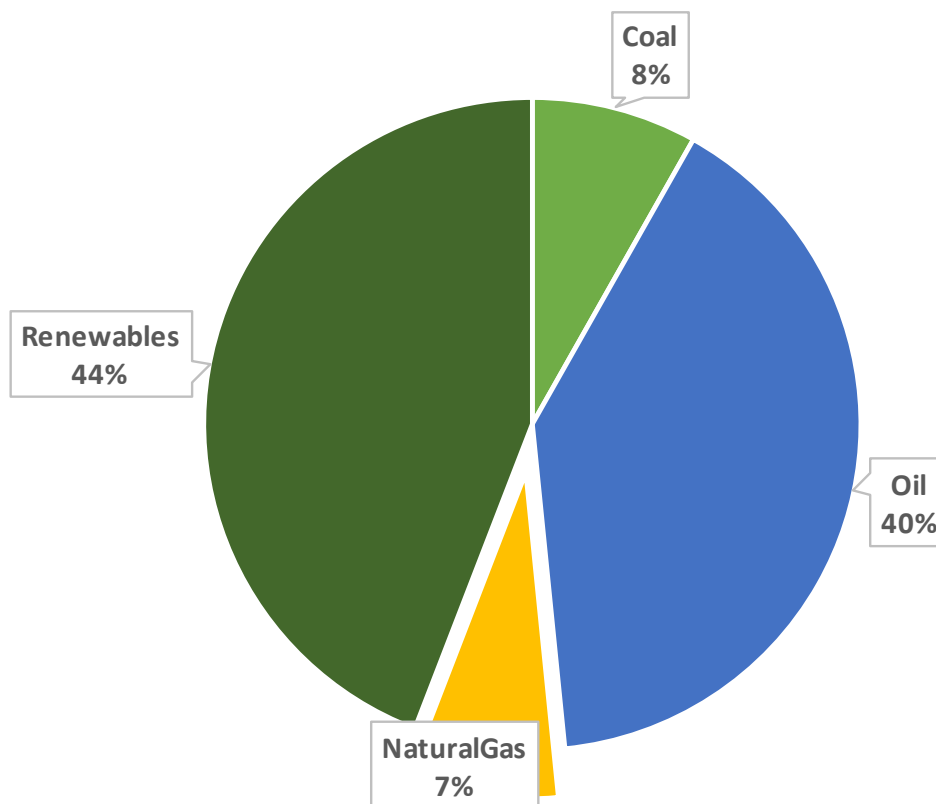
## Challenges facing natural gas in Tasmania

Tasmania's natural gas market is small and relatively undeveloped

While gas is an important fuel, gas consumption in Tasmania, particularly by households, is very low compared to other Australian jurisdictions and electricity continues to be the primary fuel source in Tasmania.

Natural gas accounted for around 7 per cent of Tasmanian energy consumption in 2020-21, with LPG accounting for another 1.3 per cent of total energy consumption.<sup>5</sup>

**Figure 2: Share of primary energy consumption in Tasmania by Fuel, 2020-21**



Source: Department of Climate Change, Energy, the Environment and Water, Australian Energy Update 2022, Table C and ReCFIT calculations

<sup>5</sup> Department of Industry, Science, Energy and Resources, Australian Energy Update 2022, Table F and ReCFIT calculations

The limited role of natural gas in Tasmania's energy mix is at least partly attributable to the relatively recent introduction of natural gas into the State and the limited reach of the reticulation network, which currently passes around 60 000 premises.

Tasmania's first residential natural gas consumer was connected in August 2004 and since then, approximately 13 600 residential customers, or around 6 per cent of Tasmanian households, have connected to the natural gas network. Just over 1 100 commercial and industrial customers are connected to the network.<sup>6</sup> Connections have continued to grow at a modest pace in recent years.

There are some potential growth areas for gas in Tasmania including in the maritime industry. In early 2021, the Tasmanian Government contracted with Finnish shipbuilder Rauma Marine Constructions to build two car and passenger ferries that will be able to run on LNG and diesel through a dual-fuel system. The ferries will replace the Spirit of Tasmania vessels which currently run solely on diesel. Construction has commenced with the first ship expected to be finished in late 2023, and the second in late 2024.

Tasmanian based company, SeaRoad has signed an agreement with a German shipbuilder Flensburger Schiffbaugesellschaft to construct a new freight vessel with LNG propulsion. The vessel will transport heavy cargo across the Bass Strait between Melbourne and Devonport and is scheduled to be completed in the last quarter of 2023.

#### Gas supply security

The TGP is a single gas transmission pipeline supplying all Tasmanian natural gas consumers. Tasmania has no local gas reserves. As a result, there are very few redundancies should gas supplies into Tasmania fail or suffer major disruption, for example from a pipeline outage or a gas supply issue in Victoria. However, TGP has operated for the past 20 years with no major disruptions or supply failures.

Given Tasmania is a small gas market dependent on imported gas, it is vulnerable to the increasing supply and price risks associated with both gas commodity and pipeline capacity.

The Australian Energy Market Operator (AEMO) in its 2022 Gas Statement of Opportunities (GSOO) is forecasting supply shortfalls for south-eastern Australia from 2033 (refer to Figure 39 from the GSOO below). In most scenarios, consumption in south-eastern Australia is forecast to decline, driven by investment in energy efficiency and electrification and the potential growth of hydrogen as an alternative fuel. However, projected supply is declining faster and gaps are expected. The potential impact on Tasmania of this projected supply gap is unclear, given that Tasmania is only a small part of the broader south-eastern gas market.<sup>7</sup>

While the TGP has more than sufficient capacity to transport enough gas to meet Tasmania's needs, there are limitations on the capacity of pipelines on the mainland to transport gas from supply centres

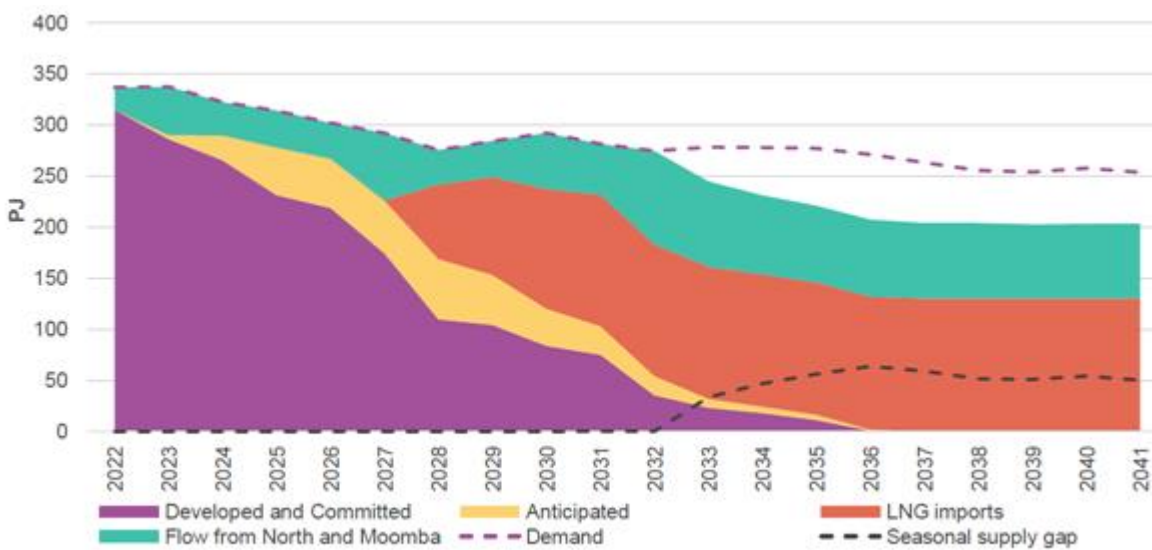
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<sup>6</sup> Office of the Tasmanian Economic Regulator, Energy in Tasmania 2020-21 and ReCFIT calculations

<sup>7</sup> See Australian Energy Market Regulator, Gas Statement of Opportunities 2022

in the north (Queensland and the Northern Territory) to the south-east demand centres (where shortfalls are forecast).

**Figure 39 Projected annual adequacy in south eastern regions, *Step Change* scenario, with existing, committed and anticipated developments, 2022-41 (PJ)**



AEMO observes that the Australian gas sector is transforming, driven by two significant trends:

- Changes in supply: Supply from conventional sources in the south-east, in particular offshore Victoria, continues to decline. Alternative supply sources are mainly in the north (Queensland and the Northern Territory) and this gas will need to be transported south to meet domestic customer needs.
- Uncertainty about the future of gas use in Australia: As Australia transitions to a net-zero emissions economy, the type and level of gas use is expected to be impacted by consumer choice, technology advances, public policy and the potential rise of hydrogen.

### Gas prices

Gas prices tend to be higher in Tasmania compared to the Australian mainland, due to the small size of market and lack of economies of scale. Tasmania’s location in relation to the gas fields and small customer base where fixed costs have to be recovered from a small number of customers, most of whom consume a low volume of natural gas mean transport costs contribute to these high costs.

The gas commodity prices in Tasmania (set by the Victorian wholesale price of natural gas, as the gas is sourced at Longford)<sup>8</sup> have seen a significant upward trend over the past 10 years, and the supply outlook from 2022 onwards looks increasingly tight.<sup>9</sup>

Higher gas demand domestically this year is putting pressure on the system, driven by colder weather and increased gas-powered electricity generation. The tightness in gas supply, combined with international events, has increased domestic spot prices to record levels.

<sup>8</sup> Gas Price Trends Review 2017, Oakley Greenwood

<sup>9</sup> Gas inquiry January 2022 interim report, Australian Competition & Consumer Commission

Domestic natural gas prices averaged around \$10 per GJ in Q1 2022 and by May, prices in Victoria were recorded at \$55 per GJ.<sup>10</sup> On 30 May 2022, gas prices reached a cumulative price threshold prompting AEMO to intervene to cap prices in Victoria's wholesale market at \$40 per GJ.

On 2 June 2022, for the first time since its implementation in 2017, AEMO triggered the Gas Supply Guarantee mechanism (GSG) in response to forecast low reserves in Victoria, South Australia, and Tasmania. Market participants reported that they were unable to source sufficient gas to supply gas power stations, with some forced to rely on diesel, rather than gas, to generate power. The call for a response from the market to the shortfall, as required by the GSG, was met and sufficient supply was made available to meet forecast demand.

The supply and demand balance however continues to remain tight. AEMO and the Australian Competition and Consumer Commission (ACCC) have advised that peak day gas supply shortfalls could arise in the southern states in winter 2023. The ACCC, in its Gas Inquiry July 2022 Interim Report forecasts a potential shortfall of 56PJ's of gas supply in the east coast market in 2023, if all excess gas of LNG exporters is sold in overseas market.

Most large Tasmanian gas customers have at least some of their gas supply terms fixed under longer-term (3-4 year) contracts and therefore have limited exposure to short-term fluctuations in the gas spot market. However, higher gas prices would, over time, be particularly challenging for major industrial and commercial gas users in Tasmania.

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<sup>10</sup> Wholesale Markets Quarterly Report Quarter 1 2022, Australian Energy Market Operator

# The Future of Gas in Tasmania

Tasmania, as Australia's leading renewable energy state, has set a clear policy agenda to reduce greenhouse gas emissions, promote renewable energy and transition away from fossil fuels.

The Tasmanian Government has committed to a target of net zero emissions, or lower, from 2030. The Government has also legislated the Tasmanian Renewable Energy Target, which will increase the State's renewable energy output equivalent to 200 per cent of renewable electricity generation levels (set at a baseline of 10,500 GWh) by 2040. The Government has set an interim target of 15,750 GWh of electricity generation from renewable energy sources by 2030 (a target of 150 per cent).

To support business and the community to transition to a low emissions economy, the Tasmanian Government has also committed to establish a legislative requirement for the development of Emissions Reduction and Resilience Plans for key industry sectors, including the energy sector.

Australia, as a signatory to the Paris Climate Agreement, has committed to reducing national greenhouse gas emissions by 43 per cent on 2005 levels by 2030, and reaching net zero emissions by 2050.

All Australian states and territories have set ambitious renewable energy or emissions reduction targets to drive investment in renewables and move to clean energy systems.

Importantly for Tasmania, given its reliance on imported gas, the Victorian Government has committed to reaching net zero greenhouse gas emissions by 2050 and has set emissions reduction targets of 28 to 33 per cent by 2025 and 45 to 50 per cent by 2030. To help navigate the path to net zero, Victoria has released its own Gas Substitution Roadmap, which has a strong emphasis on reducing gas consumption through energy efficiency and electrification and includes several initiatives to assist households and small business to replace gas appliances with electric alternatives.

The strong emissions reduction targets seen across Australia create an imperative for the decarbonisation of gas. Australia's gas industry recognises this imperative. In September 2020, Australia's peak gas industry body, in partnership with Energy Networks Australia, released Gas Vision 2050. The Vision represents the gas industry's commitment to lowering carbon emissions in line with the aims of the Paris Agreement on climate change. The 2022 update to the Vision sets out industry-led targets for the future of gas in Australia. In addition to these whole-of-industry targets, many individual gas pipeline and distribution businesses have adopted their own net zero emissions targets.

There is, in short, an industry commitment to the decarbonisation of gas in Australia. As the national gas industry decarbonises, supported by ambitious emissions reduction commitments from all jurisdictions, it is clear that it is not a question of if, but rather of how and over what timeframe Tasmania moves to decarbonise its gas sector.

## Decarbonisation pathways

Gas consumption is a small but not insignificant source of greenhouse gas emissions in Tasmania, accounting for around 5 per cent of Tasmania's gross emissions (excluding the contribution of the *Land use, land use change and forestry* sector). There are a number of alternative potential options for replacing natural gas and LPG with less emission-intensive fuels through renewable gases.

While industrial gas users face significant challenges, particularly in replacing natural gas for process heating, the Australian Renewable Energy Agency (ARENA) in its report *Renewable Energy Options for Industrial Process Heat*, confirmed that there are demonstrated and available renewable energy technologies for every application of process heat.<sup>11</sup>

However, not all are sufficiently proven in a commercial sense. There remains a range of challenges for commercial and industrial gas users to switch to renewable alternatives. Principally, alternatives are not yet sufficiently economic such that a business can remain competitive and sustainable, nor are they being employed at the necessary scale.

Additional challenges include that the level of industrial experience in generating heat using renewable fuels remains low and business often have a low appetite for risk and short payback time expectations.

There is unlikely to be a single option to meet all needs, but rather, a mix of alternative fuels that will enable large gas users to tailor solutions to their particular needs. Some of these options are discussed below.

### Electrification

Electrification is a strong option in many contexts in Tasmania, particularly in light of Tasmania's abundant competitively priced, reliable and renewable energy. For many household users, the cost of converting gas appliances is likely to be a major barrier in the short-term, but may be less of a barrier over time as equipment nears the end of its life and needs to be replaced.

While an electrification strategy would increase electricity demand in Tasmania, the Tasmanian Renewable Energy Target is expected to drive further supply of renewable energy so that by 2040 Tasmania will be producing twice as much renewable electricity as its 10 500GWh baseline.

However, electrification will not be a viable option for all gas users. In particular, electrification may not be suitable, or may be cost prohibitive, for a range of industrial heating purposes, especially where flash heating, high temperatures, and precise control is required.

Therefore, Tasmania's decarbonisation pathway is likely to require the introduction of alternative fuels sources capable of meeting the requirements of industrial heating processes.

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<sup>11</sup> Renewable Energy Options for Industrial Process Heat, Australian Renewable Energy Agency, 2019

While there are a range of emerging renewable energy sources which show promise as potential long-term alternatives to gas, these fuels are not yet commercially available at sufficient scale to replace natural gas.

Bottled renewable gases could be transported in tanks, similar to LNG, CNG and LPG, however will still encounter conversion requirements and costs.

### Bioenergy and Biogas

Biogas is a predominantly methane gas that can be produced from raw materials such as waste from agricultural, municipal, and forestry sources, including sewage, garden and food organics, sawdust, straw, and manufacturing organic waste. Biogas is made from biomass that can be regrown and is thus considered a net zero energy source under Australian National Greenhouse Gas Accounting Framework

Biogas is a source of energy that can be converted into heat, electricity, or transport fuels. Biogas can be burned in boilers or reciprocating engines behind the meter to provide energy to industrial processes. Biogas can also be upgraded into methane (by removing carbon dioxide and other gases), which is the same molecule as natural gas. Biomethane can therefore be directly substituted for natural gas and injected into the gas grid and serve several uses for consumers such as heating or industrial purposes.

The Government is developing a Bioenergy Vision to identify how the State can unlock private sector investment in bioenergy in Tasmania (see further details below). Biogas currently fuels some industrial processes in Tasmania. For example, Cascade Brewery displaced natural gas with biogas generated through installation of an anaerobic digester. Annually around 70 000m<sup>3</sup> of biogas is produced and burned in a modified natural gas boiler to provide steam used throughout the brewing process. Such on-site (behind-the-meter) consumption of biogas is in some cases already cost competitive with natural gas. Large-scale blending of biogas into the gas network remains challenging given the cost of the required cleaning and pressurisation processes.

There are also broader opportunities for bioenergy - energy produced from organic matter - to displace natural gas use in Tasmania. For example, existing natural gas boilers could be converted to direct combustion of woody biomass. An independent review of Tasmania's *Climate Change (State Action) Act 2008* also identified a role for bioenergy in manufacturing and industrial processes that require high temperatures.<sup>12</sup>

### Hydrogen

Renewable energy can be used to power the electrolysis of water, producing hydrogen and oxygen. Hydrogen produced in this way is commonly termed renewable hydrogen or 'green hydrogen' and has near zero carbon emissions associated with its production or use.

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<sup>12</sup> Independent Review of the *Climate Change (State Action) Act 2008*, Final Report, June 2021, Jacobs Australia Pty Ltd.



Hydrogen can be blended with natural gas or used in place of natural gas and LPG for a range of uses including heating in homes and businesses, in heavy industry, for electricity generation and as a chemical feedstock.

Although hydrogen is not yet commercially viable as a large-scale natural gas or LPG substitute, the Tasmanian, Australian and global hydrogen markets are rapidly developing. There is a strong market expectation that commodity prices will fall and hydrogen will become a cost-competitive fuel option.

However, the substitution of hydrogen into our natural gas networks is likely to have higher transition costs including converting infrastructure, meters and end use appliances and potentially additional ongoing costs such as an increased regulatory burden including additional safety, training and licencing requirements.

### Renewable methane

Methane is already the principal constituent of natural gas, but is currently derived from fossil fuels.

Producing renewable methane involves a further step to hydrogen electrolysis to chemically react hydrogen with carbon to form methane (CH<sub>4</sub>). The required carbon can be captured either from the atmosphere or as by-products of combustion processes. This technology is still in the relatively early stages of development.

Renewable methane may have some advantages over hydrogen as a replacement fuel for natural gas. As renewable methane is of a similar chemical composition to natural gas, existing gas appliances would require no upgrades to be compatible with renewable methane. Renewable methane may also be injected into steel transmission pipelines (such as the TGP) without technical or safety concerns.

However, the commodity cost of renewable methane is likely to always be higher than hydrogen given that it involves an additional process using additional energy.

### Blending

Blending renewable gases (biomethane, hydrogen and renewable methane) into our natural gas networks provides an opportunity to gradually build the market for renewable gases. Displacing natural gas (as a fossil fuel) will also lower carbon emissions and optimise the use of existing infrastructure as the markets develops.

Currently, hydrogen can be blended with natural gas at low levels through the gas distribution network without needing to replace pipelines, appliances and meters.

The amount of hydrogen in the blend is limited by the capacity and tolerance of the end-use equipment connected to the grid and not all end-use appliances have the same tolerance.

Hydrogen also has a lower volumetric energy density than natural gas. If hydrogen molecules are injected into a pipeline, displacing some natural gas molecules, the resulting blended gas does not carry the same amount of energy. As a result, more gas must be consumed to meet the same energy



needs. Given a relatively small amount of natural gas is replaced in low level blends, the emission reduction benefits are therefore also limited.

The pathway to higher level blends of hydrogen remains uncertain with a range of technical barriers and cost implications to be considered. In particular, high blends of hydrogen in steel pipelines can cause pipeline embrittlement and many existing end-use appliances are not compatible with hydrogen. Higher level blends would also require conversion or replacement of a range of equipment, including compressors, seals, gas meters, burners and storage sites and end-use appliances.

Biomethane and synthetic methane can also be injected into the existing gas network and blended with natural gas.

Biogas can be upgraded into methane (by removing carbon dioxide and other gases), which is chemically identical to, and completely substitutable with, methane (as is renewable methane).

A key advantage of both biomethane and renewable methane is that it can use existing infrastructure and end-user equipment.

# The Government's Vision for Gas in Tasmania

## A continued role for gas in Tasmania's energy mix

The continued availability of gas is important to both Tasmania's economic and emissions-reduction objectives. Consequently, the Tasmanian Government's view is that gas will continue to play a role in Tasmania's energy mix for some time to come, pending the further development of suitable and affordable alternative renewable fuel sources.

Numerous Tasmanian businesses, including some of our largest employers, rely on gas. If gas were to cease to be available and affordable before there is a commercially viable, reliable, renewable gas alternative, there is a risk that some industrial users will reconsider the viability of their operations in Tasmania. Those that continue their current operations may be forced to revert to high carbon emission fuel sources which were relied on prior to the introduction of natural gas. At 51.53 kilograms (kg) of carbon dioxide equivalent (CO<sub>2</sub>-e) per GJ of energy, natural gas produces significantly less greenhouse gas emissions than fuels such as diesel (70.20 kg CO<sub>2</sub>-e) and bituminous (black) coal (90.24 kg CO<sub>2</sub>-e).<sup>13</sup>

Acting to transition away from gas before suitable alternative fuels become widely available would therefore have an adverse impact on Tasmania's economy and employment, while doing little to reduce greenhouse gas emissions.

It is also important to recognise that current natural gas infrastructure is likely to be valuable in Tasmania's future decarbonised gas network. While it is uncertain which renewable gas, or mix of gases, will prove most effective in Tasmania, it is likely that renewable gas providers will be able to utilise much of the pre-existing gas infrastructure like distribution networks, pipelines, metering equipment, and even human expertise. If natural gas becomes unavailable before there is a viable alternative, this key infrastructure may fall into disrepair or be lost completely. Any such outcome would hinder Tasmania's transition to a decarbonised gas network.

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<sup>13</sup> National Greenhouse Accounts Factors: 2021 at <https://www.industry.gov.au/data-and-publications/national-greenhouse-accounts-factors-2021>.

## There is a role for Government in actively supporting the transition to renewables

The rapid development of alternative renewable gases and the broader domestic and international energy transitions already underway mean that the decarbonisation of Tasmania's gas network is inevitable. Recognising this, the Government will not seek to prolong the use of natural gas and LPG beyond the point that renewable alternatives become widely available and commercially viable.

Gas-reliant industries will require government help to develop and adopt new technologies, including hydrogen. There is also a need for Government to assist less gas-reliant manufacturers, such as food processors, understand their energy options.

The transition away from fossil fuel gas offers many benefits to Tasmania.

Decarbonisation creates an opportunity for the on-island generation of renewable gases. Tasmania can leverage its competitive advantages (renewable energy, water availability, biomass) to produce its own renewable gas alternatives such as hydrogen and biogas.

On-island generation of renewable gases would strengthen Tasmania's energy security by reducing our reliance on imported gas. International gas markets are currently experiencing high volatility, particularly given the Russian invasion of Ukraine. On-island renewable gas generation would provide the Tasmanian gas network with greater energy independence, protecting gas users against commodity shortfalls and price volatility driven by external events.

Transitioning to renewable gas alternatives made on-island will also open new markets for the Tasmanian economy. Renewable gases create potential export opportunities to both mainland Australia and international markets. Tasmania's Renewable Hydrogen Action Plan sets a target of exporting Tasmanian-produced green hydrogen by 2025 - 2027. These export markets will offer increasing value as international demand for renewable fuel grows.

Decarbonising Tasmania's gas supply will also create opportunities for domestic production of high value products with "green" credentials, like green ammonia, green steel and green aluminium.

There are significant opportunities in decarbonising Tasmania's gas network. To maximise the benefit of these opportunities for Tasmania, the Government will actively support the transition to renewables.

## Stages of transition

While the precise timeframes are uncertain, the Government conceives of Tasmania's gas use undergoing a transition involving four broad phases, beginning with the introduction of reticulated natural gas into Tasmania in 2003, which provided a flexible and cost-effective fuel source that enabled many large industrial users to shift away from significantly higher carbon fossil fuels such as coal and fuel oil.

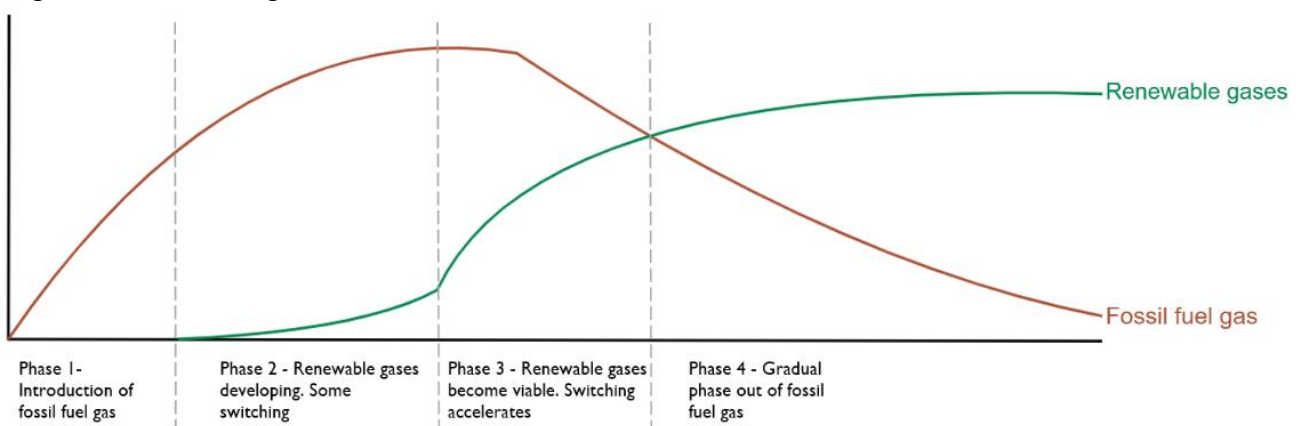
We are currently in the second phase of the transition, in which renewable alternatives to gas are being developed, but are not yet widely available or financially viable for the vast majority of gas consumers. There is some uptake of renewable gases, but not enough to materially affect gas usage. In this phase, Government policy is focussed on assisting the development of renewable gases, while examining ways to reduce emissions through improved energy efficiency and exploring options to replace the Government's own gas consumption with low-emission alternatives.

In the third phase, renewable gases will become widely available and increasingly commercially viable for most users. There is a more rapid uptake of renewable gases by both communities and industry, resulting in a material decline in natural gas and LPG usage. In this phase, Government policy will need to be increasingly focussed on assisting gas consumers to adopt renewable alternatives, including ensuring that appropriate infrastructure is in place to transport renewable gasses, while ensuring that natural gas and LPG continue to be available for individual users up until the point where it becomes viable for them to convert to renewable alternatives.

The fourth phase of the transition will see the settling of Tasmania's gas market as renewable gas solutions mature and usage of natural gas and LPG tails off. In this phase, renewable alternatives will have been developed for all key processes and the growth in renewable gas will slow as businesses complete their transitions. Government policy will need to focus on ensuring equitable access to renewable alternatives for consumers who were previously dependent on access to natural gas and LPG. Relative to the size of Tasmania's economy, renewable gas usage may plateau slightly lower than the historic peak of natural gas due to electrification and increased energy efficiency.

The transition from fossil fuel gas to renewable alternatives is broadly depicted in the Figure 4 below.

**Figure 4: Phases in the gas transition**



# Government Actions

The Tasmanian Government is undertaking a range of actions that will influence the future role of gas in Tasmania and help support the transition towards renewable alternatives.

## 1. Supporting consumer choice: No mandates or moratoriums against new natural gas connections

The Government sees a continued role for natural gas in Tasmania's energy mix until the point that renewable gas alternatives become widely available. That point has not yet been reached and the Government does not intend to implement mandates or moratoriums that prevent customers from choosing the fuel sources that best meet their needs.

The Tasmanian Government also understands that security of gas supply is an important issue. The Government will ensure that the eventual decarbonisation of Tasmania's gas network is as orderly as possible and that, for example, the adoption of alternative renewable fuels by some users does not result in remaining gas customers facing unaffordable transmission costs. The Government will continue to monitor the State's gas requirements and any impact changes may have on gas users.

## 2. Continuing to support the development of green hydrogen

In March 2020, the Tasmanian Government released the Tasmanian Renewable Hydrogen Action Plan (TRHAP), with a vision for our island to become a world leader in large-scale renewable hydrogen production for domestic use and export.

The TRHAP includes a \$50 million Tasmanian Renewable Hydrogen Development Funding Program, incorporating a \$20 million Tasmanian Renewable Hydrogen Fund, \$20 million in concessional loans and \$10 million for further support measures such as competitive electricity supply arrangements and payroll tax relief. From the first round of the Program, the Government is providing \$2.6 million to support three feasibility studies investigating large-scale renewable hydrogen projects in Tasmania.

The Government has committed to work with the incumbent natural gas distribution network infrastructure owner to explore opportunities for hydrogen blending at up to 10 per cent and to investigate potential trials of higher hydrogen blends in Tasmania's hydrogen compatible gas distribution networks.

The Tasmanian Government is also committed to establishing the first Tasmanian Green Hydrogen Hub at Bell Bay. The hub would see provision of enabling infrastructure to facilitate establishment of large-scale hydrogen production for both domestic and export use by the end of 2025.

### 3. Supporting the development of Tasmania's domestic bioenergy and biogas industries

The Government is developing a Bioenergy Vision to identify how the State can unlock private sector investment in bioenergy in Tasmania.

The Vision is being developed in consultation with an extensive range of stakeholders that represent agriculture, aquaculture, waste management, forestry and timber processing, power generation, industrial energy users, transport, and construction.

Released in late 2021, the Draft Vision is to embed bioenergy, as a valued renewable resource for the Tasmanian economy, community, and environment as an aid to energy production, waste management, and reduction of greenhouse gas emissions. The Government will explore options to use bioenergy, including biogas, to decarbonise its economy by displacing fossil fuels used in heat generation and the production of transport fuels.

The Final Vision will aid in the development of a bioenergy sector that encompasses social, environmental, and economic values to achieve the best outcomes for Tasmanians. This includes a Government policy and regulatory framework to provide a foundation for long term investment in the sector and stimulate private investment in commercially and environmentally sustainable bioenergy projects.

The final Vision is due for release in 2022.

In parallel with the Bioenergy Vision, a Boiler Replacement Action Plan is currently being developed to investigate which Government-owned fossil fuel boilers can be converted to renewable energy, including bioenergy.

The Boiler Replacement Action Plan will inform how Governments spends the \$10 million allocated in the 2022-23 Budget to displace fossil fuels used in Government owned fossil fuel boilers.

### 4. National gas reform agenda

The Government will continue to act to help improve the supply of gas to Tasmanian consumers at lowest cost, by influencing the national gas reform program.

The NGL and NGR provide a framework for the regulation of natural gas pipeline services in Australia, as well as broader elements of the natural gas markets. Tasmania adopted the national regulatory framework in 2008 and changes to the national framework may impact on Tasmania's gas customers.

Tasmania is working with the Australian Government and other states and territories to undertake a range of reforms to improve the functioning of the east coast gas market and implementing measures to deliver affordable and reliable gas. Tasmanian customers benefit from improved efficiency of the east coast gas supply market on which supply into Tasmania is wholly dependent.

Tasmania is also actively involved in developing national reforms that will support the next steps in the roll-out of hydrogen, biomethane and other renewable gases to be used in Australia's gas networks.

These reforms aim to ensure regulation allows for safe, low-level blending of hydrogen, biomethane and other renewable gases into existing gas distribution systems and for use in gas appliances in Australian businesses and homes.

The uptake of renewable gases including hydrogen provides an opportunity for direct replacement of natural gas and direct fuel-switching for Tasmania's larger industrial customers.

## 5. Tasmania's hydrogen regulatory review

The Tasmanian Government is progressing work at both the State level (as well as with the Commonwealth and other jurisdictions through a national regulatory Working Group) to support the reform of regulatory frameworks applying to the development of a hydrogen industry and the export of hydrogen and hydrogen derivatives that is both consistent and practical.

Current priority activities include: the review of relevant state based legislation and regulations essential to the entire hydrogen value chain, and increasing engagement with potential hydrogen users and industry proponents on any regulatory considerations related to hydrogen project development to address any issues or barriers.

## 6. Supporting energy efficiency

Improving energy efficiency is an important way in which Tasmanians can take control of their energy usage and reduce energy bills. As energy pricing challenges continue, improving energy efficiency is a practical option to manage cost of living pressures.

The Tasmanian Government is taking strong action to improve the energy efficiency of Tasmanian homes. The \$50 million Energy Saver Loans Scheme will provide interest-free loans of up to \$10 000 for Tasmanians to invest in energy efficient products, including solar PV, battery systems, reverse cycle air conditioning (heat pumps) and efficient electric hot water systems. Purchases of gas appliances will not be eligible for support under the Energy Saver Loans Scheme.

Residential customers, small business customers and rental providers will be able to access the Scheme.

Increasing access to these energy savings upgrades can greatly improve the energy efficiency of households, bringing down energy bills and increasing comfort. Upgrading an older, conventional hot water system to an efficient solar system, for example, can save approximately 25 per cent of a household's annual energy bill. The Scheme will assist households to undertake these investments earlier, allowing them to enjoy the savings on their energy bills sooner.

## 7. Help low-income and vulnerable consumers to transition

Electrification is likely to be a strong decarbonisation option for many household and business consumers. However, the upfront cost of switching from gas to electric appliances, notwithstanding any potential running cost benefits, may be a barrier to uptake, particularly for low-income and vulnerable gas users.

Many Tasmanians are on fixed incomes, including various forms of Government assistance, with limited discretionary financial capacity to invest in capital improvements to housing. Low income earners also have comparatively little ability to respond to energy price increases by changing their consumption behaviour or converting to an alternative fuel, because their spending on energy usage is often non-discretionary. This means that the cost of converting gas appliances is particularly concerning for low-income households. Additionally, those in rented accommodation have little ability to influence the energy efficiency of their homes and limited options to switch appliances as capital improvements remain the responsibility of the landlord.

The Government will continue to explore options to support vulnerable households to transition to lower emissions fuel and build on its current initiatives such as the No Interest Loans Scheme (NILS) and funding for energy efficiency improvements to Tasmania's public housing. In 2021, the Government committed to doubling the current funding for NILS from \$1 million to \$2 million over a four year period, which assists concession-card holders with subsidies of up to 50 per cent toward the cost of energy efficient appliances, with a no-interest loan for the balance. In addition, \$15 million has been made available to increase the energy efficiency of Tasmania's public housing, including replacing gas space and hot water heating systems with efficient heat pumps.

Improving energy efficiency in households, business and industry will reduce carbon emissions from gas and make our energy use more affordable.

## 8. Emissions Reduction and Resilience Plans

The Tasmanian Government's Climate Change (State Action) Amendment Bill 2021 (the Bill) was developed in response to the third and most recent independent review of the Climate Change (State Action) Act 2008. The Bill passed the House of Assembly on 6 September 2022 and is expected to pass both Houses of Parliament in 2022.

The Bill establishes a legislative framework to develop Emissions Reduction and Resilience Plans for key industry sectors including: energy; transport; agriculture; industrial processes and product use; land use, land use change and forestry; and waste. Sector-based plans will identify opportunities, gaps and barriers to reduce greenhouse gas emissions, including readiness of technologies and likely adoption timeframes, and define pathways to build the required knowledge and skills to achieve emissions reductions. The Emissions Reduction and Resilience Plans will be developed in partnership with business and industry to ensure all plans are achievable and practical.



Importantly, an Emissions Reduction and Resilience Plan will be developed for Government operations, to continue to lead by example and include actions already underway to reduce emissions, such as transitioning the Government vehicle fleet to 100 per cent electric vehicles by 2030 and the replacement of fossil fuel boilers in Government buildings with renewable energy.

## 9. The adoption of renewable gases by Government

The Government will invest \$10 million over four years to replace fossil fuel boilers in Government buildings with renewable energy-powered alternatives, including bioenergy. This commitment will promote the option of renewable gases in key infrastructure projects, as well as building both industry and community familiarity with renewable gas.

The Tasmanian Government has also committed to completing a baseline emissions inventory assessment as part of the development of an Emissions Reduction and Resilience Plan for Tasmanian Government operations. The baseline assessment will be used to inform pathways to reduce emissions and inform the setting of targets to focus Government actions.

## 10. Working with industry

The Government will actively work with gas industry participants to ensure the decarbonisation transition is as orderly as possible and that solutions are developed that meet the needs of individual gas consumers. The transition to a decarbonised gas network will be a significant change for many Tasmanian businesses, but it will also offer important opportunities. Maximising the benefits of decarbonisation to Tasmanian will require a two-way working relationship between the Government and industry. In particular, there is a role for industry to consider the suitability of renewable gases in their processes and provide feedback to Government on implementation challenges. The Government will continue to meet periodically with the Gas Working Group, including gas network providers and consumer representatives, as well as more informal individual consultation as needed. It is through such consultation with industry that the Government will be best placed to manage emerging technologies, impacts on gas market participants, changing regulatory requirements and any other challenges involved in decarbonisation. Through consultation, industry will in turn be better placed to capitalise on the benefit decarbonisation offers to their own businesses.

## 11. Reviewing the Tasmanian Future Gas Strategy within five years

The global energy system is in a period of unprecedented change. Tasmania's gas market is not immune to this change. As the decarbonisation transition occurs, new technologies are developing, bringing both challenges and opportunities for Tasmanians. The Government will review Tasmania's Future Gas Strategy within five years to ensure that the strategic direction for our gas network keeps pace with the rapidly changing gas market.

**Table: Summary of Government Actions to Support the Gas Strategy**

<b>Government Actions</b>
1. Supporting consumer choice: No mandates or moratoriums against new natural gas connections.
2. Continuing to support the development of green hydrogen
3. Supporting the development of Tasmania's domestic bioenergy and biogas industries
4. National gas reform agenda
5. Tasmania's hydrogen regulatory review
6. Supporting energy efficiency
7. Helping vulnerable and low-income users to adjust
8. Emissions reduction and resilience plans
9. The adoption of renewable gases by Government
10. Working with industry
11. Reviewing the Future Gas Strategy within five years

# Other Market Measures Supporting a Transition

## Energising Tasmania initiative

The Tasmanian Government is implementing the Commonwealth-funded Energising Tasmania initiative. This program provides \$17 million for training in priority areas such as engineering, project management, civil construction and trades. This funding will support the development of the key technical skills needed in a decarbonised gas market, as well as Tasmania's broader renewable energy industry.

## Certification schemes

In the gas context, certifications schemes provide a credible, consumer-accessible evaluation of the emissions-intensity of a particular gas. Certification helps consumers make more informed energy choices and enables low-emissions gas producers receive premiums for their product.

### GreenPower renewable gas certification pilot

GreenPower, a renewable energy accreditation program managed by the New South Wales Office of Energy and Climate Change, is developing a new certification for renewable gas, starting with a two-year pilot. GreenPower's pilot will be Australia's first certification for biomethane and it is intended to also include renewable hydrogen that is injected into gas networks.

The new certification will help customers directly support renewable gas projects in Australia, with an online platform to be used to administer certificates, similar to the Clean Energy Regulator's registry for Large-scale Generation Certificates.

### Hydrogen Guarantee of Origin

The Australian Government is developing a Hydrogen Guarantee of Origin scheme that aims to facilitate trade in clean hydrogen, which has the potential to become a major export industry. The proposed scheme will track key attributes associated with the production of hydrogen and provide transparency to consumers around the environmental impact of hydrogen being purchased and used. There is a possibility that this scheme will be expanded to include other fuel sources including renewable gases.

While continuing to work with the Australian Government on the design of the proposed national scheme, the Tasmanian Government is separately considering the need for a Tasmanian Renewable Energy Guarantee of Origin Scheme that will allow traceability and verification of all Tasmanian renewable energy generation. This scheme will appropriately recognise Tasmania's strong history of investment in renewable energy, and cement our competitive advantage as we seek to attract energy intensive industries for which affordable, reliable and clean renewable energy is a key requirement.

## Voluntary zero emissions gas market

As part of its Low Emission Technology Roadmap 2021, the Australian Government has committed to work with industry, consumers and state and territory governments (over a 12 month period) to develop a voluntary zero emissions gas market in Australia. This market will drive early demand for clean hydrogen and other zero emissions gases and recognise consumers' voluntary purchase of zero emission gas. Fostering this market will also provide the revenue, clean hydrogen producers need to scale up quickly to bring down production costs.

Certification and standards (such as the Hydrogen Guarantee of Origin scheme) will provide the transparency and traceability needed for a zero emissions gas market.

# Have Your Say

## How to Make a Submission

The Tasmanian Government is committed to providing opportunities for community involvement in the development of Government policy and we are seeking your input on the Draft Future Gas Strategy.

All submissions on the Draft Future Gas Strategy must be received by 12 January 2023.

Submissions can be sent by:

**Email:** [gas.strategy@recfit.tas.gov.au](mailto:gas.strategy@recfit.tas.gov.au)

**Mail:** GPO Box 147, Hobart TAS 7001

Other than indicated below, submissions will be treated as public information and will be published on our website at [www.ReCFIT.tas.gov.au/consultation](http://www.ReCFIT.tas.gov.au/consultation)

**No personal information other than an individual's name or the organisation making a submission will be published unless you request otherwise.**

If you would like your submission treated as confidential, whether in whole or in part, please indicate this in writing at the time of making your submission clearly identifying the parts of your submission you want to remain confidential and the reasons why. In this case, your submission will not be published to the extent of that request.

Copyright in submissions remains with the author(s), not with the Tasmanian Government.

The Department will not publish, in whole or in part, submissions containing defamatory or offensive material. If your submission includes information that could enable the identification of other individuals, then either all or parts of the submission will not be published.

# Definitions

Term	Definition
Australian Renewable Energy Agency (ARENA)	Established by the Australian Government on 1 July 2012 as an independent statutory authority to manage the government's renewable energy programs.
Australian Energy Market Commission (AEMC)	An independent statutory body that makes rules governing the electricity and natural gas markets, including the retail elements of those markets.
Australian Energy Market Operator (AEMO)	An independent body established to manage the National Electricity Market and Australian gas to ensure that all Australians have access to reliable, secure and affordable energy.
Australian Energy Regulator (AER)	Oversees economic regulation and rule compliance in Australia's national energy markets. It forms part of the Australian Competition and Consumer Commission (ACCC) and enforces the rules set by the AEMC.
Biogas	Gases produced by microbial breakdown of organic matter in the absence of oxygen. Biogas is predominantly comprised of methane and carbon dioxide with lesser amount of other gasses
Bioenergy	Bioenergy is energy produced from organic matter. It can be produced from almost any organic matter of agricultural, industrial, municipal and forestry origin.
Bioenergy Vision	The development of a Bioenergy Vision is a deliverable under the Tasmanian Renewable Energy Action Plan and will be published in 2022.
Biomethane	Methane produced by anaerobic digestion
Compressed Natural Gas (CNG)	Compressed natural gas is natural gas mainly comprised of methane that is stored under high pressures (while remaining in its gaseous form).
Discussion Paper	A Discussion Paper was published by the Government in November 2021, as the first phase of a consultation process.
Distribution network	A network of distribution pipelines delivers gas from points along transmission pipelines to industrial customers, and from gate stations to customers in cities and towns. A distribution network typically consists of high, medium and low pressure pipelines.
Gas Statement of Opportunities (GSOO)	Annual Report released by AEMO forecasting annual gas consumption and maximum gas demand, and reports on the adequacy of eastern and south-eastern Australian gas markets to supply forecast demand over a 20-year outlook period.
Gas fired power generation	Natural gas is combusted in a gas turbine burner which drives a generator to produce electricity.
Gigawatt hours (GWh)	Standard unit of energy representing one billion watt hours and is equivalent to one million kilowatt hours
Liquefied Natural Gas (LNG)	Natural gas that has been cooled to a liquid state, for the purposes of transporting it.
Liquid Petroleum Gas (LPG)	A gas liquefied by compression, consisting of flammable hydrocarbons, as propane and butane, obtained as a by-product from the refining of petroleum or from natural gas.
National Gas Law (NGL) and National Gas Rules (NGR)	<p>The NGL and NGR bring responsibility for regulation of access to natural gas pipeline services provided by transmission and distribution pipelines under the national energy market framework. The NGR:</p> <ul style="list-style-type: none"> <li>• govern the wholesale gas balancing markets in the eastern gas market;</li> <li>• govern the wholesale and retail gas markets of northern and eastern Australia;</li> <li>• provide the basis for third party access to regulated transmission and distribution pipelines and an information and arbitration framework for non-regulated pipelines;</li> <li>• facilitate the provision of services to retail customers;</li> <li>• govern the operation of the Short Term Trading Market (STTM) in Brisbane, Sydney and Adelaide, the Declared Wholesale Gas Market</li> </ul>

Term	Definition
	<p>in Victoria, the Gas Supply Hubs and the Natural Gas Services Bulletin Board; and</p> <ul style="list-style-type: none"> <li>govern the secondary trading of pipeline capacity.</li> </ul>
Natural Gas	Natural gas is an odourless and colourless gas (mainly consisting of methane) formed from the decomposed remains of plants and animals.
Petajoule (PJ)	Standard unit of energy - one petajoule is $10^{15}$ joules or 278 gigawatt hours
Renewable Methane	Renewable methane is produced by reacting renewable hydrogen with carbon to form methane (CH <sub>3</sub> ). The required carbon can be captured either from the atmosphere or as by-products of combustion processes.
Tamar Valley Power Station (TVPS)	The TVPS is a gas fired power plant (consisting of a combined cycle gas turbine and four open cycle gas turbine units) located at Bay Bell. It is operated by AETV, a subsidiary of Hydro Tasmania.
Tasmanian Renewable Energy Action Plan (TREAP)	A Plan published by the Government in December 2020 setting out its vision and a suite of actions to grow Tasmania's renewable energy sector
Tasmanian Renewable Hydrogen Action Plan (THRAP)	A plan published by the Government in March 2020 setting out its vision and a suite of actions for Tasmania to become a world leader in large-scale renewable hydrogen production for domestic use and export.
TGP	Tasmanian Gas Pipeline - Tasmania's gas transmission network (see definition below)
Transmission network	Transmission pipelines transport natural gas from processing or storage facilities over long distances to domestic markets. The pipelines typically have wide diameters and operate under high pressure to optimise shipping capacity.



Renewables, Climate and Future Industries Tasmania  
**Department of State Growth**

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