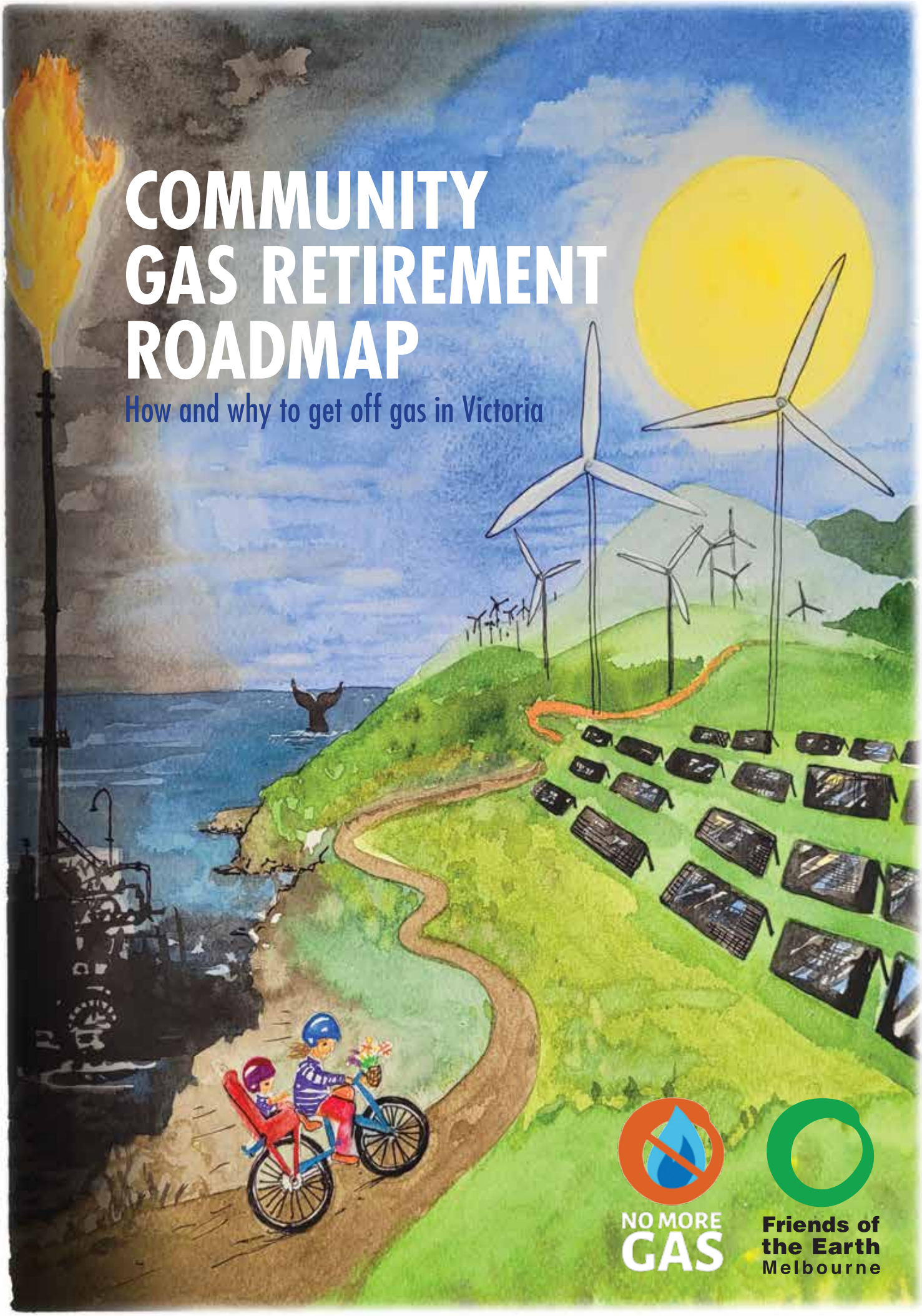
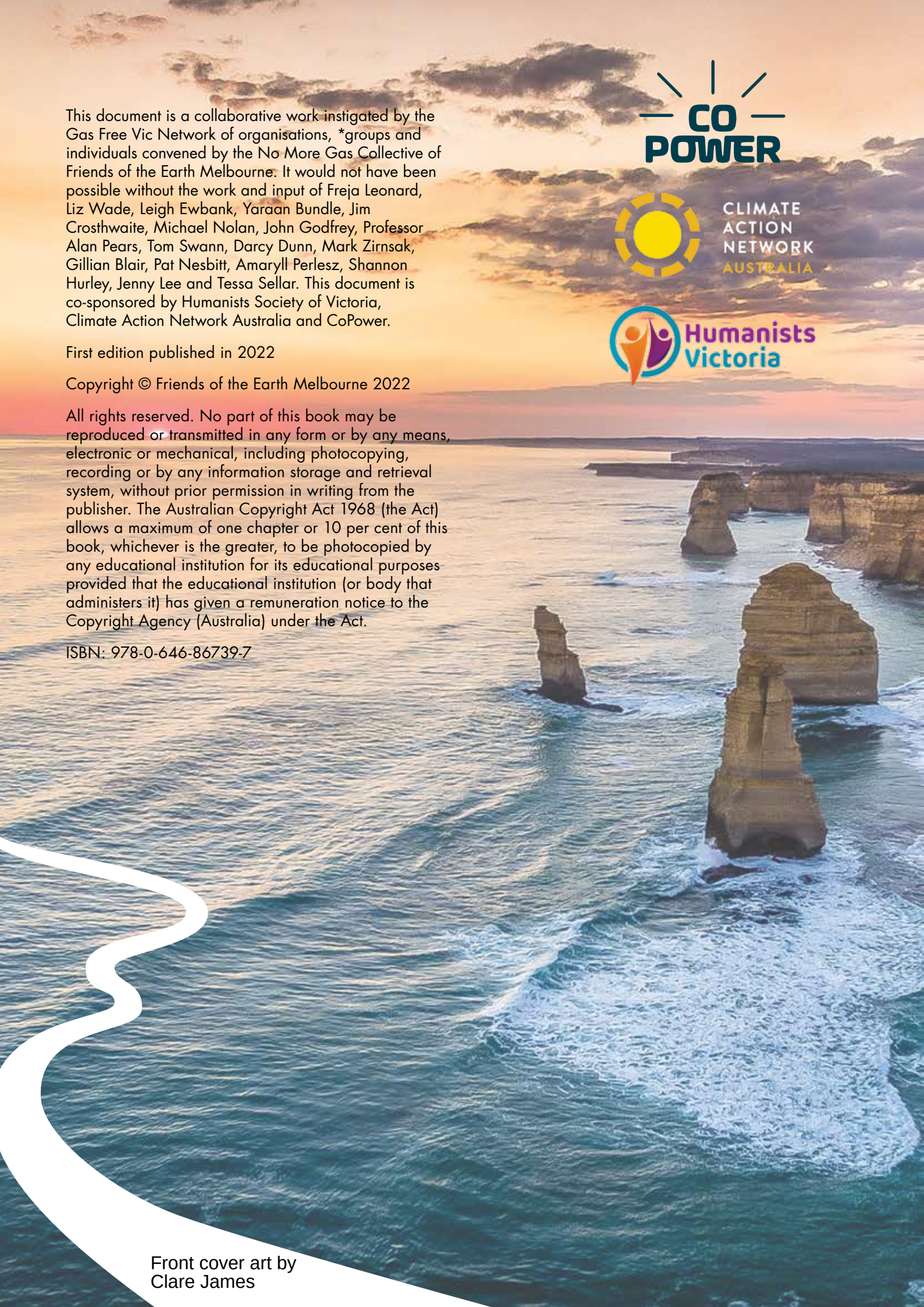
COMMUNITY GAS RETIREMENT ROADMAP

How and why to get off gas in Victoria



NO MORE GAS

Friends of the Earth Melbourne



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Clare James

Citizens' Protection Declaration

We unite to enact a Citizens Protection Declaration on these unceded territories of Whale Songline and Gunditjmara Sea Country.

We, as members of Traditional Custodian family clans and Citizens of other cultures, who have come to live in Gunditj Country, unite, to Protect Koontapool -Whale Songline & Gunditj Sea Country

We grant immediate protection to Koontapool/Southern Right Whale

Gunditjmara ancient and current cultural birthing practices, ceremonial engagements and stages of learning are directly interwoven with the birth of Whales. Koontapool holds significant physical and cultural significance to revived southern clans and coastal People's women's and men's business. This is highly significant creation law story this is intrinsically connected to language revival and regeneration of Gunditjmara Land, Sky and Sea Country identity and belonging. Koontopool dreaming aligns our next generation of Gunditjmara newborns and children with their cultural identity, personal, family clan, nation totems and Culturally environment and ceremonial responsibilities.

- Southern Right Whales are critically endangered and listed under the Flora and Fauna Guarantee Act 1988.
- The EPBC Act establishes the Australian Whale Sanctuary and gives high levels of protection to cetaceans in Commonwealth waters.

We declare a critical habitat for Southern Right Whales

Gunditjmara Sea Country is rich in biodiversity and significance. Irreplaceable damage to sea life, ocean ecology, and Koontapool Songlines must be avoided at all costs.

- Calving and nursery grounds and migration routes must be managed and protected so as to maximise the species' reproductive potential' under the *Flora and Fauna Guarantee Act* and *EPBC Act.*
- Regulatory protection of critical habitat must be provided under Habitat Conservation Orders under Victorian legislation.
- State and Federal governments must recognise Australia's commitment to the Marine Bioregional Plan which recognises the Southern Right Whale and their important calving grounds.
- Governments must also comply with the conditions of membership of the CMS Memorandum of Understanding for the Conservation of Cetaceans and their Habitats in the Pacific Islands Region (the Pacific Cetaceans MoU).

We support First Nations people who hold the solutions for caring for Country

We demand an absolute stop on the government's continuation to manipulate physical, psychological and physiological separation of Aboriginal people and Aboriginal places our cultural landscape which extends from the Land, into the Sky and Sea.

- Article 25 of the UN Declaration on the Rights of Indigenous Peoples states that Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard

We refuse any further fossil fuel projects on our land and in our waters

We condemn all new and existing seismic testing and gas mining exploration approvals across the south west Victorian coastal waters covering Gunditjmara Sea Country.

We demand an absolute stop to mining, drilling and other forms of environmental assault on Gunditjmara country, specifically areas of highly regarded cultural significance. These include sacred Whale Songline and Birthing Country and Sacred Women's Country.

We refuse permits allowing resource extraction industries to continue operations and commit further advances of a foreign destructive colonial legacy.

- Drilling must be included along seismic testing as risks to whale safety under the Conservation Management Plan for the Southern Right Whale: A Recovery Plan under the Environment Protection and Biodiversity Conservation Act.
- Greater regulatory provisions must be included under the Wildlife Act 1975 to include restrictions on ocean blasting and drilling.

We demand to engage in negotiations for protection and sanctuary status granted to the entire South West iconic coastline and coastal waters, a large part of which make up Gunditjmara Sea Country

We believe that it is in the Government's best interest to respectfully engage and negotiate solutions for Country, not breaking their own governments climate targets to appease oil and gas mining executives.

We are calling out the State Government and extractive industries on their entire consultation process. Consultation is not consent.

First Nations free prior and informed consent is completely missing from a time where Victorian government is promoting Treaty. First Nations Peoples long held spiritual ties to the land and life sustaining resources have become lip service to the government. There will be nothing left to Treaty on because climate change is not coming, it's here! Our Sacred Sites and All Life are at major risk of extinction!

- Article 32, Item 2 of the UN Declaration on the Rights of Indigenous Peoples states that states shall consult and cooperate in good faith with the Indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.

We will not accept salvage, or climate change offsetting when it comes to the blue lungs of our planet!

Please sign on to show your support for the Citizens' Protection Declaration Today!

We must learn, and learn fast, to conserve our energy supplies. For this prodigal generation, the era of cheap energy is over. It has bred habits of waste and misuse of energy which will be difficult to change. It has accustomed us to high living standards which will be difficult to sustain in the future. More important, it has exposed us to the risk ... of sudden energy shortages, plant shutdowns and disruption of community life ...

Conservation of resources, intensified research, high capital commitment, all these must be found in the energy policy of the future.

Hon. Rupert Hamer,
former Liberal premier of Victoria, 1977

from the foreword to the 1977 Victorian Government Green Paper on Energy

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Health impacts of gas in the home

Airborne pollutants from gas appliances can and do have health impacts. These can be worst for babies, children, the elderly and people with already compromised health, particularly respiratory and heart health sufferers. Depending on the level of exposure health impacts can include:

Unburnt methane (depending on level and period of exposure) Public Health England 2019	Headache, mood changes, slurred speech, vision problems, memory loss, nausea, vomiting, facial flushing, changes in breathing and heart rate, balance problems, numbness, unconsciousness, death
Nitrogen Oxide source: Seals, Krasna 2020	Learning deficits, increased risk of childhood asthma (immediate and longer term), respiratory impacts (breathing difficulties, chest tightness, cough, wheezing), airway irritations, increased risk of lung infections, changed lung function, deleted tissue antioxidant defences, cardiovascular disease, greater sensitivity to allergens
Carbon monoxide source: Greiner 1996	Headache, fatigue, nausea, dizziness, confusion, irritability, vomiting, unconsciousness, brain damage, heart irregularity, breathing difficulties, muscle weakness, miscarriage, death
Fine particulate matter (PM 2.5) NY State Department of Health 2018	Eye, nose, throat, lung irritation, coughing and sneezing, runny nose, shortness of breath, lung function reduction, asthma exacerbation, worsening of heart disease, chronic bronchitis
Carbon dioxide source: Health and Safety Executive UK	Headaches, dizziness, confusion, unconsciousness, asphyxiation

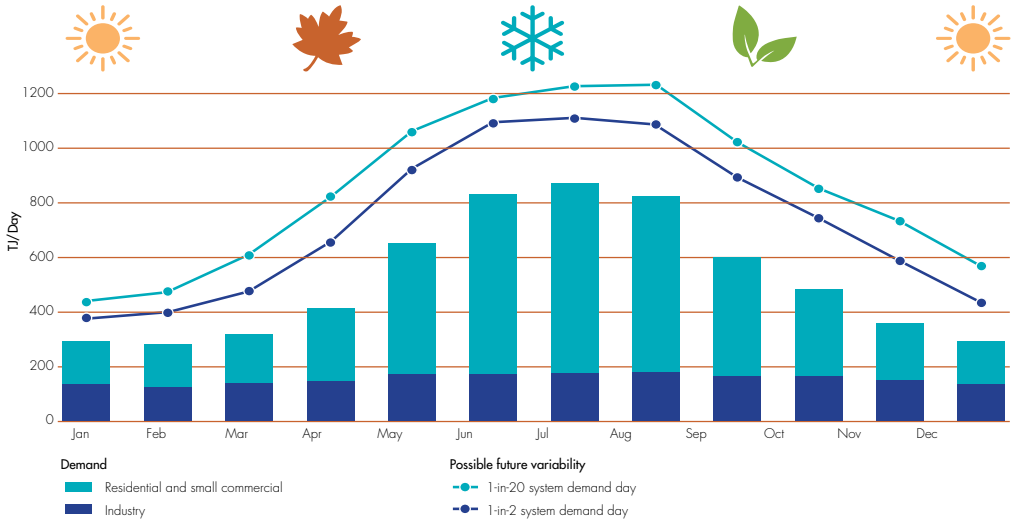
Climate impact of gas

Methane has high short-term impacts from gas and coal (40%), as well as cattle, sheep, landfills etc

In the past decade, methane contributed almost half of net human global heating impacts (IPCC, 2021)

Over 20 years, methane has about 85 times the impact of CO2

Seasonal variability of Victorian gas use



Gas in Victoria

Highest
gas use in Australia

2+ million
Victorian gas customers
2,050,000 residential
64,600 commercial
600+ large industrial

80%
of households are connected to gas

Energy Victoria 2022

$ Federal Government subsidies

$1.15million
donated by coal, gas and oil industries to Coalition and Labor last financial year

$11.6billion
in federal subsidies to these industries in the last federal budget

$7.3billion
in royalties paid back to public coffers by fossil fuel industries (2019/20)

$115billion
in sales of coal, gas and oil (2019/20)

$0 income tax paid
on the $138 billion income in 2020 by the 60 APPEA members

Introduction

We are facing a climate crisis. The failure to deliver deep emissions cuts has left communities exposed to rising sea levels, intensifying heatwaves, droughts, bushfires, floods and other extreme weather.

An economic crisis

The crisis is also economic. Wholesale Gas prices on the east coast more than doubled between 2021 and 2022 (AER 2022). Victorians have faced a bitter winter. To heat houses that are systemically inefficient and reliant on gas to stay warm has been unaffordable except for those who are already using rooftop solar to power high efficiency electric appliances. Poorer households across the state have experienced bill shock, and disconnections for non-payment have risen. To make matters worse, wholesale prices are projected to remain at about $30 per gigajoule until 2024.

A climate crisis

The elimination of fossil fuels from our energy economy is now a critical priority – and a powerful opportunity. In its groundbreaking report *Net Zero by 2050,* the International Energy Agency tells us unambiguously that if we are to reach net zero emissions globally by 2050, we can't afford to open up a single new coal mine or gas well and must urgently decarbonise our energy matrix.[1] The Intergovernmental Panel on Climate Change's *Sixth Assessment Report* tells us that time is running out rapidly if we want to avoid catastrophic climate change:

> [T]he scientific evidence is unequivocal: climate change is a threat to human well-being and the health of the planet. Any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future.[2]

Governments are failing

Despite the urgency, the COP26 summit in Glasgow failed to put the globe on track to limit warming to 1.5°C. Governments in Australia and around the world are failing to take the steps necessary to tackle the climate and energy crisis that is rapidly overtaking us.

Victorian government doing something

The Victorian government has affirmed its commitment to tackling the climate crisis by strengthening the Climate Change Act and committing to halve the state's emissions this decade. Since 2014, the Andrews government has legislated a permanent ban on unconventional gas, established a Victorian Renewable Energy Target and subsidised the installation of rooftop solar – all measures that reduce our reliance on gas.

The government has also developed seven Adaptation Action Plans. These plans cover the built environment, education and training, health and human services, the natural environment, primary production, transport and the water cycle. Victoria's positive climate and energy policies cut the state's emissions by 24.8 per cent between 2005 and 2020[3]. The state government's own projections are that it will create 28,400 jobs and attract billions of dollars of investment to the state[4].

But gas industry still makes out gas is essential and can be made safe

The gas industry tells us that we need more gas to drive down domestic gas prices, but in fact it exports about 80 per cent of the gas produced in Australia and charges whatever the domestic market will bear for the rest. More recently, the gas producers have pivoted to promoting

1. https://www.iea.org/reports/net-zero-by-2050
2. https://www.ipcc.ch/assessment-report/ar6/
3. https://www.climatechange.vic.gov.au/victorias-greenhouse-gas-emissions-and-targets
4. https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0026/521297/Victorian-Climate-Change-Strategy.pdf

the uneconomic dream of mixing hydrogen at 10 to 20 per cent concentrations by volume into the gas network. This would only equate to between 3 and 7 per cent by energy content, as an equivalent volume of hydrogen contains less than a third as much energy as the same volume of methane. The companies' only interest is to extract as much fossil gas as possible, extending and profiting from the subsidised destruction of our climate and natural resources, before they are shut down.

The methane gas we use in Victoria is about 85 times more potent than carbon dioxide as a greenhouse gas over a 20-year period if it leaks at any point between extraction and final end use. When burnt in the home, methane doesn't burn cleanly or completely. As well as unburnt methane, it releases carbon dioxide and a cocktail of other airborne pollutants.

This is why the Victorian government's Gas Substitution Roadmap, which names LNG and gas delivered from gas fields such as Bass Strait and Coal Seam Gas as "fossil" gas, is an important acknowledgement of the need for Victoria to get off gas. To help homes and businesses shift from gas to zero-carbon electricity, it contains several important commitments, including abolishing the requirement that new housing developments be connected to the gas network, and moving state government buildings off gas. This document was a key opportunity for our state to build on their positive steps to tackle both the climate crisis and our energy use. It is vital that we do so rapidly for the sake of our health and wellbeing, and to help our domestic economy thrive.

Vic government not doing enough

But the government's roadmap falls short of committing to a post-gas future for Victoria. It adopts what it terms a "no-regrets policy", ensuring that the gas network is maintained in the long term. It plans to continue subsidising new gas appliances under the Victorian Energy Upgrades Program until the end of 2023. And it holds the door open for future gas production licences to be approved, new gas pipelines to be built and gas import terminals to be established in Corio Bay and Port Phillip.

But there's plenty of evidence that Victorians are up for the climate challenge and keen to reap the benefits of strong action. By taking practical steps towards a fair and equitable transition from fossil gas to renewable energy sources, Victoria can demonstrate to other states and territories – and our export partners around the world – that it's not only possible but economically, socially and environmentally sensible to manage our energy needs without polluting gas. For this to occur, we need the government's roadmap to be strengthened. This is the moment to decisively take the wheel and steer Victoria toward a gas free future.

To envision a cleaner energy future where fossil gas has no part to play in the energy mix, we at Friends of the Earth have drafted our own Community Gas Retirement Roadmap in collaboration with union representatives, academics, energy economists, ex-industry engineers and grassroots activists.

Our roadmap shows what we need to do to make Victoria totally gas-free, and to do so through a process that is affordable, equitable and stable. This roadmap, created by the community, is for all Victorians.

We believe that Victoria can and must transition right off gas, and we urge the Victorian government to adopt this roadmap's recommendations as an urgent priority.

"We are living in the time of mass extinction. When I look out at the magic of the Southern Ocean, I don't want to see gas mines lighting up the horizon. I want to see rainbows from whale breaths. Resource extraction will push the already rare Southern Right Whale and other sea life species to extinction, ceasing their Song In Gunditjmara Sea Country, killing off diverse and unique marine ecosystems directly attached to the whole foundation of the ocean, the food chains, or what we Gunditjmara know as Kinship Ways. Leave the Southern Ocean be."

– Yaraan Bundle-Couzens, Gunditjmara woman, Southern Ocean Protection Embassy Collective (SOPEC).

Supply

Where does Victoria's gas come from?

By Australian standards, Victorians are unusually heavy gas users. Our reliance on gas has its roots in the mid-1960s, when enormous gas fields were discovered in the Gippsland and Otway basins off the Victorian coast. Gas from these sources was relatively cheap, and its ready availability encouraged the uptake of gas appliances in Victorian homes.

But fast-forward to the 2020s, and these basins are running low on gas, forcing Victoria to make a critical decision: should we prolong the use of increasingly expensive methane gas by developing new gas wells and importing gas from other places? Or should we plan to reduce our gas demand, thus reducing our greenhouse emissions, improving household health and decoupling us from international energy prices?

In their March 2022 Victorian Gas Planning Report Update, the Australian Energy Market Operator (AEMO) warned that in the twelve months to winter 2023 gas production in Victoria would fall from 360 PJ to 243 PJ.[5] To address this gap, we call for immediate action to switch out gas for renewable electricity and efficiency as a matter of the utmost urgency.

To understand the consequences of this choice, we need to look at where our gas comes from and the ramifications of continuing to supply gas to households and businesses across the state when there are clearly better options available.

Exploration

All exploration for gas comes at a price. To explore onshore often requires drilling a test well to check whether gas pockets exist in the prospect area. In places where fracking is permitted, this means test fracking in the location under exploration licence. Thankfully, this doesn't apply in Victoria.

For offshore extraction, seismic blasting is used to assess the extent of a prospective field. The full ecosystem impacts of seismic blasting aren't fully understood, but we know it causes a hundredfold increase in background sound. In particular, it can cause deafness in whales – and because whales use sonar to communicate over vast distances and locate food sources, a deaf whale is a dead whale.

Seismic blasting also kills krill, an essential food source for many whales, as well as killing baby crayfish. At present it is extremely under-regulated. There appears to be a global trend to use seismic blasting over larger and larger areas, which has the potential to cause irreparable damage to vast areas of our marine ecosystems, impacting marine life – including endangered species such as the southern right whale (Koontapool in Gunditjmara language). Seismic blasting also has serious implications for Australia's fishing industry.

In a submission to a June 2021 Senate inquiry into the impact of seismic blasting, CSIRO scientists wrote:

> Anthropogenic sounds can mask vocal communication, disrupt normal behaviours, and cause temporary or permanent threshold shifts in hearing … Such impacts, if persistent and chronic enough, may ultimately have adverse impacts on foraging and reproduction and individual health and fitness which can manifest in population effects … In extreme cases, there is physical damage to tissues and organs when individuals are close to the high point source sounds created by geophysical surveys.[6]

In August 2020, the global firms TGS and Schlumberger proposed to undertake the world's largest seismic blasting operation as a joint operation after a limited consultation with large-scale fishing firms. Spanning 7.7 million hectares of the South Pacific Ocean from about 30 or 40 kilometres off the beaches of South Australia, Tasmania and Victoria and

5. https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/vgpr/2022/2022-victorian-gas-planning-report-update.pdf?la=en
6. https://apo.org.au/sites/default/files/resource-files/2021-06/apo-nid312747.pdf

Figure 2 – Location of the proposed Otway Basin 3D Multi-client MSS

taking in the migration path of the southern right whale, the proposal to undertake 3D seismic surveys has mostly flown under the radar. Any gas found in this exploration could well be redundant by the time production licences were granted. Friends of the Earth are working in conjunction with OCEAN and other community organisations to oppose the TGS/ Schlumberger seismic survey.

Production

Gas production is a toxic business that leaks methane and other pollutants in untracked quantities. Drill heads must be lubricated and well shafts are cleaned using hydrochloric acid.[7] In the production of oil and gas worldwide, groundwater has become contaminated and spills have caused immense damage to marine ecosystems. Whether onshore or offshore, gas carries a legacy of complex pollution which has proved difficult to manage and remediate. There is no such thing as a good gas well. All gas wells impact the health of our ecosystems and our climate.

Offshore

The traditional source of fossil gas for Victoria is our extensive gas basins. Offshore gas extraction happens outside the public view and is considered less controversial than onshore gas development, but all gas production sites carry risks to the environment in which they are situated. Exploring for gas fields offshore requires seismic testing, where a single seismic airgun can create a noise pool of as much as 300,000 square kilometres.[8]

Offshore gas rigs have been found to leak methane at much higher rates than the companies officially report.[9] This poisons the well site and the surrounding ocean, as well as disrupting the climate. The frontline impacts on marine species extend two or three hundred metres from the well pad, but other effects can be measured up to two kilometres away. It's impossible to anticipate the long-term consequences of these activities in ocean environments. A group of experts writing in the journal *Frontiers in Environmental Science* tell us:[10]

> Routine oil and gas activities can have detrimental environmental effects during each of the main phases of exploration, production, and decommissioning. During the exploration phase, impacts can result from indirect (sound and traffic) and direct physical (anchor chains, drill cuttings, and drilling fluids) disturbance. Additional direct physical impacts occur in the production phase as pipelines are laid and the volume of discharged produced water increases. Lastly, decommissioning can result in a series of direct impacts on the sea floor and can re-introduce contaminants to the environment.

Although out of sight, offshore gas facilities should never be out of mind when we consider the impact on sea creatures, ecosystems and climate.

Onshore

Onshore gas is extracted in various ways, all of them damaging to our environment. The most controversial is hydraulic fracturing or fracking, which involves drilling up to two kilometres underground and injecting the well site with a mixture of chemicals under high pressure, to break apart the substrata of sedimentary rocks. This releases gas, which then travels to the well head. Among the chemicals used in fracking are per- and polyfluoroalkyl substances (PFAS), "forever chemicals" that travel rapidly through groundwater and surface water. Even tiny traces of PFAS are known to cause immune dysfunction, reproductive problems and a host of cancers in humans.

7. https://www.api.org/~/media/files/oil-and-natural-gas/hydraulic-fracturing/acidizing-oil-natural-gas-briefing-paper-v2.pdf
8. https://www.cbd.int/doc/meetings/mar/mcbem-2014-01/other/mcbem-2014-01-submission-seismic-airgun-en.pdf
9. https://engineering.princeton.edu/news/2019/08/14/offshore-oil-and-gas-rigs-leak-more-greenhouse-gas-expected
10. https://www.frontiersin.org/articles/10.3389/fenvs.2016.00058/full

Acid well stimulation, less well known in Australia, uses hydrofluoric and hydrochloric acid to dissolve rock and release gas to the well head. Both these practices present long-term and incalculable risks to ground water, farmland, air quality and climate.

Thankfully, after an extensive community-driven campaign for a Gasfield Free Victoria led by Friends of the Earth, the Victorian Labor, Liberal and Greens parties all supported legislation for a permanent ban on these practices in 2017, and the ban has since been enshrined in the Victorian constitution.

Previously, an administrative moratorium was placed on all onshore gas exploration and development in Victoria in 2012, including both practices listed above, as well as "conventional" gas extraction practices. Earth Resources, the Victorian government's mining regulator, has said that the ban was in response to community concerns. It put a temporary hold on onshore gas exploration permits and retention leases, and suspended approving new project applications while the moratorium was in place.[11]

The moratorium was unfortunately lifted in July 2021. While fracking and acidisation remain illegal, Victorian farmland and natural environments are once again open to the threat of "conventional" gas extraction, with the accompanying risks of pollution and other environmental impacts from exploration and extraction activities.

At the time of writing there were no active exploration or extraction activities occurring solely onshore. As part of the restart of onshore gas activities, all previously existing permits and plans must now be reviewed with reference to the updated 2021 Petroleum Regulations before any activities take place. The Earth Resources website currently states that "There are currently no proven and probable (ready for imminent development) onshore conventional gas reserves in Victoria."[12] However, it also says that the Victorian Gas Program's geoscientific investigation results, which concluded in early 2020, indicate that "there are likely to be commercially feasible onshore conventional gas resources yet to be discovered in the Otway and Gippsland basins".[13]

Horizontal drilling is the only onshore gas production activity currently active or approved in Victoria. Horizontal drilling involves drilling horizontally from onshore to an offshore gas basin. Currently, Beach Energy has approval to drill from a location just inland from the Port Campbell National Park to an area roughly seven kilometres from the Twelve Apostles Marine Park. The extraction site is within the recorded biologically important areas for the southern right whale[14] and risks the health of a range of protected marine species.[15] The pipeline to carry the gas from the well head to the processing plant is 12 kilometres long and cuts across farmland, waterways and roads.[16]

11. https://earthresources.vic.gov.au/projects/onshore-conventional-gas-restart
12. https://earthresources.vic.gov.au/projects/victorian-gas-program
13. https://earthresources.vic.gov.au/projects/onshore-conventional-gas-restart
14. https://public.neats.nopta.gov.au/Map
15. https://parksaustralia.gov.au/marine/pub/scientific-publications/archive/impacts-petroleum.pdf
16. https://www.beachenergy.com.au/wp-content/uploads/2021/03/GD21-0046_Enterprise_Pipeline_Info-Sheet.pdf

Transportation

Every time a new gas well is drilled, a pipeline is required to transport the gas from the well head to the nearest processing facility, and from there to the houses, offices and industries where it will be used. Most populated parts of Victoria are connected to an extensive system of gas pipelines that has been more than 150 years in the making.

Victoria's pipeline network

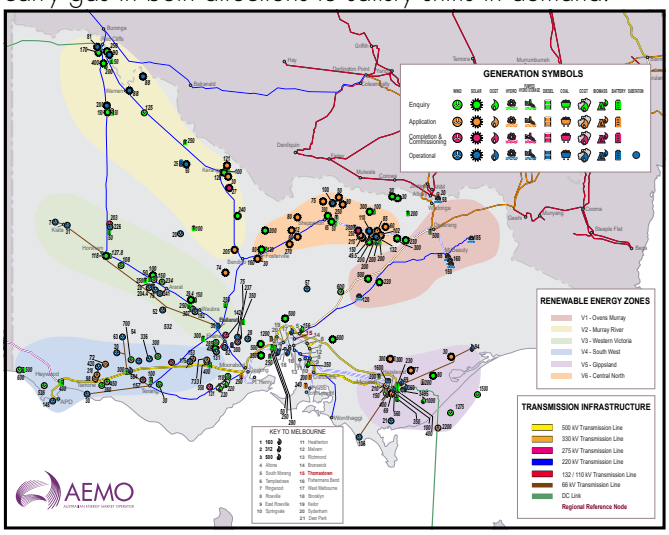
Victoria's earliest gas pipelines were built in the 1860s by private gas companies based in Melbourne and the major regional centres. Expansion was slow and locally based until 1950, when the state government stepped in. It established a publicly owned Gas and Fuel Corporation, which took over two private gas companies and steadily expanded the network's intercity connections, eventually producing the complex network of pipelines we use today.

The Gas and Fuel Corporation actively promoted the domestic use of gas, and also encouraged customers to install insulation by allowing them to pay the cost in instalments on their gas bills.

In 1967 Victoria switched from town gas or oil, generated from coal, to what was referred to as "natural" gas, which was piped from offshore wells in Bass Strait. The new gas had a different chemical makeup and different density; it required appliances to be upgraded to accommodate the changes. This upgrade was managed and paid for by the state government, as owners of the network. Within a few short years, more than a million households were supplied with the necessary upgrades.

Many of the old town gas pipelines are still in use today, transporting the fossil gas once touted as "natural" gas. These pipes are made from varying materials, from cast iron through steel to plastic. Unsurprisingly they are in varying states of disrepair, leading to inevitable leakage across the length of the transmission and distribution network. In 2019, leakage accounted for about 3.7 per cent of Victoria's gas consumption statewide, or 7.7 PJ.[17] Although within the limits set by the regulators, the leakage is highly significant, because unburnt methane is a much more potent greenhouse gas than the carbon dioxide produced when it is burnt, especially in the short term. There is little knowledge of the extent of gas leakage from pipes and appliances behind the meter.

Having established a statewide network, the gas authorities extended their operations interstate until much of eastern Australia was encompassed by an extensive network of pipelines. Through these pipelines, Victoria supplies gas to NSW, Tasmania and South Australia and even as far north as Queensland,[18] and Victorian gas also frees up Queensland gas to be sold as LNG on export markets. Pipelines also connect the cities of eastern and southern Australia to gas fields such as Queensland's Cooper basin. Many modern pipelines are designed to carry gas in both directions to satisfy shifts in demand.



Source: AEMO

17. http://environmentvictoria.org.au/wp-content/uploads/2020/06/Vic-Gas-Market-Demand-Side-Study-Final-Report-1.pdf
18. https://www.accc.gov.au/system/files/Map-2-A3.pdf

"The additional greenhouse gas emissions and cost associated with liquefaction and transport of the gas from the proposed Viva gas terminal compared to existing gas supplies also point to the negative climate outcomes of an LNG facility. Such a proposal is incompatible with strong emissions reductions targets by the Victorian state government." – Sally Fisher, ACF Geelong

Who owns Victoria's gas network now?

Between 1997 and 1999, under Liberal Premier Jeff Kennett, Victoria's network was corporatised, then privatised. The network and all its associated infrastructure became privately owned for-profit businesses.

Victoria's gas transmission network is now owned by four private companies. These are:

APA

APA Group owns many of the high-pressure gas pipelines that interconnect Australia's states and territories, delivering half the domestic gas supply nationally through a total of 15,000 km of gas pipes. The high-pressure Victorian Transmission System is about 2000 km long. APA also has a 50 per cent stake, in partnership with SEA gas, in the pipelines that transport gas from the offshore Gippsland basin to South Australia. APA is the only owner of Victorian pipelines that is Australian owned.

Australian Gas Networks

AGN Group is owned by Cheung Kong Infrastructure, a publicly listed company based in Hong Kong. The group also owns electricity network services Powercor, Citipower and United Energy. They service 587,400 gas connections across Victoria, accounting for 10,220 km of gas pipelines.

Multinet Gas

Multinet Gas (also owned by Cheung Kong Infrastructure) distributes gas to 690,000 connections throughout Melbourne's inner and outer eastern suburbs through more than 200 km of pipes. These pipes are so old that many of them are made of cast iron, which is prone to rust, water ingress and gas leakage.

AusNet Services

AusNet Services is currently owned 31.1% by Singapore Power (wholly owned by the Singapore Government) and 19.9% by the State Grid Corporation of China (a Chinese state-owned electric utility corporation), with the remaining 49% publicly listed on the Australian Stock Exchange. AusNet services 760,000 gas connections covering mostly the western suburbs of Melbourne and western Victoria. Ausnet also operates some of the electricity distribution network in Victoria.

Everyone with a gas connection pays a service fee for the upkeep of the transmission and distribution network. This means that as more people wake up to the risks of gas and disconnect from the grid, the maintenance costs are divided among fewer people, raising prices for those unable to leave.

We recommend that the gas distribution network be scheduled for equitable retirement as a matter of urgent priority, ensuring that network retirement is staged section by section, starting in the outer reaches of the grid and in areas facing greater economic disadvantage. We also recommend that disconnection fees be abolished for low-income households.

19. https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2022/2022-gas-statement-of-opportunities.pdf?la=en
20. Jim Snow, expert's statement in document 86 at https://engage.vic.gov.au/project/viva-gas-terminal-IAC/page/tabled-documents
21. https://vopakvictorialng.com.au/theproject
22. https://vopakvictorialng.com.au/s/Vopak-Victoria-LNG-Pipeline-Consultation-Plan-2022.pdf

Floating gas terminals

One of the developments resulting from the forecast gas shortfall in Victoria has been the proposed installation of floating Liquefied Natural Gas (LNG) import gas terminals on our southern coastline.

These Floating Storage and Regasification Units (FSRU) are large industrial tankers about 300 metres long, which import, store and deliver fossil gas. Each FRSU discharges up to 450 million litres – around 180 olympic swimming pools – of chlorinated water a day into the marine environment. This has obvious negative consequences for ecosystems, fisheries, ecotourism and the healthy enjoyment of the surrounding area.

In 2021, a proposal from AGL to install a floating gas terminal in Westernport Bay was rejected by planning minister Richard Wynne on the grounds that it would have been sited in a RAMSAR listed area and posed unacceptable risks to sensitive marine species.

AEMO has observed[19] that these floating gas terminals would mainly supply gas from northern Australia, "such as coal seam gas (CSG) from Queensland and gas supplied from Northern Territory". This is "unconventional" gas produced by the controversial practice of fracking. For Victoria to prohibit fracking at home yet accept gas fracked in other places is incongruent and unconscionable.

Carbon emissions from LNG are significantly higher than for piped gas, as liquefaction of gas consumes large amounts of gas and electricity.

Viva floating gas terminal, Corio Bay, Geelong

The refusal of the Westernport proposal was not the end of the prospect of this type of facility for Victoria. As of August 2022, Viva Energy is applying for approval to position an FSRU in Corio Bay, close to the densely populated Geelong area. This project has met powerful local opposition from residents, local businesses and even the Geelong port authority itself, with opponents citing concerns about the risks of living in proximity to a highly flammable storage unit.

So if it lacks social licence, has serious environmental impacts and has the potential to harm the local community, what about the economics? In his expert witness statement to the investigation into the environmental effects of the Viva project, Jim Snow writes:

> The "business as usual" gas demand forecast used by Viva for for the south-east Australia gas market was based on analysis from early in 2021 … that saw shortfalls in gas supply as early as 2023. This is no longer the case. Gas shortfalls can be alleviated by the provision of new gas supply and reductions in demand, or a combination of both.

Since the 2021 study was completed, new sources of supply and falling demand have pushed the forecast shortfalls out to 2030 or even 2033.[20]

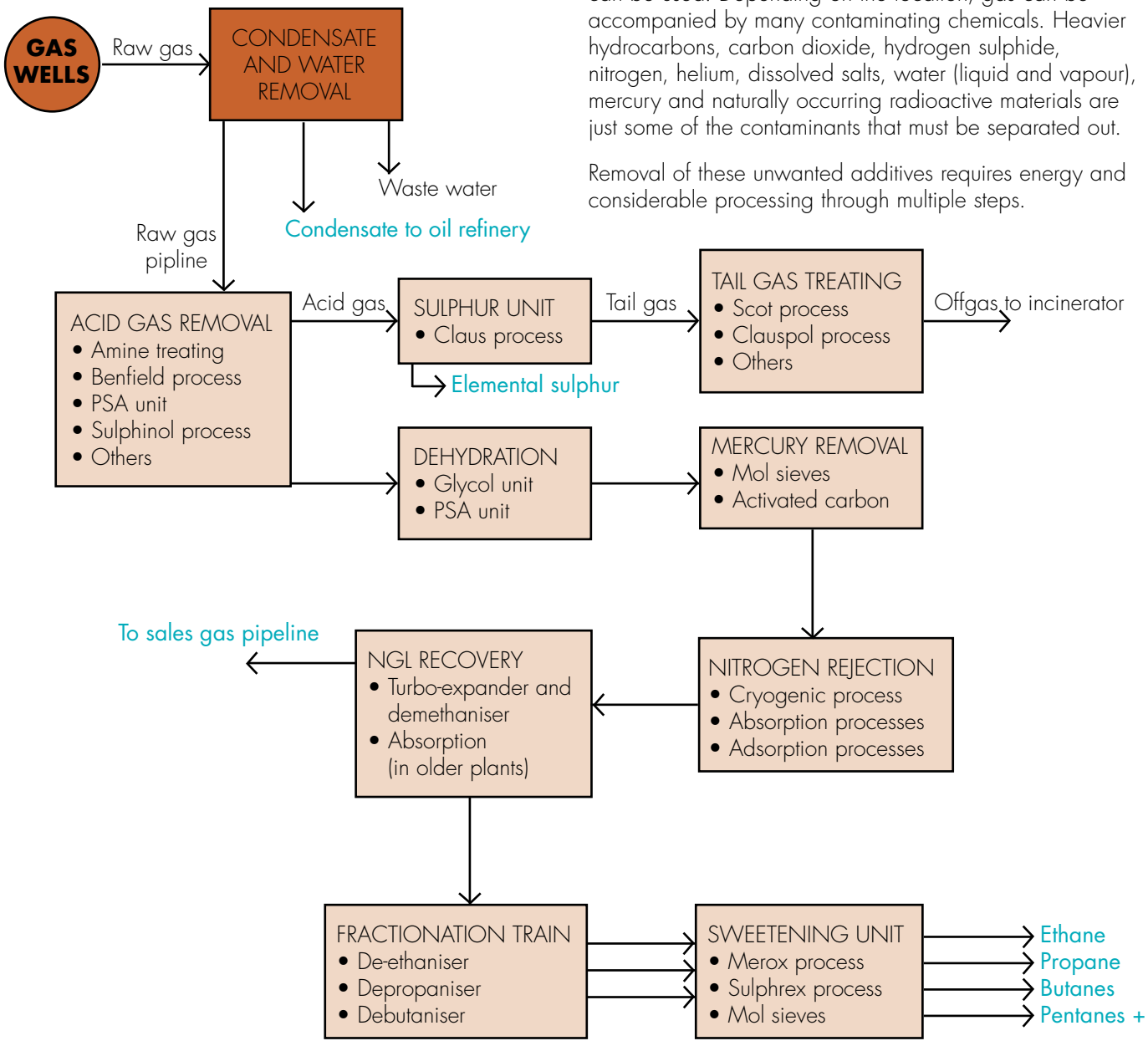
Vopak Floating Gas Terminal, Port Phillip Bay, Avalon

In a project that is undergoing environmental impacts assessment and feasibility studies at the time of writing, Dutch global storage company Vopak intends to refer their proposal for a floating gas terminal to the Victorian planning minister in the second half of 2022, hoping to commence operations in 2026[21].

Attached to this terminal would be yet another gas pipeline running underwater from the ship before being buried onshore to connect with the existing south-west pipeline[22]. Vopak's current timeline for delivery of this pipeline is 2024/25. Public consultation on the pipeline *commenced in 2022 and will continue through 2023."

Gas processing

An example of steps to process gas for use



Once gas is extracted, it must be processed before it can be used. Depending on the location, gas can be accompanied by many contaminating chemicals. Heavier hydrocarbons, carbon dioxide, hydrogen sulphide, nitrogen, helium, dissolved salts, water (liquid and vapour), mercury and naturally occurring radioactive materials are just some of the contaminants that must be separated out.

Removal of these unwanted additives requires energy and considerable processing through multiple steps.

Gas processing and storage facilities in Victoria

Victoria has seven gas processing and/or storage plants.

Facility	Purpose	Location	Ownership
Iona	Processing & Storage	NNE Port Campbell	Lochard Energy
Dandenong LNG	Storage	Dandenong	APA
Long Island Point Fractionation Plant	Processing	Hastings	Exxon Mobil
Bass Gas	Processing	Lang Lang	Beach Energy
Longford	Processing (3 plants)	Longford	Exxon Mobil

Gas processing has a range of environmental impacts, but it is difficult to find robust documentation of the consequences, particularly those that relate to fugitive emissions. This is partly because a significant amount of research on this subject is performed by Australia's national science organisation, CSIRO, in partnership with gas companies through the Gas Industry Social and Environmental Research Alliance (GISERA). Where research is based on data classified as "commercial in confidence", the results cannot be peer reviewed, but encouraging results from CSIRO studies are frequently cited by the gas industry.[23] The gas industry is also allowed to self-report data, which means it only estimates fugitive methane emissions rather than measuring them. The industry has been accused of routinely under-reporting the methane emissions associated with their operations[24].

Though some of the effects of gas processing are shrouded in mystery, we do know that sites that have previously hosted gas-processing facilities have persistent, worrying residual soil pollutants. The abandoned AGL gas plant in Moorabbin, for example, is uninhabitable decades after its closure, demolition and remediation.

Farmland close to existing gas processing facilities has also been compromised and stock contaminated by the gas industry's toxic legacy. This places farmers in a challenging personal, economic and legal position. If they wish to sell livestock for export, they are required to submit a National Vendor Declaration (NVD), a legally binding document stating that there has been no chemical contamination of their produce. Farmers near the Longford gas processing plant have had their beef exports rejected by overseas markets due to unacceptably high levels of PFAS left as a legacy of fire retardant used to extinguish Esso's Longford Gas Plant explosion and fire. They have also been told not to eat meat from their own cows.[25]

23. http://australiandemocracy.org.au/statecapture
24. https://reneweconomy.com.au/new-methane-data-shows-gas-industry-can-no-longer-hide-behind-burping-cows-79698/
25. https://www.lithgowmercury.com.au/story/5485015/toxic-fears-farmers-warned-not-to-eat-the-beef-they-sell/

Australian workers have long experience of poorly handled industry restructurings that leave many workers worse off. To avoid this as the gas industry is decarbonised, substantial planning and coordination will be needed…a just transition for gas workers should be guided by similar principles and strategies that are now gaining acceptance in relation to coal-fired power stations workers and coal miners. This means income support, retraining, job creation, economic diversification, direct public investment in new technologies. Unions and their members must be at the centre of the discussions about the future of the gas workforce, and training and alternative jobs for workers are essential.

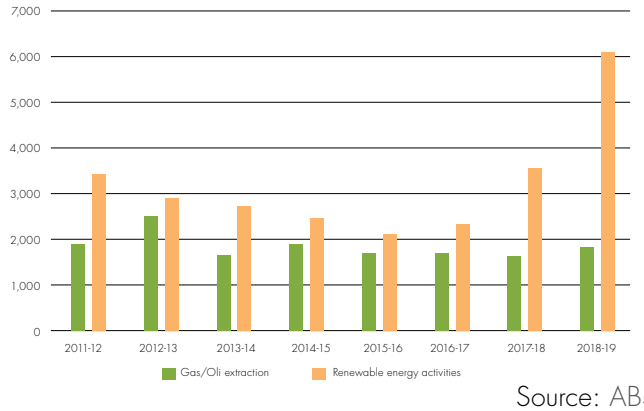
- Colin Long, Just Transitions Worker, Victorian Trades Hall Council

Employment in the gas industry

The gas extraction industry provides few direct jobs. In Victoria the number of jobs in gas and oil extraction averaged less than 2000 full-time equivalent (FTE) over the decade to 2019, which is the most recent data available.[26] Over the same period, full-time jobs in renewables nearly doubled from 3500 in 2011 to about 6000 in 2019. Since then, jobs in the renewables sector have soared while jobs in gas and oil extraction have declined.

In 2022 there are three times as many jobs in renewables as in gas and oil – and this gulf between looks set to widen in the short term with Australia taking up renewables on an exponential trajectory. To make the most of the clean energy revolution we must prepare the gas and oil extraction workers of today for the technologies of the future through a carefully considered and equitable transition plan.

FTE jobs in Victoria



Source: ABS

Of course, the processing, transportation and use of gas in Victoria is responsible for more jobs than simply producing gas. Whether in gas plumbing, appliance manufacturing, gas line maintenance or a range of other activities, there are many people across the state whose livelihoods rely on gas being supplied, refined, converted, shipped and burnt. Fortunately many of their existing skills are highly transferable, and with careful planning, reskilling opportunities and open engagement with workers themselves, the transition from gas to renewables can be painless and even deliver benefits to the workers involved.

An increasing number of gas appliances (such as instantaneous gas hot water services, ovens etc) are now imported. As then Prime Minister Scott Morrison celebrated their role in Australian Manufacturing, Rheem was in the process of sacking workers and shifting their workforce to Vietnam. These workers need and deserve a safety net and assured employment in sustainable industries.

If the closure of declining industries has taught us anything, it is that the state government has a critical role to play in planning for employment and economic stability in transitioning the workforce. A reskilling plan that provides transition assistance to gas-reliant and gas-adjacent industries must be put in place now to provide the security industry and workers need to have the confidence that they won't be left stranded like the gas assets on which they work.

26. https://www.abs.gov.au/statistics/labour/jobs/jobs-australia/latest-release#industry

60.5%

Space heating, Water heating, Cooking

30%

High temperature industries such as smelters, canneries, crematoria

1%

Chemical industries such as plastic film manufacturing, explosives and fertiliser

8.5%

Electricity generation

Demand: How is gas used in Victoria?

Victoria uses about 215 petajoules of gas annually, which is 37 per cent of Australia's domestic gas consumption – a disproportionate amount compared to the other states. However, the fact that regional Victoria and the rest of Australia can survive with much lower levels of methane gas consumption should give us hope that we can shift our energy priorities away from this climate-polluting, expensive and finite energy source.

AEMO forecasts that Victorian gas use will decline by 18.2 per cent to 2030 under a step-change scenario, which assumes that deliberate measures are taken to reduce gas use and encourage electrification. [27] Given that we are told to expect a 43 per cent decrease in gas production from 2021 to 2025[28], it is time to start implementing urgent, immediate measures to cut back our gas use.

With these forecasts in mind, this section will unpack ways to halve Victorian gas demand by 2030. The measures proposed are in line with those suggested in the groundbreaking 2020 report by energy consultants Northmore Gordon, *Victorian Gas Market: Demand Side Measures to Avoid Forecast Supply Shortfall*.[29] These measures are intended to protect the state from gas shortfalls, help Victoria meet its emission reduction targets and ensure that Victorians' energy needs are well serviced.

How to reduce gas use

During droughts, people have adjusted to water saving targets. At a time of limited, expensive gas supply, we need daily limits of gas use per household and greater scrutiny of gas use in industry. Establishing an interim Victorian limit of 1000 TJ per day during peak winter periods – backed by practical measures to achieve this target – would assist the government to determine where large and lasting consumption cuts can be made.

There are three main strategies for reducing gas use: prevention, energy conservation and substitution. We look at each of these here.

Prevention

The essential first step in reducing gas demand is to rescind regulatory and legislative requirements for buildings to be connected to gas. It was encouraging to see the Victorian government's gas substitution roadmap agree to this, but unfortunately it falls short of banning new gas connections statewide. It's far easier to fix a problem if you can prevent it from getting worse in the first place. When we consider the adverse environmental and economic impacts of gas, governments must take immediate action to prevent future energy users from being locked into gas use.

Similarly, the Victorian Energy Upgrades Program currently subsidises the installation of gas heating and hot water units. We can't keep installing gas appliances when we are facing a climate and energy crisis. All new installations must be stopped immediately if we are to mitigate climate change impacts, keep energy affordable and reject the business case for gas imports to Victoria in future.

27. http://forecasting.aemo.com.au/Gas/AnnualConsumption/Total
28. https://www.infrastructurevictoria.com.au/wp-content/uploads/2021/07/Gas-Infrastructure-Advice-Interim-Report-FINAL-4.pdf
29. http://environmentvictoria.org.au/wp-content/uploads/2020/06/Vic-Gas-Market-Demand-Side-Study-Final-Report-1.pdf

Summary of gas demand reduction measures proposed by Northmore Gordon

#	Technology	Sector	Ease of implementation	Cost	Applicability	Anticipated gas reduction (PJ/annum)
1	Replace ageing ducted gas heating systems	Residential	Easy	Low-Moderate	Broad	48 PJ
2	Improving building insulation	Residential	Easy	Low	Broad	> 10 PJ
3	Use existing air-conditioners for space heating	Residential	Very easy	Zero cost	Some	5-15 PJ
4	Heat pump hot water	Residential	Easy Low	Broad	10 PJ	
5	Heat pump space heating	Commercial	Moderate	Moderate	Broad	7.75 PJ
6	Industrial gas efficiency	Industrial	Easy	Low	Broad	2.5 PJ to 5.5 PJ
7	Renewable process heating	Industrial	Moderate to hard	High	Some	13.6 PJ
8	High temperature heat pumps	Industrial	Moderate	Moderate	Some	1 PJ to 3.5 PJ
9	Induction cooktops	Residential	Easy	Moderate	Some	0.5 PJ

Total gas demand reduction 98.35 PJ to 113.85 PJ

Energy conservation

In the medium term, the best way to establish how much energy we need is to ensure that our appliances and the thermal envelope of our buildings are as efficient as possible. Roof, wall and floor insulation, double glazing and thick window coverings are just some of the ways to ensure our homes and commercial buildings are using energy efficiently. Raising the minimum standards of rentals to require greater thermal efficiency is rightly an urgent state government priority.

One cost-effective way of reducing energy use is to provide efficiency retrofits by reputable, licensed professionals in an energy subsidy scheme. Retrofits also save users money and improve health outcomes. In particular, subsidised retrofits need to be available to low-income households, especially renters, who often live in inefficient, draughty and poorly insulated homes.

The same is true of commercial buildings. It's critical that office blocks and other workspaces are included in the front line of efficiency and electrification to rapidly reduce our reliance on fossil gas. One important issue here is that many commercial premises are also occupied by tenants (especially if they're small businesses), and the owners of the buildings have little incentive to make them more energy-efficient because they can pass the heating and cooling costs on to the tenants. This is a classic case of market failure that can and must be addressed through regulation and government incentives.

Substitution

The Northmore Gordon report proposes practical, proven technologies for replacing existing appliances that would more than halve Victoria's gas consumption within five to ten years. Since the report was published in 2020, however, little has been done to introduce these energy-saving measures.

In 2022 the Australian Energy Market Operator painted a more ambitious scenario, considering a range of possible policy measures to reduce gas use. Both modellings rely upon government policy to achieve the deep cuts required for Victoria to meet its climate targets and start the process of removing gas from the state's energy economy.

As well as preventing new gas connections to the network, Victoria can transition out of gas over the coming year by prioritising thermal efficiency measures such as retrofitting insulation, installing electric heat pumps for hot water and switching gas space heating to electric appliances, particularly split system air conditioning, preferably powered by renewable energy.

These savings would still leave Victoria requiring about 100 PJ of gas per year. This residue is harder to transition and will require innovation and targeted solutions. But if users who can easily switch off gas aren't supported to do so, there's a risk that heavy industrial users who don't currently have a choice of switching fuels will be left short. This will lead to unstable employment, problems of cost management in those industries and manufacturing shortfalls, all of which can be avoided if we take action now.

"Families and their communities...need clean timelines and transition and redundancy plans." – Danae Bosler

"...workers in the industry must be given a powerful voice and put at the centre of the energy transformation" – Dr Colin Long

Victorian Trades Hall Council, Public hearings into the Victorian Parliamentary Inquiry into the Closure of the Hazelwood and Yallourn Power Stations, February 2022[31]

A just and fair transition

Low-income households

The lowest-income households usually occupy the most draughty, least insulated dwellings and are least able to afford to replace polluting, inefficient appliances. More often than not, they are in homes built before the Victorian building code mandated energy rating standards. It's critical that these homes are prioritised for government support to help them reduce their energy consumption and switch off gas. Means testing subsidies on a sliding scale with fully subsidised draught proofing, insulation retrofits and appliance switching for the poorest households will ensure that those who can least afford to shift away from gas are supported to do so.

Minimum standards should also be set for rentals, social housing and public housing properties, specifying that at the very least they meet seven-star building standards and requiring all-electric homes running on battery-boosted solar. This will ensure that no home is left behind in embracing a clean energy future for Victoria. There are already encouraging incentives for rental properties to embrace more efficient use of energy, with tenancy laws allowing tenants to draught-proof homes with weather seals, caulking or gap filling around leaky windows, doors, skirtings and floorboards at the owner's expense. Landlords wishing to refuse these measures must have a strong reason to do so.[30]

Small businesses

The years of the pandemic have hit many small businesses hard. Those that stayed afloat generally faced downturns. Then, just as people begin to return to normal levels of activity, energy and transportation costs started to soar, with knock-on impacts on the cost of many goods businesses rely on. Helping small businesses with low profit margins make the switch from gas to renewable energy, bolstered by efficiency audits and subsidised retrofits (either directly or through tax holidays) will be good for the climate and the economy.

Workers in the gas industry

As more homes and businesses switch off fossil gas, jobs in the gas industry are likely to decline sharply. Like coal workers before them, people who directly or indirectly depend on gas for their employment will need support to help them shift industries and careers through reskilling and vocational support.

All affected workers must be offered free reskilling by the state. Displaced workers must be guaranteed new employment or supported to transfer from decommissioned facilities to those still in operation. Other workers' skills may be better suited to transferring into new energy-sector jobs such as renewable energy generation and storage or site rehabilitation.

Workers who are approaching retirement may choose to accept enhanced redundancy packages or early retirement incentives. Assisting workers who currently rely on Victoria's gas-heavy energy system for employment will require adaptability and a suite of packages ready to be tailored to workers' individual needs. A well planned and resourced transition should ensure that no worker is left behind.

30. https://www.consumer.vic.gov.au/housing/renting/repairs-alterations-safety-and-pets/renters-making-changes-to-the-property
31. https://www.parliament.vic.gov.au/images/stories/

The decision makers

All three levels of government in Australia have a stake in achieving effective change in the energy economy as it relates to their jurisdictions. Energy governance is complex. Healthy, lasting outcomes can only be achieved through considered orchestration across the levels of government. While this document is primarily aimed at discussing a pathway out of fossil gas at the state level, it's useful to consider how the role of the state government intersects with those at the local and federal level.

Local governments

Councils in Victoria are essentially a subdivision of the state government. Their decision making is largely constrained, and they require the consent of relevant state ministers to grant approvals for various instruments of governance. This is particularly true of planning. Any change to a council's proposed planning scheme requires the assent of the state planning minister.

But when a collection of councils introduce a planning scheme amendment in unison, it creates a powerful moment of pressure and policy solidarity that can influence state government. Exactly this is underway in Victoria in August 2022. A bloc of 23 councils have united to request planning scheme amendments mandating all-electric, zero-carbon buildings under their planning schemes. Thirteen of that group have specifically sought to ban any new mains gas connections for future developments.

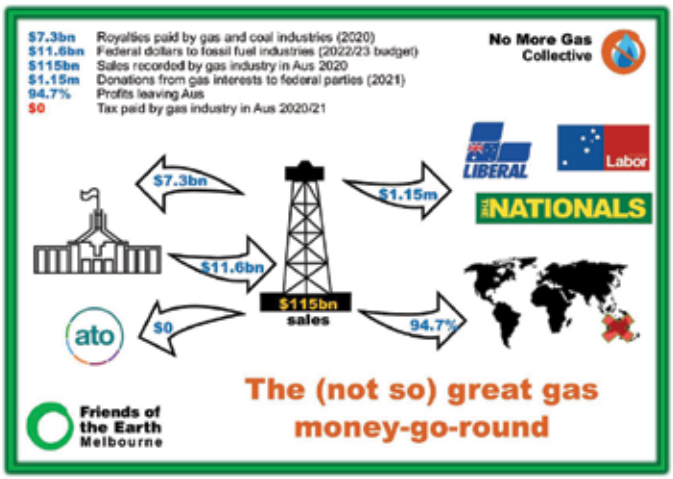
The idea isn't new; it has already been implemented by a number of counties in the USA, starting with the city of Berkeley in California. The Australian Capital Territory has also started requiring that new developments not be connected to gas.

State government

Most energy decision making happens at the state level. Exploration and production permits fall under state governments' jurisdiction. The upkeep and regulation of the mains gas system and the local network of electricity poles and wires is a state matter. Energy concessions, solar feed-in tariffs and the environmental performance and approvals of most energy projects are all administered by the state. State government legislation also controls energy networks and retailing. For example, the Victorian Energy Upgrades scheme requires energy retailers to submit specified numbers of VEU certificates each year to cut carbon emissions. So the Victorian government could take actions such as requiring energy retailers to identify and assist high gas consumers to cut their consumption.

The Victorian state government has shown impressive leadership in its programs to subsidise the installation of solar panels, including for rental properties. It also offers more efficient appliances under subsidy, and it has shown leadership in the public consultation and release of the Victorian Gas Substitution Roadmap (VGSR). This is a legacy that other state governments would do well to borrow and improve upon.

In acknowledging this, however, we must concede that none of these programs are perfect. Low-income earners are still out of pocket in the short term if they install solar panels. The Victorian Energy Upgrades program continues to subsidise homeowners to replace old gas appliances with new gas appliances. The VGSR does not plan to retire its leaky, inefficient gas mains wholesale and also holds the door open on future gas developments. The Victorian Hydrogen Hub uses brown coal to create hydrogen (brown hydrogen), with plans to move through gas-generated hydrogen (blue hydrogen) before settling on renewably created hydrogen (green hydrogen). This process drags the Victorian energy economy all too slowly through two fossil fuel energy sources before delivering a product that is 100 per cent renewable during a critical decade for climate management. It also potentially invests in high emission infrastructure that undermines future progress to a low



emission future or becomes a stranded asset that will have to be shut down well before its economic life.

Federal government

The Morrison federal government was notable for its enthusiasm for splashing public dollars on fossil fuel projects. From the announcement in the first half of 2020 by then Energy Minister Angus Taylor that Australia would lean into a "gas-fired recovery" from the Covid crisis, to the creation of the National Covid Coordination Commission, stacked with fossil-industry players and operating without explicit terms of reference, to the awarding of escalating billions of taxpayer funds to the coal and gas industries – reaching $22,000 per minute after their last budget – these polluting and uneconomic industries have enjoyed a gold-plated last hurrah at the expense of the public.

The May 2022 election saw a changing of the guard, with an increase in the Greens and teal candidates' representation in the federal parliament. Although the Labor Party holds a very narrow but absolute majority in the House of Representatives, it needs the votes of numerous crossbenchers to pass legislation in the Senate.

The federal government and its agencies have approval over developments in Commonwealth waters, control over budgetary measures that may or may not favour fossil fuel interests, control over imports and exports and the functioning of the energy market overall. It also allocates funding for major projects through Infrastructure Australia to pay for the installation of large-scale renewables installations, among other energy-related projects.

Lobbyists, donations and state capture

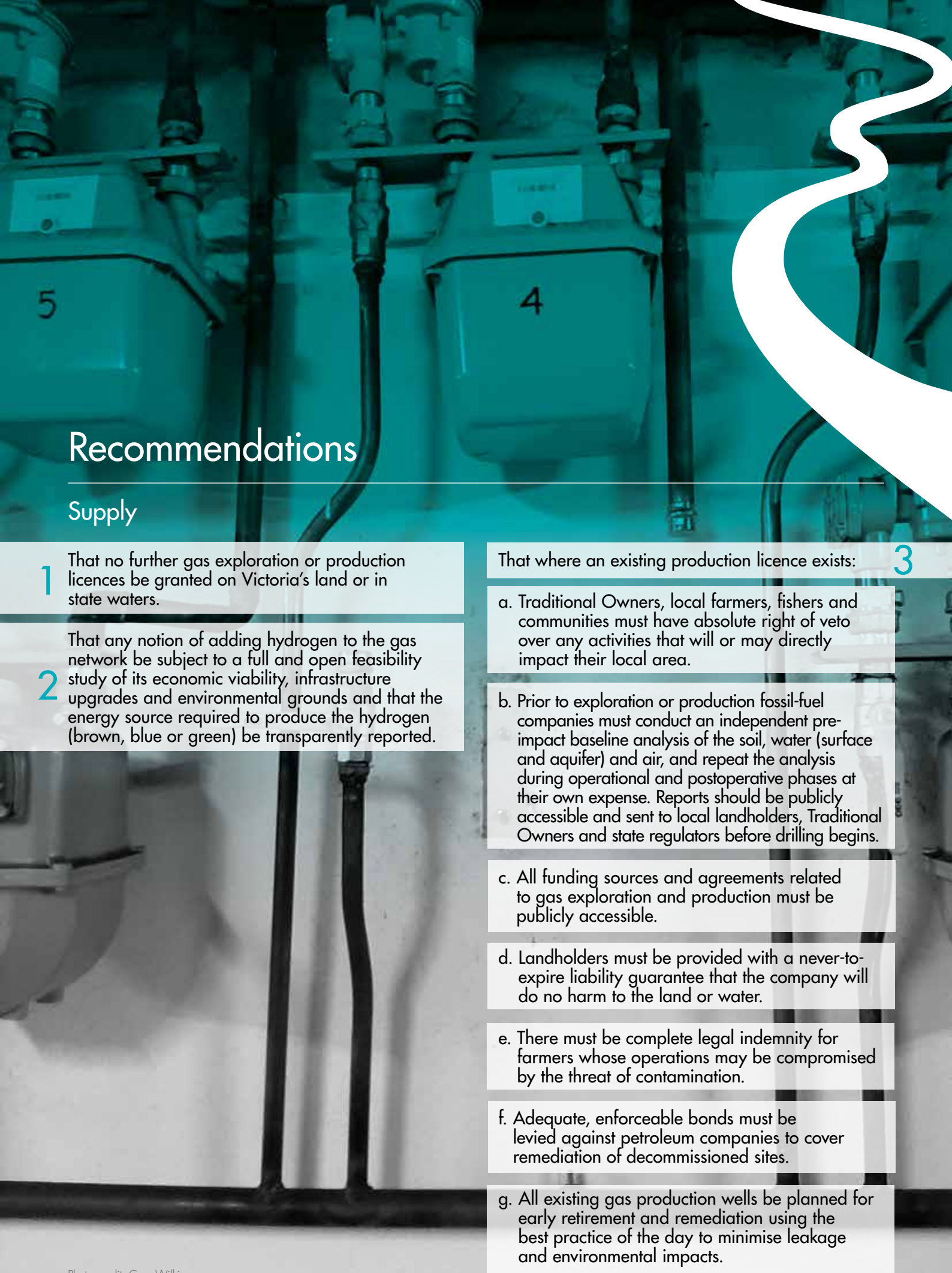
The role of lobbyists and major corporate donors in Australian parliaments is deeply hidden but essential to understand. Backed by fistfuls of dollars destined for the coffers of the Labor, Liberal and National parties, corporate interests can heavily influence policy decision-making in their favour. In terms of fossil fuels, particularly the gas industry, this is how the system looks at a federal level

The combined financial might of the fossil-fuel industries made Labor and the Coalition $1.15 million dollars richer in 2021. In return the fossil-fuel companies were rewarded with $11.6 billion in subsidies, while only $7.3 billion was returned to Australia in royalties, zero tax was paid due to the use of sophisticated tax minimisation schemes allowing multinational structures to hide company profits, and roughly a further $5.7 billion stayed in Australia in wages for local jobs. Of the $115 bn income generated from these publicly owned assets, 94.7% went directly offshore. This is what state capture looks like.

In Victoria, the Labor government has introduced a cap on political donations in order to limit the influence of corporate interests in political decision making. But this has only so much impact when the federal government, holding the purse strings of Infrastructure Australia, determines the conditions under which federal funding goes to state government. The Victorian government held out against continual pressue to repeal the moratorium on onshore gas exploration and production until the federal government threatened to withhold funding for key energy projects[32] while the moratorium remained in place. Almost overnight, the onshore gas moratorium was overturned[33], leading to Beach Energy's horizontal drilling under the Port Campbell National Park and into an area less than ten kilometres from the Twelve Apostles National Marine Park.

While energy companies, charging us what they think the market can stand and shifting tax-free profits offshore call the political shots, we can never expect to see decision- making in the best interests of the environment or people.

32. https://www.afr.com/companies/energy/victoria-baulks-as-angus-taylor-seeks-bargain-on-onshore-gas-20191118-p53bh7
33.. https://reneweconomy.com.au/victoria-lifts-moratorium-on-onshore-gas-but-%20permanently-bans-fracking-91726/



Recommendations

Supply

1. That no further gas exploration or production licences be granted on Victoria's land or in state waters.

2. That any notion of adding hydrogen to the gas network be subject to a full and open feasibility study of its economic viability, infrastructure upgrades and environmental grounds and that the energy source required to produce the hydrogen (brown, blue or green) be transparently reported.

3. That where an existing production licence exists:

   a. Traditional Owners, local farmers, fishers and communities must have absolute right of veto over any activities that will or may directly impact their local area.

   b. Prior to exploration or production fossil-fuel companies must conduct an independent pre-impact baseline analysis of the soil, water (surface and aquifer) and air, and repeat the analysis during operational and postoperative phases at their own expense. Reports should be publicly accessible and sent to local landholders, Traditional Owners and state regulators before drilling begins.

   c. All funding sources and agreements related to gas exploration and production must be publicly accessible.

   d. Landholders must be provided with a never-to-expire liability guarantee that the company will do no harm to the land or water.

   e. There must be complete legal indemnity for farmers whose operations may be compromised by the threat of contamination.

   f. Adequate, enforceable bonds must be levied against petroleum companies to cover remediation of decommissioned sites.

   g. All existing gas production wells be planned for early retirement and remediation using the best practice of the day to minimise leakage and environmental impacts.

Photo credit: Cam Wilkinson

Processing

1. That "Flaring off" at gas production facilities be kept to an absolute minimum with appropriate penalties introduced for flaring on a per-tonne of greenhouse gas emission basis, with flaring quantities monitored and publicly reported under NGERS legislation.
2. That a complete environmental audit be undertaken of all gas processing facilities to determine the impacts on soil, air and water within the envelope of impact and that the results of this audit be made publicly available.
3. That any affected communities, including farms, be fully compensated for chemical incursions on their properties.
4. That remediation of affected areas be investigated in terms of current and continuous best practice with costs for remediation levied against facility owners.
5. That greenhouse gas emissions be monitored across all facilities on a regular basis with the results made publicly available.

Transportation

1. That a plan to retire the low pressure gas transmission network in its entirety by 2035 be adopted, with emphasis placed on reducing the impact on low income households
2. That all proposals for gas import terminals be refused.
3. That Victoria commence work in conjunction with other states and the federal government to plan the orderly retirement and dismantling of the eastern Australia pipeline network.
4. That Victoria explicitly refuse to import or use any gas obtained from hydraulic fracturing as defined in The Petroleum Act 1998.

Demand

1. That any further residential or commercial gas connections be prohibited across the state.
2. That thermal and energy-efficiency measures be urgently offered through government subsidies, prioritising lower-income households to achieve a minimum seven-star efficiency standard and reduce their energy consumption.
3. That all residential and commercial properties sold, leased or rented must include their NatHERS or equivalent (eg Residential Efficiency Rating) energy rating (determined by an accredited assessor) as part of the contract terms. Ratings on developed properties are to be assessed on an "as built" basis, not just on the design basis, with full transparency of the calculated building energy ratings.
4. That a means-tested program be implemented to assist households to retire gas appliances and inefficient electric appliances, and replace them with high efficiency electric alternatives.
5. That lower-income households and small businesses be prioritised for solar panel installation without any additional costs over and above their existing energy bills and to be paid off at a level that they can comfortably afford.
6. That no gas appliances be offered through the Victorian Energy Upgrade Program henceforth
7. That high heat, chemical and other hard-to-transition gas users be assisted with dedicated research and development to investigate alternatives to using methane gas.
8. That a prominent public campaign inform the community, tradespeople, and industry about how and why to electrify homes and improve energy efficiency and management including details of government assistance.
9. That a targeted program to rapidly reduce domestic and commercial gas use establish a peak demand winter gas use limit of 1,000 terajoules per day statewide by 2025, with lower caps year on year until the closure of the transmission network in 2035.
10. That industrial gas use be addressed by requiring industry-wide participation in ongoing efficiency and energy use upgrades supporting the adoption of new clean technologies and processes and have a government supported forum to share strategies with similar industry groups..

This roadmap urges the rapid implementation of the following recommendations of the Legislative Council Environment and Planning Committee Inquiry into Renewable Energy in Victoria, which received bipartisan support from the Labor, Liberal and National Party members of the committee: 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 14, 15, 16, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29 Especially and most immediately #26 which stops new gas connections to residential properties.

A just and fair transition

1. That all appliance switching, solar installation programs and efficiency measures be means-tested to ensure that the transition off gas is comfortably within the means of households and businesses.

2. That a full audit of gas-reliant industries and workers be undertaken to establish the full impact of gas decarbonisation statewide.

3. That the planned retirement of the existing gas transmission system begin with the furthest reaches of the network, particularly in lower-income outer suburbs,and financial assistance be offered for households to transition off gas without economic strain.

4. Set in motion immediate preparation for a well planned and amply resourced transition of industry away from gas while ensuring justice for workers, including a retraining program be designed to assist gas-reliant industries and their workers to adopt other industries in a post-gas economy (Recommendation 26 of "RE in Vic").

5. Require the government to make eliminating gas a key priority of Victoria's next Climate Change Strategy, Emissions Reduction Target setting processes, Planning Scheme amendments, planning decisions, and state budget.

6. Develop and implement a comprehensive education/ advertising campaign based on thorough research to support transition from gas, including overcoming myths such as induction cooking can't be used for woks and helping users to make best use of electric technologies

Other references

https://www.theage.com.au/national/victoria/how-victoria-got-hooked-on-gas-and-why-the-heat-s-on-to-find-new-fuel-20210507-p57pql.html

https://en.wikipedia.org/wiki/Multinet_Gas

DEA report on health impacts of gas production

THE FRIENDS OF THE EARTH VISION OF A JUST TRANSITION

In the latest data release of Victoria's greenhouse gas performance data covering the period 2005 to 2020, our state's emissions fell by 30%. This is because of good government policy and community action, which has driven the roll out and take up of renewable energy, storage and energy efficiency.

It shows what is possible with government leadership and good policy.

The good news is that the transition to clean energy is already underway – but to adequately respond to the climate crisis we need to continue to increase our ambition and the speed and scale of action.

We already have the technology to power our communities, industry and businesses. There is community support for stronger action. We now need the leadership to build on this great good work.

We call on all parties and elected representatives to deliver and support policies driving a just and fair transition to clean energy and environmental sustainability that puts workers and communities at the centre of planning for the transition.

[T]he scientific evidence is unequivocal: climate change is a threat to human well- being and the health of the planet. Any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future. -Hans-Otto Pörtner, Co-chair Working Group II, IPCC

Find out what we're doing and how you can be involved at https://www.melbournefoe.org.au/

This means:

No more gas

We have to fast track efforts to make it easier for households, businesses and industry to transition away from fossil gas. There can be no further drilling for gas, or connecting suburbs to the gas network.

Offshore wind

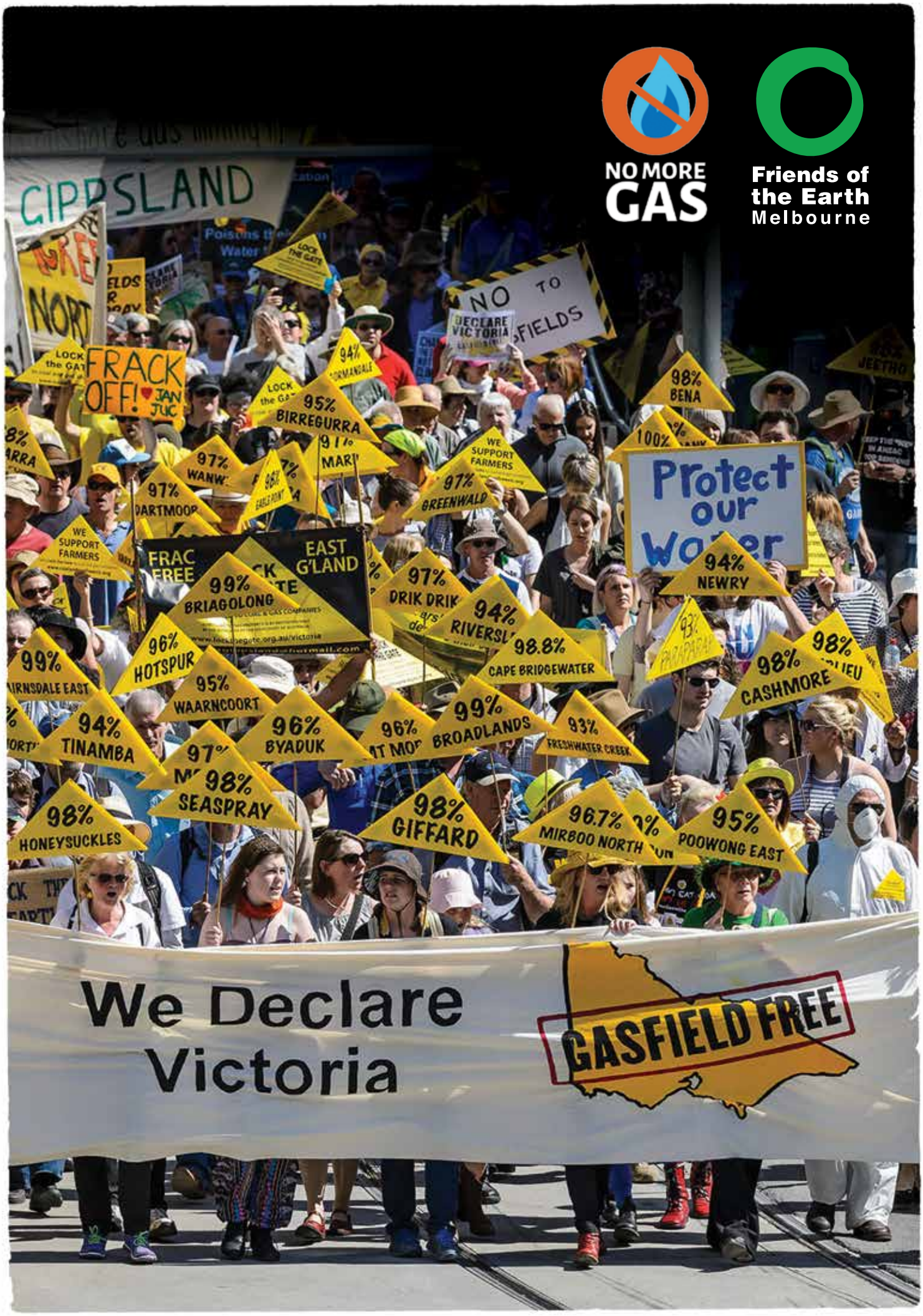
We must get on with assessing new onshore and offshore wind projects, including a fully funded transition plan to allow for early coal closure and to maximise manufacturing opportunities for the Latrobe Valley.

Protect our native forests

Victoria's native forests continue to act as a crucial carbon sink, sequestering a quarter of Victoria's emissions in 2019-20. The Victorian government must urgently protect the state's remaining native forest through a rapid transition out of native forest logging.

Sustainable cities

We need a public transport that is accessible to all and which services all communities. That starts with a better bus network in the western suburbs.



melbournefoe.org.au/gas