

Submission to Infrastructure Victoria Towards 2050: Gas infrastructure in a zero emissions economy

August 2021



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Doctors for the Environment Australia (DEA) wishes to thank Infrastructure Victoria for the opportunity to contribute to the recommendations they will present to the government on the future of Victoria's gas infrastructure for the state to reach its emissions reduction targets (ERTs) leading up to 2050.

<https://engage.vic.gov.au/towards-2050-gas-infrastructure-zero-emissions-economy>

[https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/4916/2622/6516/Gas Infrastructure Advice - Interim Report FINAL 4.PDF](https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/4916/2622/6516/Gas_Infrastructure_Advice_-_Interim_Report_FINAL_4.PDF)

DEA is an independent, non-government organisation of medical doctors and students in all Australian States and Territories. Our voluntary members work across all specialties in community, hospital, and private practices to prevent and address the diseases – local, national, and global – caused by damage to our natural environment. We are a public health voice in the sphere of environmental health with a primary focus on the harms to health from pollution, environmental degradation and climate change.

INTRODUCTION

Before the COVID-19 pandemic, climate change was regarded as the greatest threat to health this century.¹ In spite of the ravages of COVID-19, the predicted mortality from climate change over the next two decades will exceed that from COVID-19, as medicine and health science have the means to eventually control the pandemic. However, with climate change, actions required to avert this threat are monumental and multi-sectoral and have been delayed to such an extent that fulfilling the aims of the Paris Agreement to curb global warming and climate change is a huge task.² Thus, the future health of humanity is under grave threat. Scientists worldwide are again urging for stronger action since emissions are now increasing through the very impact of climate change.³

In recent months, there has been a series of extreme weather events (EWEs) which has led to multiple deaths and enormous interference with human livelihoods – from record-breaking high temperatures in the northern hemisphere⁴ leading to massive wildfires in Siberia,⁵ United States and Europe, and from unprecedented torrential downpours in China, Japan and Germany. Not only are these events costing lives, but they increasingly impair our ability to maintain the essentials of life: clean air, water, nutritious food, shelter and mental stability.

While governments are delaying the co-ordination of complex climate actions, greenhouse gas emissions (GHGs) are rising, ice-caps and permafrost are melting, and ocean levels and acidity are rising. Many governments have chosen to ignore these facts and observations over the last two to three decades which means that actions now must be approached with urgency and ambition.⁶ In Australia, the lead is being taken by the states and communities, and it is only through their actions that Australia is meaningfully addressing this monumental task.

DEA has joined the Australian Medical Association and other medical professional societies in declaring a climate health emergency,⁷ and so it is the future of human health from climate change which will under-line views expressed in this submission. As DEA has no special technical expertise in

¹ [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)32124-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)32124-9/fulltext)

² https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

³ <https://climate.nasa.gov/blog/3066/the-climate-connections-of-a-record-fire-year-in-the-us-west/>

⁴ <https://www.bbc.com/news/world-us-canada-57626173>

⁵ https://www.theguardian.com/world/2021/jul/20/everything-is-on-fire-siberia-hit-by-unprecedented-burning?utm_term=199ef7fc8e991aacee2f8ba8dfe2b408&utm_campaign=GreenLight&utm_source=esp&utm_medium=Email&CMP=greenlight_email <https://www.nature.com/articles/d41586-020-00627-y>

⁶ https://www.mja.com.au/journal/2021/214/2/health-and-climate-change-mja-lancet-countdown-report-australia-gets-another?utm_source=MJA+news+alerts&utm_campaign=f5a18ec649-EMAIL_CAMPAIGN_2020_03_10_04_46_COPY_11&utm_medium=email&utm_term=0_8c7e70a099-f5a18ec649-43618033

⁷ <https://www.ama.com.au/media/climate-change-health-emergency>

gas supply networks, we will comment on both the immediate and long-term adverse health effects of continuing gas supply and the ways by which demand for gas can be reduced while protecting the environment.⁸

This next decade will be a critical period in which a sustainable pathway in major reductions in emissions must be established. While Victoria has announced commendable interim emission reduction targets (ERTs) of 28-33 per cent by 2025, 45-50 per cent by 2030 and net-zero by 2050, it is most likely that these will not be adequate, as it has been calculated that emissions will need to be reduced by 7.6% per year for the next decade to meet the Paris 1.5°C target.⁹ Therefore, plans for emissions reduction will need to have more flexibility and ambition to deal with the huge challenge ahead.

Natural (fossil-derived methane) gas has been identified as a ‘transition fuel’ but it is now established that the use of gas creates similar GHG emissions to that of coal.¹⁰ Even though gas is more energy efficient, this advantage is lost through fugitive emissions of methane released at every stage of production and use, and methane is a much more powerful GHG than CO₂ over a 20-year time frame.^{11, 12} In addition, emissions of particulate matter and oxides from the indoor combustion of gas used in household appliances are harmful to health,¹³ contributing to childhood asthma and other respiratory conditions,¹⁴ and, where there is poor ventilation and faulty equipment, carbon monoxide toxicity can arise and be difficult to detect.¹⁵

SUMMARY

1. The rapid emergence of extreme weather events and extreme heat in the last two years throughout the world will threaten the liveability of many global regions including parts of Victoria, and are a stark reminder of the need for ambitious climate action by all jurisdictions.
2. While Victoria’s interim and 2050 emissions reduction targets are commendable, the pace of emissions reduction will be insufficient for effective climate change mitigation.
3. Although natural gas has been declared to be an essential transition fuel in other jurisdictions, Victoria recognizes the pathway to its emissions reduction targets can be achieved by a number of energy pathways and infrastructures (scenarios) without heavy reliance on natural gas.
4. Of the scenarios suggested, Scenario A with a blend of Scenario C would seem to offer the best chance of achieving the targets in a reliable and affordable way. The feasibility of Scenario C depends on overcoming barriers to the development of a hydrogen industry.
5. Scenarios B and D are discounted because of their reliance on carbon capture and storage which has failed to deliver its claimed results.
6. The most important element of Scenario A is its reliance on continued expansion of renewable energy for which there is potential for unlimited supply in Victoria, neighbouring states and local coastlines.

⁸ https://www.dea.org.au/wp-content/uploads/2021/06/202102_Gas-Fired-Recovery-Plan-Submission.pdf

⁹ <https://www.unep.org/news-and-stories/press-release/cut-global-emissions-76-percent-every-year-next-decade-meet-15degc> <https://edition.cnn.com/2019/11/26/us/climate-change-un-emissions-report-2019-trnd/index.html>

¹⁰ https://www.dea.org.au/wp-content/uploads/2021/06/202102_Gas-Fired-Recovery-Plan-Submission.pdf

¹¹ <https://gisera.csiro.au/factsheet/fugitive-methane-emissions-factsheet/>

¹² <https://public.wmo.int/en/media/press-release/greenhouse-gas-concentrations-atmosphere-reach-yet-another-high>

¹³ <https://www.climatecouncil.org.au/wp-content/uploads/2021/05/Kicking-the-Gas-Habit-How-Gas-is-Harming-our-Health.pdf>

¹⁴ <https://www.dea.org.au/wp-content/uploads/2020/12/Home-gas-appliances-fact-sheet.pdf>

¹⁵ <https://bjgp.org/content/62/601/404.2>

7. Renewable energy can be supported by an array of firming infrastructures including batteries, hydro, pumped hydro, zero-emissions biogas, biomethane and hydrogen, smart switching and synchronous condensers, together with reworking the electricity grid.
8. Any scenario of energy development should include marked improvements to energy efficiency of the built environment. Minimum efficiency standards (star rating) for houses could be increased to 7 or 7.5 which would assist energy conservation and lead to lower energy costs for consumers.
9. More incentives would help electric vehicle uptake in Victoria and compensate for federal negativity. Smart grid management and charge-time incentives could enable EVs to stabilize grid variability from renewables and avoid the need for a role of gas.

DEVELOPMENT OF RESPONSES TO TERMS OF REFERENCE (TORs)

https://www.infrastructurevictoria.com.au/wp-content/uploads/2021/01/Infrastructure-Victoria_Advice_Gas-Infrastructure.pdf

Because of the urgency required for emissions reduction, infrastructure must first be aimed at zero-emissions technologies - photo-voltaic solar panels and wind turbines and develop these to their fullest capacity to allow full electrification of power supply. Such development will require more utility scale batteries and other means of firming such as hydro and pumped hydro, synchronous condensers, smart switching and major modifications to the grid.

Electrification of households is now possible with heat-pump technology which is less costly over 10 years and safer for home heating than natural gas.¹⁶ Costs of using other forms of gas cannot be predicted accurately at this time.

Electrification of both private and public transport should proceed apace in conjunction with increasing renewable electricity generation.

The second essential requirement is the withdrawal of natural gas from the energy mix as soon as practicable. Retaining methane gas in the mix does not enable the rapid reduction of emissions that is required and inhibits progress in the transfer away from fossil fuels. Fortunately, there are contenders as replacements such as biogas, biomethane and hydrogen all of which can lead to net-zero emissions depending on their sources. The withdrawal of natural gas and possible replacement by these other gases in the domestic supply creates challenges which must be met over this next decade for Victoria to fulfill its climate action responsibilities.

Creating alternative gas supply to industry is possibly less challenging because of the existence of industrial hubs but in any scenario, organizational changes will have ramifications in employment, socio-economic conditions, and the psychological state of participants.

An absolutely key measure to reducing GHG emissions which must be addressed is the strengthening of energy efficiency in residential and commercial buildings. Suggested requirements are detailed in TOR 4 below.

On the basis of the above, the Scenarios offered are not ideal, so the selection is accompanied by several qualifications. In addressing these Scenarios, several questions listed on page 9 of the Interim Report are covered.

¹⁶ https://renew.org.au/wp-content/uploads/2018/08/Household_fuel_choice_in_the_NEM_Revised_June_2018.pdf

1. A) Development of two or more scenarios for a net zero emissions energy sector in 2050

Of the four scenarios offered, Scenario A is a logical starting point as it covers desirability and accountability, but its feasibility over the next decade relies on the availability of gases other than mined methane. Full electrification is now possible within a short time due to the rapid and increasing uptake of both roof-top and large-scale solar, and large-scale wind. Firming is possible with increasing installation of large-scale batteries and, on a more local scale, the City of Melbourne is looking to establishing multiple local batteries.¹⁷ With all the scenarios, the limiting factor is the need for gas for industrial purposes and possibly for gas-fired electricity even if this may only be required once every few years and on average, supplies only 3% of Victoria's power demand (page 15 Interim Report). Biogas can meet the limited demand for feedstock for chemicals while the requirement for ethane for plastics can be circumvented by recycling. Hydro can contribute to firming for peak hour use. Pumped hydro offers the advantage of utilizing excess renewable energy which might otherwise be wasted or threaten grid overload. Demand response is useful and acceptable when it avoids the use of infrastructure which otherwise might be used rarely.

Looking at the other scenarios, Scenario B includes retention of fossil gas for plastics production. However, plastic litter is causing profound environmental damage and there clearly needs to be global action to address this issue. New production of plastics must be severely curtailed and new supplies created by re-cycling.

Carbon capture and storage (CCS) is a controversial process for reducing emissions. World-wide experience indicates that it has failed to capture CO₂ in significant quantities, is expensive and involves complex technology which is vulnerable to failure. In the case study included in the report (page 26), CCS captured only 35% of the carbon emissions produced in the project. Australia's only major CCS project has repeatedly failed.¹⁸ While it is tempting to establish an industry of brown hydrogen from resources in the Latrobe Valley using CCS, this approach would be inconsistent with Victoria's climate action ambitions. To commit to replacing methane gas with widespread use of hydrogen is a commendable ambition although there are many barriers to its implementation.

Scenario C has merit because it allows for more green hydrogen while aiming for low/no emissions overall. However, it does not seem logical to divert dwindling supplies of gas to create blue hydrogen which would only be a short-term solution for industry and would not lead to lower emissions without offsets. However, by aiming at a mix of low carbon sources this scenario may offer the least risk and greatest flexibility.

Scenario D would seem to have little merit as a target. Large-scale CCS does not have the credentials to merit extensive investment and because of the other available opportunities, should be avoided.^{19,20}

B) Relative economic, social and environmental impacts of these scenarios.

DEA has no expertise in closely analysing economic impacts but is guided by the summary in Table 3, page 30 of the Interim Report which indicates that Scenario A compares favourably. However, since many economists have determined that costs of climate change will far

¹⁷ <https://www.melbourne.vic.gov.au/news-and-media/Pages/Community-batteries-to-Power-Melbourne.aspx>

¹⁸ <https://www.smh.com.au/national/millions-of-tonnes-of-carbon-added-to-pollution-as-gorgon-project-fails-capture-deal-20210215-p572na.html>

¹⁹ <https://www.afr.com/companies/energy/gorgon-ccs-headaches-to-increase-emissions-bill-20210114-p56u0l>

²⁰ <https://www.boilingcold.com.au/times-up-on-gorgons-five-years-of-carbon-storage-failure/>

outweigh costs of action,²¹ economic impacts have to be accepted and the scenarios pursued regardless of immediate costs.

There will undoubtedly be major social impacts from re-organization of energy infrastructure. How these impacts will be managed at a time when society has undergone upheaval from the COVID -19 pandemic is a huge challenge. Perhaps society will be more accepting of re-structuring of energy supply as climate change induced extreme weather events become more frequent.

In the more immediate time-frame, total electrification by renewables has undoubted environmental benefits through reduction in air pollution from fossil-fuel combustion, both stationary and vehicular.²² While job creation is extremely important, potential numbers are difficult to predict, and it is quite likely that new jobs will balance or exceed those lost in energy re-structuring.²³

Scenario Conclusion:

Scenario A fulfills most of the requirements for rapid emissions reduction and would seem to be the most feasible. No other scenario fulfills all requirements. Scenarios B and D can be discounted because of the need for CCS while Scenario C would appear to rely excessively on hydrogen. However, if hydrogen production fulfills the optimistic outlooks, Scenario C may represent the final picture more accurately. With these provisos, perhaps the following statement (page 42, Interim Report) is close to the mark: “Our analysis to date indicates that it is highly likely that a mix of all available options will prove to be the best (and lowest cost) solution”, to which should be added that up-scaling of energy efficiency of the built environment is essential in any scenario.

2. Implications for gas production, electricity generation, and transmission and distribution networks

The development of Scenario A is based on the premise that natural gas will be gradually withdrawn from residential and commercial supply and replaced by electrification. Complete withdrawal or absence of gas services from communities and institutions is not unknown. Overseas, gas supply has been banned in new buildings in some cities.^{24,25}

In Australia, many homes are already switching to all-electric, and some new housing developments are not connecting to a reticulated gas supply.²⁶

DEA has been advocating for reduction of greenhouse gas emissions by the healthcare sector, and in conjunction with the Australian Medical Association, has called for sector wide emissions reduction of 80% by 2030 and net zero by 2040.²⁷ Since gas provides 48% of direct energy consumption in Victorian public hospitals,²⁸ a key recommendation is that there be no new gas installations or upgrades in Australian hospitals from 2021.²⁹ This recommendation will assist Victoria in meeting adequate emissions reduction targets in conjunction with the Victorian

²¹ <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-dae-new-choice-climate-growth-051120.pdf?nc=1>

²² <https://www.dea.org.au/wp-content/uploads/2021/04/Final-air-pollution-submission-PDF.pdf>

²³ <https://www.abs.gov.au/statistics/labour/employment-and-unemployment/employment-renewable-energy-activities-australia/latest-release>

²⁴ <https://www.cbsnews.com/news/cities-are-banning-natural-gas-in-new-homes-because-of-climate-change/>

²⁵ <https://www.abc.net.au/news/2020-11-19/san-francisco-just-banned-gas-in-all-new-buildings.-could-it-ev/12896666>

²⁶ <https://reneweconomy.com.au/canberra-households-reject-gas-as-act-moves-to-end-mandatory-connections-47346/>

²⁷ <https://insightplus.mja.com.au/2021/19/hospital-environmental-sustainability-end-of-the-beginning/>

²⁸ <https://www.mja.com.au/journal/2021/renewable-energy-use-australian-public-hospitals>

²⁹ https://www.dea.org.au/wp-content/uploads/2020/12/DEA-Net-Zero-report_v11.pdf

government's intent that all public hospitals will be supplied by 100% renewable energy by 2025.³⁰ If plans proceed for a new public hospital in Melton,³¹ it will need to follow the examples already set in South Australia and the ACT in excluding gas installation from new hospitals.^{32,33}

Several schools in Victoria are also moving from gas to electricity, both for environmental and economic reasons.³⁴

Modelling commissioned by Environment Victoria estimates that Victoria could reduce its annual gas consumption by around half by 2030 primarily by a process of modernisation, replacement of household gas appliances and demand management.³⁵

If every effort is made to reduce reliance on gas, the anticipated shortfalls in supply towards the end of this decade could be averted without the need to develop new fields – which would conform to the recommendation of the International Energy Agency that there should be no further gas or oil mining³⁶ - and would be a major step in allowing Victoria to meet its interim ERTs.

Renewable electricity generation is proceeding at an unanticipated pace but there are threats to grid management which are interfering with progress. Currently there is a move for power companies to **charge** rather than pay for solar power sent to the grid at times of low grid requirement, such as middle-day when demand is low.³⁷ This would be an outrageous impost on householders who have invested in roof-top solar expecting feed-in tariffs to defray costs. At present, energy retailers and network operators are making windfall profits from feed-in photovoltaic panels (PVs). Household PV should not be penalized for exporting power as they are in effect subsidizing a range of retail customers including tenants and low-income households without panels.

Several more equitable ways to provide grid balance could be:

- Expanding the criteria for battery subsidies to householders, as without a battery there is no practical way to reduce off-peak input
- Installing more community or regional batteries as is being proposed in the City of Melbourne as well as more major scale batteries such as those proposed by Powercor³⁸
- Pursuing vehicle-to-grid technology for electric vehicles.³⁹
- Pursuing development of pumped-hydro more vigorously
- Utilizing smart electronic switching

³⁰ https://www.climatechange.vic.gov.au/_data/assets/pdf_file/0021/521364/210502-Climate-Plan-To-Cut-Emissions-And-Create-Jobs.pdf

³¹ <https://www.theage.com.au/politics/victoria/after-decades-of-campaigning-melton-to-get-new-public-hospital-20210704-p586ow.html?btis>

³² <https://www.wch.sa.gov.au/about/new-wch-project>

³³ https://www.cmtedd.act.gov.au/open_government/inform/act_government_media_releases/rattenbury/2020/act-government-announces-first-all-electric-public-hospital-in-australia-if-not-the-world

³⁴ <https://www.theage.com.au/national/victoria/victorian-state-schools-start-switching-off-natural-gas-20210701-p585wc.html>

³⁵ <https://environmentvictoria.org.au/2021/03/26/briefing-paper-demand-side-measures-overlooked-in-victorian-gas-shortfall-estimates/>

³⁶ <https://www.iea.org/news/pathway-to-critical-and-formidable-goal-of-net-zero-emissions-by-2050-is-narrow-but-brings-huge-benefits>

³⁷ <https://reneweconomy.com.au/solar-tax-may-be-outrageous-but-is-it-as-bad-as-it-sounds/>

³⁸ <https://www.afr.com/companies/energy/twenty-big-batteries-planned-for-victoria-20210518-p57suo>

³⁹ <https://theconversation.com/could-electric-car-batteries-feed-power-back-into-the-grid-143821>

3. Infrastructure decisions and timing, to ensure opportunities for the existing gas infrastructure can be optimised.

Planning the transition to renewable forms of gas will be a complex and possibly contentious task as it will require major changes in grid design and materials. Another key requirement is social licence to accept reduced availability of natural gas. Infrastructure decisions and timing will need to co-ordinate with public education programs, changes in residential building codes and programs for the substitution by low emissions gases. Recommendations for these considerations are beyond the scope of DEA.

4. Cost and reliability impact of key infrastructure decisions, including minimisation of the social, environmental and economic costs to businesses, industry and the community

There are several key infrastructural measures which have a positive impact on cost and reliability to allow a steady transition away from gas in the energy mix.

(a) Firstly, improving efficiency of residential and commercial buildings is essential in any program as the costs are reimbursed through energy savings within a short time.⁴⁰ Embarking on upgrading energy efficiency standards is such an important measure that it should be an essential matter to address during the current (2021) building boom. Simple measures such as insulation, roof colour and material, and using sun angle for winter warmth could be included in requirements. More shading by vegetation and more space for outdoor exercise are simple measures which are not prioritised in current housing developments and which could be mandated by lowering building footprint limits. Current residential energy star rating of 6 is generally agreed to be too low and there is no absolute guarantee that this is being achieved. A star rating of 7 or 7.5 would provide huge energy savings.⁴¹

Measures to increase energy efficiency and social benefits in the building sector are a hugely neglected area and established patterns of energy waste are difficult to reverse.

(b) The second major infrastructure decision relates to the expansion of renewable energy production through solar panels and battery storage enabling natural gas to be withdrawn. Continuing research into more efficient technologies for solar panels, wind-turbines and batteries⁴² will ensure that these technologies will be able to meet our energy needs in the foreseeable future at ever decreasing cost. Impediments relate to tardy grid connections and upgrades which might be overcome following a recent change of attitude by the Australian Energy Market Operator (AEMO).⁴³ Therefore, an ambition to achieve full renewable electrification in Victoria is realistic, affordable due to lower energy costs, and of social and environmental value when fossil-fuel combustion in nearly all its forms is reduced to a minimum.

(c) Production of alternative forms of gas.

In Scenario A, industrial users will be relying on biogas and green hydrogen which can be supplied economically to specialist industrial hubs as described. (Page 34, Interim Report) DEA does not have the expertise to analyse the costs and social factors related to the multiple organisational changes required, except to emphasise that any cost analysis should always

⁴⁰ <https://onestepoffthegrid.com.au/even-with-rooftop-solar-boom-consumers-are-paying-dearly-for-what-lies-underneath/>

⁴¹ <https://onestepoffthegrid.com.au/even-with-rooftop-solar-boom-consumers-are-paying-dearly-for-what-lies-underneath/>

⁴² <https://reneweconomy.com.au/three-breakthrough-clean-energy-technologies-of-the-2020s-identified-97242/>

⁴³ <https://www.smh.com.au/politics/federal/100-per-cent-renewables-by-2025-grid-operator-pushes-clean-energy-revolution-20210713-p589ap.htm>

include the health costs to the community of fossil-fuel use, such as the costs of climate change and toxic air pollution.⁴⁴

(d) Electric vehicle (EV) uptake (Also see Section 2 above)

Victoria's energy production and delivery needs to be sufficiently robust to accommodate the uptake of electrification of vehicular transport as soon as possible. Vehicular transport currently accounts for about 17% of Australia's (and Victoria's) emissions⁴⁵ so immediate action is required if the state's ERTs are to be met. Comparative costings reveal that electric vehicles are no more costly than equivalent petrol- and diesel-powered cars when the full purchase, running and resale costs are considered.⁴⁶

To accommodate a rapid transition to electric vehicles, there is the opportunity to refine the way the grid is managed when there is variable input from renewable sources. With flexible management and multiple technologies, there should be no requirement for any contribution from peaking gas to the energy mix. While the Victorian Government has committed transferring their fleet to EVs it is puzzling why there are not more incentives to encourage Victorians to make a more rapid transition, such as financial rebates for city parking and re-charging batteries.⁴⁷ Active support is also required because of negative federal attitudes to EV uptake which is also resulting in diminishing opportunities for Victorians to gain access to a wider range of EVs.

(e) Foregoing further gas exploration and mining and winding down community gas reticulation. The International Energy Agency, of which Australia is a member, has declared there should be no more mining of gas and oil if the world is to have any chance of achieving the aims of the 2015 Paris Agreement.⁴⁸ By judicious use of gas reserves over the next ten years, there is every reason to conclude that reserves will be sufficient when concerted efforts are made to expand the network based on renewables and emissions-free firming technologies.^{49,50,51}

5. Analysis of the key uncertainties, trigger points and interdependencies associated with infrastructure decisions identified above, including any significant risks and mitigation options

The key uncertainty may be the cost and viability of providing hydrogen for high temperature combustion for industrial purposes, coupled with the provision of biomethane for feedstock for certain chemicals. Because plastic pollution has caused such environmental devastation, Victoria should desist in providing ethane from natural gas mining to support the plastics industry which now should be exploring all avenues of re-cycling.⁵²

6. Identification of the role of the Victorian Government, including to optimise the utilisation of existing gas infrastructure

The over-riding mission of the Victorian government is to reduce GHG emissions, for without concerted action from every jurisdiction, mankind will be struggling to stave off inevitable

⁴⁴ <https://www.dea.org.au/wp-content/uploads/2021/04/Final-air-pollution-submission-PDF.pdf>

⁴⁵ <https://www.climatecouncil.org.au/wp-content/uploads/2017/09/FactSheet-Transport.pdf>

⁴⁶ <https://www.carsguide.com.au/ev/advice/do-electric-cars-actually-save-you-money-83060?cspt=1617254986|ab6dcdffd2286760a5cd35b7dd799c0a>

⁴⁷ <https://grattan.edu.au/report/towards-net-zero-practical-policies-to-reduce-transport-emissions/>

⁴⁸ <https://www.iea.org/reports/net-zero-by-2050>

⁴⁹ <http://re100.eng.anu.edu.au/resources/assets/1708BlakersREAust.pdf>

⁵⁰ https://www.energynetworks.com.au/assets/uploads/entr_final_report_web.pdf

⁵¹ <https://www.theguardian.com/commentisfree/2020/feb/01/scott-morrison-is-stuck-in-a-time-warp-more-gas-is-not-the->

[answer?utm_term=RWRpdG9yaWFsX0d1YXJkaWFuVG9kYXIBVVMtMjAwMjAz&utm_source=esp&utm_medium=Email&CMP=GTAU_email&utm_campaign=GuardianTodayAUS](https://www.theguardian.com/commentisfree/2020/feb/01/scott-morrison-is-stuck-in-a-time-warp-more-gas-is-not-the-answer?utm_term=RWRpdG9yaWFsX0d1YXJkaWFuVG9kYXIBVVMtMjAwMjAz&utm_source=esp&utm_medium=Email&CMP=GTAU_email&utm_campaign=GuardianTodayAUS)

⁵² <https://cen.acs.org/environment/recycling/Plastic-problem-chemical-recycling-solution/97/i39>

decline in liveability of our planet for which we have had stark reminders in recent months. Government will have an active role in identifying infrastructure which needs support, incentives, investment, regulatory planning and legislative changes for implementation. One impediment here is the National Gas Law which aims to “promote efficient investment in, and efficient operation and use of, natural gas services for the long-term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.” (Interim report page 38) This statement does not explicitly consider climate change or the environment in its obligatory promotion of gas. However, since gas mining and operations directly impact climate change leading to negative impacts on health and the environment, Natural Gas Services is ignoring a requirement of its remit which is the long-term safety of consumers.

A recent judicial decision on the duty of government to protect the health of future Australians from the effects of climate change⁵³ could also help to nullify the interpretation of the National Gas Law.

DEA fully agrees with Infrastructure Victoria (page 44, Interim Report) that “all future infrastructure and network investment decisions should be tested for compatibility with pathways to net zero,” and would add that this pathway should be traversed much more rapidly than previously planned.

⁵³ <https://www.commondreams.org/news/2021/05/27/court-rules-australian-government-has-duty-protect-children-environment-climate>