



VICTORIAN PARLIAMENTARY INQUIRY INTO RENEWABLE ENERGY IN VICTORIA
BY ENVIRONMENT AND PLANNING COMMITTEE
THE LIBERALS AND NATIONALS MINORITY REPORT



Cover: Veja Mate Offshore Windfarm and Tasmanian Hydro Scheme dam

Prepared by The Nationals and Liberals

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Summary

The Liberals and Nationals members support a responsible transition to renewable energy.

A transition to renewable energy is necessary to reduce atmospheric emissions and climate change. However, a transition to renewable energy is not without socioeconomic and environmental risks.

Despite substantial Victorian and Commonwealth government subsidies for renewable energy, wholesale and retail electricity prices have increased in real terms (7 per cent pa). There are many potential renewable energy options which the Committee Report has not fully explored.

The Committee Report focusses heavily on solar and wind renewable technologies and battery storage all of which may have significant environmental, social, and economic challenges when subjected to a 'cradle-to-grave' analysis of carbon emissions, recyclability, and safe handling of toxic materials.

Other forms of renewable energy such as hydro-electricity, clean hydrogen, wave energy and biofuels were largely overlooked in the Committee Report. The potential of pumped hydro and opportunities for energy from waste in localised circular systems were not rigorously investigated. The Committee Report failed to investigate emission reduction from improved energy efficiencies in industrial and household settings and increasing carbon sequestration via biologic and geologic pathways. The Liberal and Nationals members consider these renewable technologies to have the potential for greater local content for example in the Latrobe Valley and warrant closer examination.

The closure of Hazelwood Power Station resulted in substantial job losses in the Latrobe Valley. Over the last decade the Latrobe local government area (LGA) has lost over 5,000 jobs while six comparable regional LGAs each have gained about 10,000 jobs over the same period (see page 7 and 8). The Andrews Government assistance of \$266 million channelled through the Latrobe Valley Authority (LVA) focused largely on liveability projects with one-off jobs in construction, rather than ongoing employment through strengthening innovation in technology and manufacturing, including local manufacture of components for renewables.

Closing coal fired power stations before sufficient transmission infrastructure to link renewable energy projects, adequate local component manufacturing and appropriate recycling facilities are established, has risks.

An opportunity exists to assist local manufacturers to make components for renewable energy and replace imports. Currently only 11 per cent of components for renewable energy are manufactured in Australia (e.g. solar panels, wind turbines).

The Liberals and Nationals members support the development of local 'cradle-to-grave' management and recycling of renewable energy components to ensure no adverse environmental impacts from the transition to renewable energy.

Victoria needs dedicated recycling for discarded solar panels. Victoria also needs to find an alternative to the resin used in wind turbine blades which contain a toxin (bisphenol A) such that the blades cannot be dumped into landfill, nor recycled, nor pulverised and secured within the concrete foundations of wind farms. Alternatives to current battery storage technology should be encouraged, given the energy intensity in mining the lithium, cobalt, nickel and other rare earths elements and manufacturing the components.

The Liberals and the Nationals support the following recommendations in the Committee Report¹: 1, 2*, 3, 4, 5, 6, 7, 10, 11, 12, 14, 15, 16, 19*, 20*, 21, 22, 24, 25, 26, 27, 28, 29

The Liberals and the Nationals oppose the following recommendations in the Committee Report¹: 8, 9*, 13*, 17, 18, 23

¹ * Attempted amendment.

The Committee Report recommends a cut-off date for sales of new internal combustion engine vehicles. The Liberals and Nationals members consider that as new technology becomes available ie. electric vehicles (EVs), consumers will change their purchasing patterns without a government mandate.

It is necessary to ensure that in transitioning to powering transport with renewables that those having to travel long distances are not disadvantaged in that transition.

The Committee Report recommends the Victorian Government build separated cycle paths and that active transport opportunities form part of any new infrastructure projects. The Liberals and Nationals members moved an amendment to include infrastructure priorities to improve safety and fuel efficiency and increase road maintenance for regional and rural Victorians travelling long distances. It is disappointing but unsurprising that a Labor/Greens dominated Committee opposed this amendment.

The Committee Report recommends recycling schemes to accommodate recycling of renewable energy waste. The Liberals and Nationals members sought the inclusion of a recommendation calling on government support the development and/or modification of facilities to ensure unrecyclable waste be dealt with in an environmentally sensitive way at the end of a product lifecycle.

The Liberals and Nationals members are disappointed that the Labor/Greens MPs ignored an amendment to prioritise Federation University as the university of choice for skills and training in the Latrobe Valley.

The Committee Report states that gas usage for cooking, heating and industrial processes constitutes a *'sizeable source of carbon emissions in Victoria'* but fails to quantify the emissions from domestic and industrial usage. Gas has a role to play in meeting peak demand in the transition to renewable energy. The Liberals and Nationals members are concerned that Committee Report Findings and Recommendations in relation to gas are inconsistent with the potential use of Green Hydrogen in the future.

The Liberals and Nationals members make the following Minority Report Recommendations:

Minority Report Recommendation 1: That the Victorian Government conducts a 'cradle-to-grave' analysis of all forms of renewable energy.

Minority Report Recommendation 2: That the Victorian Government adequately addresses community concerns in relation to wind farm technologies prior to any new land-based developments being approved.

Minority Report Recommendation 3: That the Victorian Government introduce bonds (similar to retiring coalfired power plant bonds) for large-scale solar energy facilities to ensure sufficient funds are available for site rehabilitation.

Minority Report Recommendation 4: That the Victorian Government undertakes an analysis of the operating cost-effectiveness and socioeconomic and environmental impacts of battery storage compared to pumped hydro.



Melina Bath MP
Member for Eastern Victoria Region



Matthew Bach MP
Member for Eastern Metropolitan Region

1. Introduction

1.1 Terms of Reference

On 4 March 2020, the Legislative Council agreed to the following motion:

That this House requires the Environment and Planning Committee to inquire into, consider and report, by July 2021, on —

- a) measures to enable Victoria to transition its energy supply to 100 per cent renewable energy;
- b) jobs and economic benefits and implications of Victoria transitioning to 100 per cent renewable energy;
- c) investment, both public and private, required to achieve 100 per cent renewable energy generation in Victoria, including investment in grid infrastructure and energy storage;
- d) further opportunities for Victoria to reduce emissions, including through finding alternatives to industrial and household gas consumption;
- e) government investment or action that would be needed to support workers in impacted industries to facilitate a just transition and ensure workers and communities are not left behind as Victoria transitions to 100 per cent renewable energy;
- f) the economic risks of not urgently reducing emissions by transitioning to 100 per cent renewable energy; and
- g) any other related matters.

The Liberals and Nationals members contend that the Terms of Reference were deficient in several respects such that the Committee Report doesn't explore all the alternatives for renewable energy

- **Of particular concern is the lack of 'cradle-to-grave' analysis of all modes of energy production and energy storage.**
- **The Terms of Reference ignore the important role sequestration of CO₂ emissions can play in minimising the emissions impact of some forms of energy production.**
- **Disappointingly Labor, Greens and 'Labor Like' MPs of the Committee obstructed the inclusion of Commonwealth Government policies and legislation in the Committee Report.**

Minority Report Recommendation 1: That the Victorian Government conducts a 'cradle-to-grave' analysis of all forms of renewable energy.

As a result of Committee workload, the Inquiry into Renewable Energy did not commence until the latter part of 2021, delaying the tabling until May 2022.

1.2 Submissions and Public Hearings

The Committee commenced the Inquiry by writing to several stakeholders in October 2021. At the same time, the Committee advertised a call for submissions in The Age newspaper and on the Parliament's Facebook page and on its other social media. When submissions closed, the Committee had received 90 submissions from a range of individuals and organisations.

The Committee only held two days of public hearings on 16 and 17 March, 2022. At these hearings, the Committee heard from a limited number of organisations and individuals with expertise in renewable energy. A full list of witnesses is provided in Appendix Two, and the transcripts of evidence can be found at

<https://www.parliament.vic.gov.au/epc-lc/article/4462>

1.3 Scope of the inquiry

The Liberals and Nationals members consider the limited scope of the Inquiry led to it focussing predominating on wind and solar energy. The Committee Report missed the opportunity to support ‘cradle-to-grave’ analysis of all forms of renewable energy and energy storage.

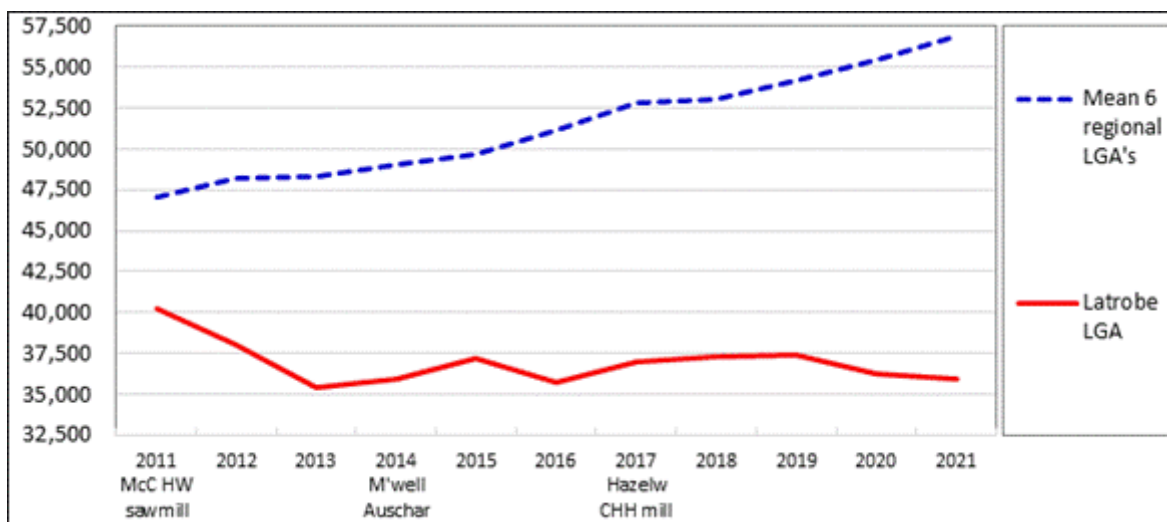
The Liberals and Nationals members value policies based on rigorous analysis of all forms of energy to ensure that government policy, regulation and assistance reduces Victoria’s ecological footprint.

2. Closure of Latrobe Valley Power Stations

2.1 Impact of the closure of power stations and coal mines on Latrobe Valley jobs

Closure of McCormack Morwell hardwood sawmill (McC sawmill) in 2011, Morwell Power and Briquette including Morwell Mine (M’well) in 2014, Auschar Morwell (Auschar) in 2014, Hazelwood Power and Mine (Hazelw) in 2017 and Carter Holt Harvey softwood sawmill (CHH) in 2017, likely caused the loss of about 10,000 job opportunities in the region (direct employment + production induced + consumption induced)². Over the last decade the Latrobe LGA labour force has declined by 5,250 jobs while on average each of the other six LGAs have gained 9,900 jobs each (Figure 1).

Figure 1: Latrobe LGA labour force compared to six regional LGA’s (No)³



The decrease in the size of the labour force for Latrobe LGA coupled with an increase in unemployment, is in stark contrast with the six other regional LGAs. This suggests the Andrews Government’s transition plan and Latrobe Valley Authority (LVA) assistance program has not generated significant ongoing employment.

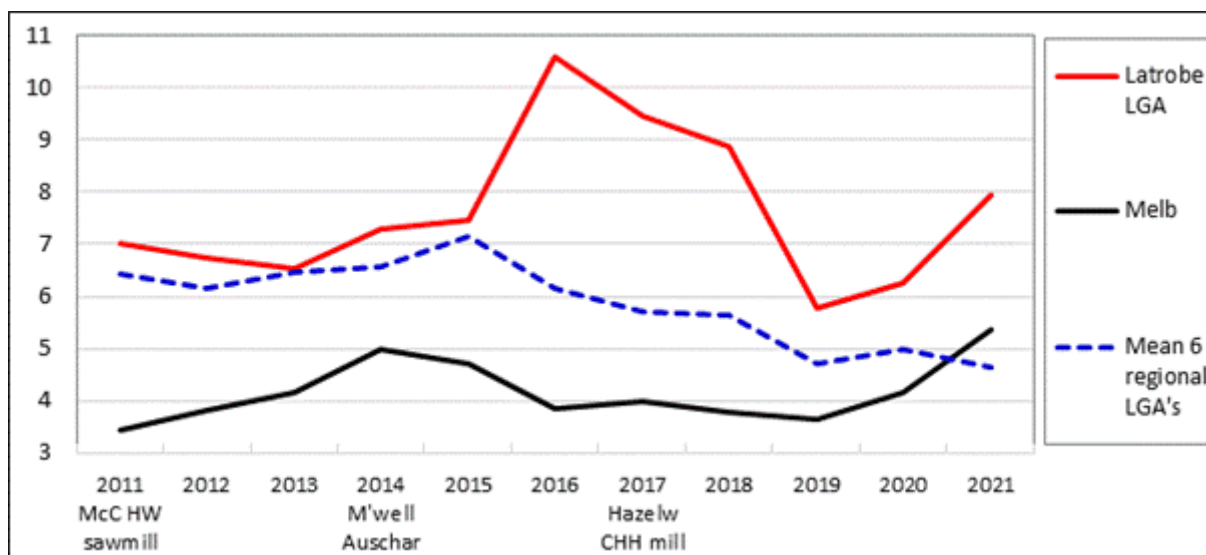
² J N Cameron (2021). Submission No 58 to LC EIC Inquiry into the Closure of the Hazelwood and Yallourn Power Stations. 16/12/21.

³ Aust Government (2022). Labour Market Portal 17/3/22. Annual data are means of four quarters (except for 2021 which is mean of three quarters). Six regional LGA’s are Ballarat, Bendigo, Geelong, Mildura, Shepparton and Wodonga.

2.2 Impact of power station and coal mine closure on unemployment in the Latrobe Valley

Over recent years the unemployment rate in Latrobe LGA has been almost twice that of six similar regional LGA's – Ballarat, Bendigo, Geelong, Mildura, Shepparton and Wodonga, and over the entire decade Latrobe unemployment has been almost twice that of Melbourne in percentage terms (%). Latrobe LGA unemployment was 7.8 per cent at December 2021 and approximately the fifth highest of 80 Victorian LGAs. The transitional arrangements failed to generate ongoing jobs and the current employment/unemployment outcome is detrimental to prosperity and contrary to a submission⁴ using earlier employment data.

Figure 2: Latrobe LGA unemployment rate compared to 6 regional LGA's and Melbourne (%)³



2.3 Latrobe Valley Authority

A core performance indicator for the LVA was to grow jobs in the region, however small area labour market figures cast a different scenario. Latrobe LGA has lost about 5,000 jobs over the last decade compared to average jobs growth of almost 10,000 each for six other regional LGAs.

The majority of the \$266 million funding was invested in 'one-off' job creation in construction phase only for liveability projects and the Authority's operational and administration costs. There was limited investment in projects that would establish new industries, expand existing industries or support on-going employment beyond 'construction phase' such as in increasing manufacturing or local health services.

The LVA has continued operating without program funding from the State Government since 1 July 2021.

During PAEC in December 2020 the former Minister for Regional Development, Hon Jaclyn Symes confirmed program funding for the Latrobe Valley Authority would expire at the end of June 2021.

MINISTER SYMES: *Currently the LVA's budget is secured for two years in this year's budget. So for LVA it is two years' staffing—programs are for one year.*

MINISTER SYMES: *In relation to the specific breakdown of funding referred to in your question, \$13.8 million is allocated to staff to June 2020, \$13.1 million to program delivery funds to June 2021⁵.*

The LVA staff funding has been extended for a further 12 months at a cost of \$7.5 million as Minister for Regional Development confirmed in April 2022.

"I've asked the Director of the Latrobe Valley Authority to prepare a transition plan for the community. The LVA will be funded for another year"⁶.

⁴ Wiseman, J et al (2021). Submission No 17 Attachment 3 to LC EIC Inquiry into the Closure of the Hazelwood and Yallourn Power Stations.

⁵ Friday, 18 December 2020 Public Accounts and Estimates Committee Page 3.

⁶ Minister for Regional development, Maryanne Thomas WIN Gippsland 20 Apr 2022.

Any referral to the worker transition scheme as having a ‘high’ success rate by the Committee Report ignores significant evidence. CFMMEU Victorian District Secretary Mr Geoff Dyke proved to be an insightful witness to the Economy and Infrastructure Committee Inquiry into the Closure of Hazelwood and Yallourn Power Stations⁷.

The other thing was the worker transition scheme that we trialled for Hazelwood. That was partially successful. We got 90 young employee’s jobs at the newer power stations and retired 90 workers. Our data suggests that we could have transferred up to 200 workers, or over 200 workers, and the scheme promised to transfer 150⁸.

Based on the LVA’s goal for the \$20 million Worker Transfer Scheme it only achieved 60 per cent of its key performance target⁹.

Unfortunately, the lessons have not been learnt if the failures of the LVA and the ongoing job losses in the Latrobe LGA are considered a success. It is certainly not a success for those workers and their families who have not been able to transition to local ongoing employment. The **Committee Report Recommendation 8** needs to be substantially strengthened with the following addition:

- This funding should be invested in projects that deliver sustainable on-going jobs beyond the construction phase.
- Potential examples include renewable energy projects, pumped hydro projects, hydrogen from lignin, Energy from Waste projects such as Opal’s Maryvale Mill (supported by a Commonwealth Government), further value-added manufacturing of Gippsland agricultural and forest products.

2.4 Future closure of Yallourn and Loy Yang power stations and coal mines

The Victorian Parliament’s Economy and Infrastructure Committee - *Inquiry into the Closure of Hazelwood and Yallourn Power Stations*, heard evidence that a predicted exit date for coal fired power generation in Victoria by 2032 is unlikely and bringing forward a closure date for Loy Yang A of 2040-2045 would be challenging.

“I think 2032, is too soon to have that orderly transition. They will become jeopardised, the three key areas, as we decarbonise: affordability, sustainability and the most important, security of supply”¹⁰

Mr Steve Rieniets, Group General Manager, Operations, AGL Loy Yang.

2.5 Replacing Yallourn and Loy Yang Power Stations with renewables involves a huge investment

The Committee report cited transcript excerpts of Dr Dylan McConnell a Research Fellow at the Energy Transition Hub, University of Melbourne.

I guess, just drawing out some interesting findings in the context of this inquiry from that, what that means in terms of investment is there are some pretty big numbers. There (sic), just looking at wind, solar and storage, we are talking about investment in the state of Victoria in the vicinity of \$10 billion out to 2030 or, in that sort of expanded scenario where we decarbonise faster, close to \$18 billion. I should say this is investment only in wind, solar and storage, including rooftop PV¹¹.

It is important to explain to Victorians how many gigawatts of ‘effective capacity’ will be delivered from the theorised \$10 to \$18 billion cost of investment required to transition to renewable energy.

⁷ Mr Geoff Dyke, Economy and Infrastructure Committee Inquiry into the Closure of Hazelwood and Yallourn Power Stations, Victorian District Secretary, CFMMEU

⁸ Mr Geoff Dyke, Victorian District Secretary, CFMMEU 24th November 2021

⁹ https://lva.vic.gov.au/news/community-report-released-today/12770-DJPR-RRV-LVA-community-report_v7a-web-ready2.pdf

¹⁰ *Inquiry into the Closure of Hazelwood and Yallourn Power Stations* Transcript: 3 March 2022 Steve Rieniets, Group General Manager, Operations, AGL Loy Yang-

¹¹ Dr Dylan McConnell, Research Fellow, Energy Transition Hub, University of Melbourne, transcript of evidence, 17 March, p.14.

This was not addressed in the Committee Report. The example below suggests that \$10 to \$18 billion investment is insufficient.

The 53 MW ‘notional rated capacity’ solar plant at Broken Hill was built at a capital cost of \$167 million including a \$65 million government subsidy.

It has only 5 to 6 MW of available power given inefficiencies. The capital cost of for example, 264 similar sized solar plants to replace Yallourn’s 1,450 MW could approximately \$43 billion¹². Dr Dylan McConnell appears to have grossly understated the investment in renewables required to replace Latrobe Valley’s coal fired electricity generation.

2.6 Transitioning to renewables based optimising local content, recycling & transmission

Closing coal fired power stations two to three times faster than anticipated may have unforeseen consequences if the transition to renewables proceeds before sufficient transmission infrastructure and local adequate manufacturing are in place and before appropriate mechanisms for recycling of components are established.

Currently Solar and Wind generation rely heavily on imported components, and there is a need to develop a local manufacturing base as renewables expand. There is also a risk of discarded components inappropriately going to landfill, until dedicated recycling is in place.

Australia’s path to renewables is challenged by the high costs of components for renewables due to high electricity and manufacturing costs and lack of domestic manufacturing capability.

Australia is largely reliant on imported components for renewable energy. Currently, only 11 per cent of the renewable energy supply chain is manufactured in Australia (**Table 1**).

Table 1: Employment in manufacturing, construction and operation of renewable energy¹³

Energy source	Manufacturing Overseas (Job-Year/MW)	Manufacturing Australia (Job-Year/MW)	Construction (Job-Year/MW)	Operation & Maintenance (Job-Year/MW)	Manufacturing in Australia (%)
Wind	1.3	0.4	2.8	0.2	24%
Utility Solar	4.3	0.1	2.3	0.1	2%
Rooftop PV Solar	4.2	0.2	5.8	0.2	5%
Utility batteries	6.3	0.3	4.7	1.2	5%
Distributed batteries	6.3	0.3	5.6	0.3	5%
Hydro	2.8	0.7	7.4	0.1	20%
Pumped Hydro	2.8	0.7	11.1	0.2	20%
Mean					11%

¹² Cameron, J N (2022). LC EIC Inquiry into the Closure of the Hazelwood and Yallourn Power Stations Submission 58 - Attachment 2

¹³ Clean Energy Council (2021). Submission No 80 to LC EPC Enquiry into Renewable Energy in Victoria. Dec 2021.

2.7 Latrobe Valley infrastructure and opportunities missed by the Andrews Government’s Renewables Directions Paper

Latrobe City Council made the following points in its submission¹⁴:

Latrobe Valley has significant energy production and distribution industries and infrastructure, including an electricity grid with connections to Tasmania, South Australia and New South Wales. These assets provide Latrobe LGA with significant opportunities to attract alternative and new energy technology investments, leveraging the existing infrastructure, extensive skill base and engineering capabilities of the region.

This places Latrobe LGA at an advantage as an ideal location to generate and transmit large-scale renewable energy, supported by its abundant natural resources.

Governments at all levels can capitalise on existing transmission infrastructure by working with local communities on the siting of suitable renewable energy projects in Latrobe LGA subject to appropriate siting and social licence.

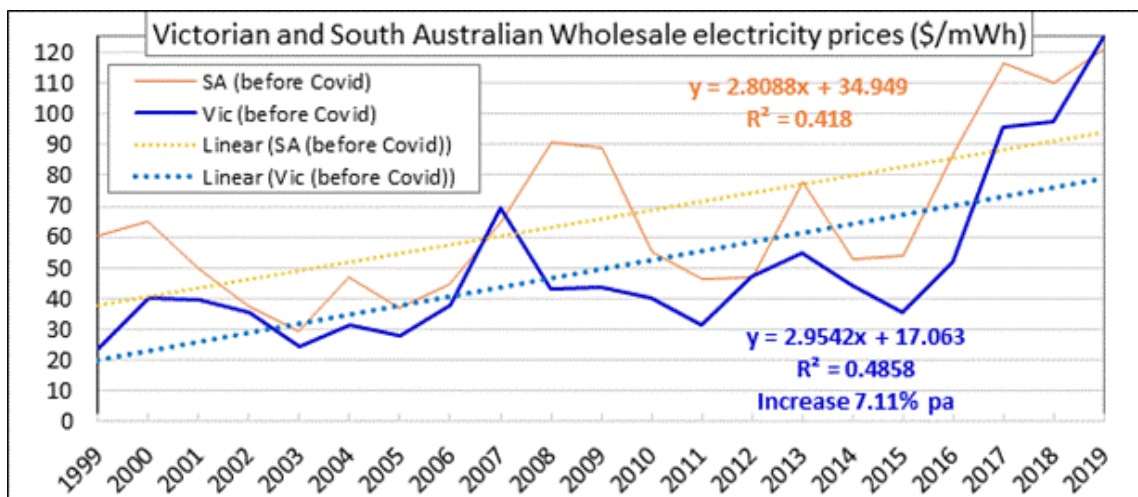
Despite this significant existing and proven infrastructure, The State Government’s recent Renewable Energy Zone’s Directions paper identifies only one project for Gippsland, which connects projects further west of the Latrobe LGA into the existing infrastructure network. This project is identified as part of the Stage 2 projects.

Therefore, the Directions Paper indicates a failure to capitalise on the existing grid network of the Latrobe Valley and the skilled workforce that currently exists here? It also failed to encourage suitable renewable projects and battery storage projects in the Latrobe City municipality and we question is enough being done to inform, consult and involve the community so that social licence is achieved. This is a missed opportunity!

3. Victorian Energy Prices

During the transition from coal fired power to renewables in Victoria and South Australia market electricity prices have increased. Victorian wholesale electricity prices have increased by 7.1 per cent pa compound over the last 20 years exacerbated by the closure of the Hazelwood Power Station in 2017 (**Figure 3**). High retail prices for electricity are causing cost of living pressures for Victorians. High electricity prices have also contributed to a decline in Australian manufacturing.

Figure 3: Victorian electricity prices in US\$ per mega Watt hour¹⁵



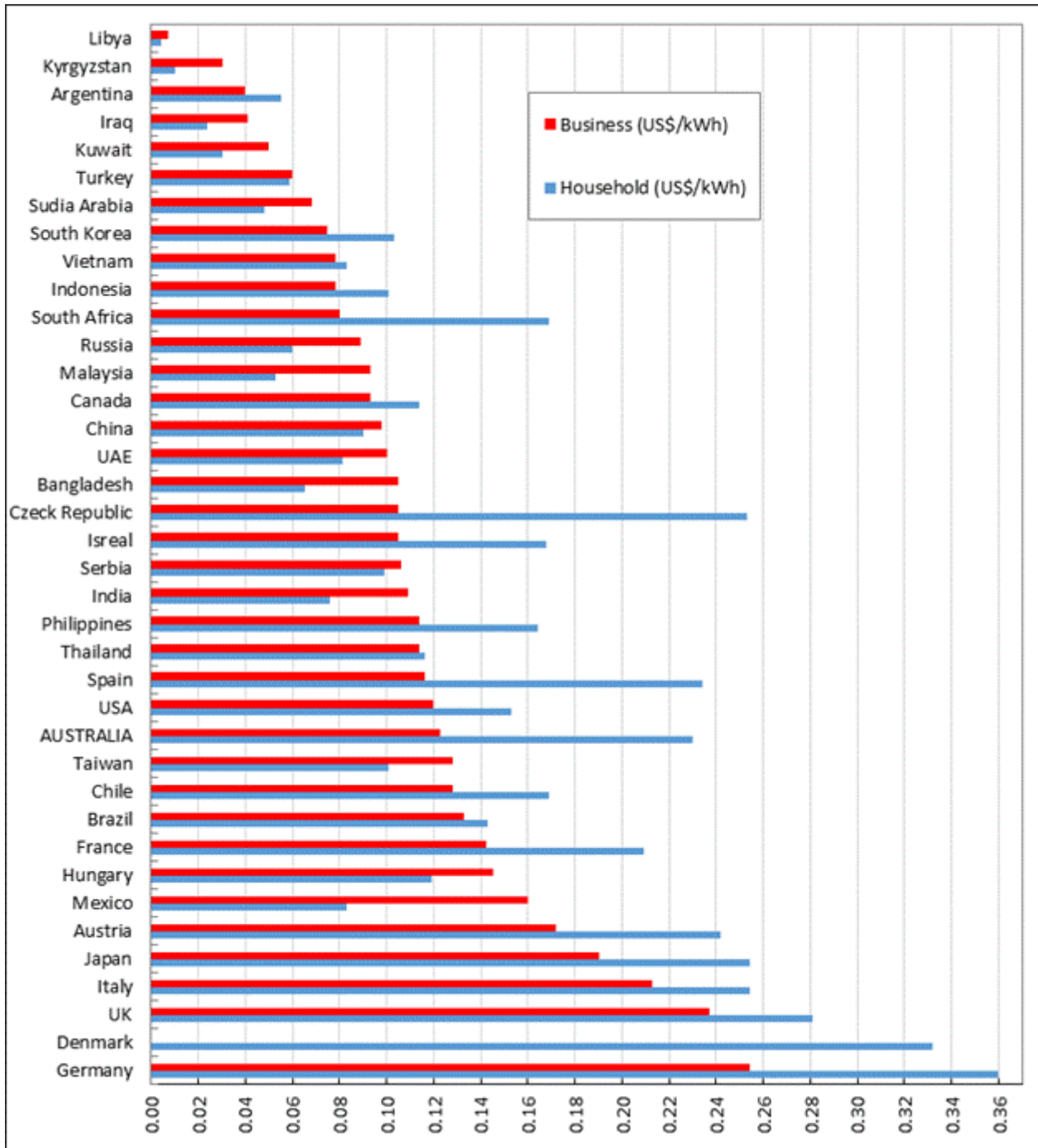
¹⁴ Latrobe City (2021) EPC Inquiry into Renewable Energy Latrobe City Council, Submission 14.

¹⁵ Australian Energy Regulator.

4. Australian and Global energy prices

Australian electricity prices to business are in the third quartile of international electricity costs, making it extremely difficult for Australian businesses to compete on international markets and compete domestically against imports, particularly those made in Asia with the aid of cheap coal and gas fired power (**Figure 4**). Germany has outsourced a large percentage its manufacturing to Eastern European countries because of high power costs (Following Russia's invasion of Ukraine, German and most European power costs will get considerably more expensive).

Figure 4: Business and household electricity prices in US\$ per kilowatt hour in June 2021¹⁶



¹⁶ GlobalPetrolPrices.com

5. Commonwealth Government Initiatives

The Committee Report fails to acknowledge the significant action taken by the Commonwealth Government.

There has been and continues to be significant action and investment at the Commonwealth Government level.

5.1 Commonwealth Long Term Emissions Reduction Plan

The Australian Governments whole-of-economy Long-Term Emissions Reduction Plan¹⁷ (the Plan) sets out how Australia will achieve net zero emissions by 2050 based on five key principles:

- **Technology not taxes** – no new costs for households or businesses.
- **Expand choices, not mandates** – expand consumer choice.
- **Drive down the cost of a range of new energy technologies** – bringing a portfolio of technologies.
- **Keep energy prices down with affordable and reliable power** – consolidate our advantage in affordable and reliable energy, protect competitiveness of our industries and the jobs they support.
- **Be accountable for progress** – set ambitious yet achievable whole-of-economy goals, then beat them, consistent with our approach to our Kyoto-era and Paris Agreement targets.

Modelling suggests the Plan will create more than 100,000 new jobs, including critical minerals, clean hydrogen, renewable energy, green steel and alumina, many in Australia's regions. Australia's export-oriented sectors are projected to grow significantly in aggregate, with the value of Australian exports to more than tripling between 2020 and 2050.

Australia reduced its emissions by 20 per cent between 2005 and 2020. The technologies prioritised through Australia's Technology Investment Roadmap are to deliver another 40 per cent reduction (approximately half the emissions reductions needed to achieve net zero emissions by 2050). The technologies are:

- Clean hydrogen
- Ultra low-cost solar
- Energy storage for firming
- Low emissions steel
- Low emissions aluminium
- Carbon capture and storage
- Soil carbon

Another 15 per cent is expected to be delivered by global technology trends, a further 10 per cent (to 20 per cent) by international and domestic offsets and the remaining 15 per cent by further technology breakthroughs.

5.2 Commonwealth Regulation and Legislation

Commonwealth legislation and regulation underpins the Commonwealth Long-Term Emissions Reduction Plan and it is administered through the Clean Energy Council.

The Clean Energy Regulator is the independent body responsible for administering legislation that will reduce carbon emissions and increase the use of clean energy.

The Clean Energy Regulator was established on 2 April 2012 as an independent statutory authority under the Clean Energy Regulator Act 2011 and operates as part of the Department of Industry, Science, Energy and Resources portfolio¹⁸.

The role of the Clean Energy Regulator is determined by climate change law.

¹⁷ Australian Government (2021). Australia's long term emissions reduction plan - A whole-of-economy Plan to achieve net zero emissions by 2050.

¹⁸ <http://www.cleanenergyregulator.gov.au/About/About-the-Clean-Energy-Regulator>

Renewable Energy Target legislation

- Renewable Energy (Electricity) Act 2000
- Renewable Energy (Electricity) Amendment Act 2015
- Renewable Energy (Electricity) (Large-scale Generation Shortfall Charge) Act 2000
- Renewable Energy (Electricity) (Small-scale Technology Shortfall Charge) Act 2010
- Renewable Energy (Electricity) Regulations 2001
- Renewable Energy (Method for Solar Water Heaters) Determination 2016
- Renewable Energy (Electricity) Amendment (Transitional Provision) Regulations 2010
- Renewable Energy (Electricity) Amendment (Transitional Provisions) Regulations 2009
- Renewable Energy (Electricity) Amendment (Solar Zones and Other Measures) Regulations 2014

Emissions Reduction Fund legislation

- Carbon Credits (Carbon Farming Initiative) Act 2011
- Carbon Credits (Carbon Farming Initiative) Regulations 2011
- Carbon Credits (Carbon Farming Initiative) Rule 2015
- Carbon Credits (Carbon Farming Initiative) Amendment Regulation 2013 (No. 1)
- Carbon Credits (Carbon Farming Initiative) Amendment Rule 2019 (No. 1)

National Greenhouse and Energy Reporting Scheme legislation

- *National Greenhouse and Energy Reporting Act 2007*
- National Greenhouse and Energy Reporting Regulations 2008
- National Greenhouse and Energy Reporting (Measurement) Determination 2008
- National Greenhouse and Energy Reporting (Audit) Determination 2009
- National Greenhouse and Energy Reporting (Auditor Registration) Instrument 2019
- National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015

Australian National Registry of Emissions Units (ANREU) legislation

- *Australian National Registry of Emissions Units Act 2011*
- Australian National Registry of Emissions Units Regulations 2011

6. Renewable energy options

Renewable energy is energy that has been derived from earth's natural resources that are not finite or exhaustible, such as wind and sunlight. Renewable energy is an alternative to the traditional energy that relies on fossil fuels, and it is considered to be less harmful to the environment. However, as indicated in our Minority Report, 'cradle-to-grave' analysis suggests that is not necessarily the case in every instance.

6.1 Wind powered electricity

Land based wind turbines

Local community groups have raised significant concerns with land-based windfarms. Strzelecki Community Alliance (SCA) is an incorporated Entity of over 1000 community members who live or hold property in the Yinnar, Boolarra, Hernes Oak, Mirboo North area of Gippsland. SCA opposes a proposed 33 wind turbine Delburn development, citing several valid concerns, including, concerns of an inability to adequately mitigate bushfire risk on Hancock Victoria Plantation land situated underneath the wind turbines.

A submission to the Delburn Wind Farm Planning Report highlights a significant bush fire risk.

The CFA submitted the planning permit conditions proposed by FRC such as access tracks are only likely to be effective on Fire Danger Rating days of Low to Moderate and High. It said the Project is likely to be impacted at some stage by uncontrollable landscape bushfires; fires that cannot be managed by site-based mitigation or of broader emergency management. It said "damage and destruction of assets by bushfire is likely if the proposal proceeds"¹⁹.

Another submission to the same inquiry by bushfire scientist, David Packham OAM, indicated that there is a significant risk of the wind turbines being the source of ignition for bushfires, citing examples of turbines catching fire.

The Minister for Planning has provided approval for the development and the Strzelecki Community Alliance has requested a halt to proceedings.

Minority Report Recommendation 2: That the Victorian Government adequately addresses community concerns in relation to wind farm technologies prior to any new land-based developments being approved.

Offshore Windfarms - Star of the South

Offshore wind farms are becoming increasingly common overseas with projects established in Europe, the United Kingdom and China. Despite having significant and persistent winds along our ample coastline, the take up of the technology in Australia has been relatively slow.

The Liberals and Nationals members are supportive of offshore wind farms, including the development of Australia's first offshore wind project - the Star of the South project, which is being developed off South Gippsland's coastline.

It has the potential to power nearly 20 per cent of Victoria's electricity needs while creating thousands of jobs and long-term investment in the Gippsland region. The project is currently in the environmental assessment phase and aims to start construction in the middle of the decade, generating full power by 2030 (subject to financial investment decision)²⁰.

To facilitate the regulation and oversight of new offshore wind technologies, the Commonwealth Government has implemented the Offshore Electricity Infrastructure Act 2021 which will come into effect by June 2022²¹.

¹⁹ https://www.planning.vic.gov.au/_data/assets/pdf_file/0030/564852/Delburn-Wind-Farm-Panel-Report-.pdf page 117.

²⁰ Star of the South Inquiry into the Closure of hazelwood and Yallourn Power Station, Submission 49, 2021

²¹ Offshore Electricity Infrastructure Act 2021, Commonwealth Parliament.

6.2 Solar Energy

The Liberals and Nationals members support sustainable transition to solar energy in concert with end-of-life recycling of solar panels.

Minority Report Recommendation 3: That the Victorian Government introduce bonds (similar to retiring coal fired power station bonds) for large-scale solar energy facilities to ensure sufficient funds are available for site rehabilitation.

6.3 Battery Storage

Battery manufacturing has a significant environmental (including emissions) footprint, due to extraction of lithium, cobalt, nickel and other minerals for the batteries. Victoria needs to develop domestic manufacturing capabilities and dedicated facilities to recycle spent batteries, in appropriate locations away from human settlement.

Battery storage technology is not without other risks. A 300 MW Tesla lithium battery near Geelong caught fire in July 2021. The fire broke out during testing of a Tesla megapack at the Victorian Big Battery site. A 13-tonne lithium battery was engulfed in flames, which then spread to an adjacent battery bank²².

6.4 Electric Cars

The Liberals and Nationals members support and endorse an orderly uptake of electric vehicles.

The Committee Report recommends a cut-off date for sales of new internal combustion engine vehicles. The Liberals and Nationals members consider that as new technology becomes available ie. electric vehicles (EVs) consumers will change their purchasing patterns without a government mandate.

It is necessary to ensure that in transitioning to powering transport with renewables that those having to travel long distances are not disadvantaged by that transition.

7. Renewable Energy options that warrant greater consideration

The Liberals and Nationals members support appraisal of other renewable energy options.

7.1 Hydro Electricity

Hydroelectric power is versatile and can be generated using both large scale projects, like the Snowy River Scheme, and small-scale projects like underwater turbines and dams on small rivers and streams. Production of Hydroelectric power does not generate atmospheric emissions, however, construction of the dams and equipment and their maintenance results in some atmospheric emissions and some environmental challenges.

7.2 Potential for Pumped Hydro Electricity Storage

There is a need for greater Victorian Government support for new investment in deep storage by pumped hydro given the limited operational performance of battery storage (shallow storage) and potential adverse socioeconomic and environmental risks associated with battery storage.

In his testimony to the Inquiry, Australian National University, Professor Blakers paints a sufficiently bright future for deep storage by pumped hydro. What is lacking in the Committee Report is further interest in interrogating indicative analysis of the financial feasibility of some of the potential options. A detailed comparison of the operating cost-effectiveness and socioeconomic and environmental risks and benefits of pumped hydro vs battery storage is required. The Victorian Government appears to be supporting storage using imported batteries, without a dedicated facility to recycle the spent large-scale batteries.

²² <https://www.abc.net.au/news/2021-09-28/fire-at-tesla-giant-battery-project-near-geelong-investigation/100496688>

Pumped hydro has the potential for greater local content and lower environmental risks than batteries.

Victoria has excellent natural resources for pumped hydro including two pairs of existing reservoirs and 4000 other good sites. Modelling by Hydro Tasmania showed delivering 750MW of firming power was 15 to 35 per cent cheaper than other options available. This indicates the need for greater Victorian Government support for new investment in deep storage by pumped hydro, given poorer operational performance (shallow storage) and adverse socioeconomic and environmental risks associated with battery storage.

Minority Report Recommendation 4: That the Victorian Government undertakes an analysis of the operating cost-effectiveness and socioeconomic and environmental impacts of battery storage compared to pumped hydro.

7.3 Energy from Waste (EfW)

The 2019 Environment and Planning Inquiry Report into Recycling and Waste Management recommended:

“That the Victorian Government implement energy from waste technologies in Victoria, in conjunction with a future circular economy policy, as an alternative to landfill for residual waste.”²³

The Liberals and Nationals have committed to a policy to end household waste going to landfill by 2035 in Victoria²⁴.

The Maryvale EfW project is aligned with the principles of the circular economy and will bring state-of-the-art alternative energy technology to Gippsland. It will offer local and metropolitan councils and commercial customers a competitive waste management solution that will divert waste from landfill, reduce emissions and deliver a range of social benefits²⁵.

The Commonwealth Government in April 2022 provided \$48.2 million in the form of a grant to assist an Opal Australian Paper consortium to build an \$500 million EfW plant at its Maryvale Mill.

Energy from Waste will become increasingly important with Opal’s Maryvale Mill offering one project. Other projects including work by a group of South Eastern Metropolitan councils also align with these objectives in offering viable projects.

7.4 Hydrogen

Hydrogen is classified as ‘Blue’ or ‘Green’ hydrogen with the terminology related to the energy source used:

- **Blue hydrogen** – refers to Hydrogen produced via fossil fuels, with the use of carbon capture and storage technology.
- **Green hydrogen** – refers to Hydrogen produced from electricity derived from renewable sources like wind and solar via the process of electrolysis.

The Committee Report is not particularly supportive of hydrogen energy despite the availability of significant suitable lignite raw material resource, complimentary infrastructure and nearby sites for carbon capture and storage.

Hydrogen occurs naturally in compound form with other elements in liquids, gases, or solids. Hydrogen combined with oxygen is water. Hydrogen combined with carbon forms different hydrocarbons found in natural gas, coal, and petroleum. When hydrogen is separated, it can be used for both fuel and electricity. Hydrogen can be used as a clean burning fuel, which leads to less pollution and a cleaner environment. It can also be used for fuel cells which are similar to batteries and can be used for powering an electric motor. The energy used to produce the hydrogen involves atmospheric emissions. Scope exists in Gippsland to limit the emissions of blue hydrogen through carbon capture and storage and bio sequestration.

²³ Environment and Planning Inquiry into Recycling and Waste Management, Recommendation 37, 2019, p 183

²⁴ <https://vic.nationals.org.au/media-releases/war-on-waste-liberal-nationals-commit-to-zero-waste-to-landfill-by-2035/>

²⁵ <https://opalan.com/app/uploads/2022/04/Maryvale-Energy-from-Waste-project-recipient-of-MMI-48.2M-grant.pdf>

Australian Carbon Innovation (ACI) is an independent, not-for-profit company with the mission to develop technologies and people to broaden the use of lignite sustainably. ACI is confident of a bright future for Victorian lignite even in the context of net zero greenhouse gas (GHG) emissions. There are potential technologies that produce little or no CO₂ while adding value to lignite. Where upgraded products do have a CO₂ footprint, Victoria has nearby enough geological CO₂ storage capacity to last for hundreds of years. The key is to convert the 33 billion tonnes of recoverable lignite representing 6 billion tonnes of low-cost clean carbon into high value products. It is a unique local resource not exposed to global commodity trading. Value adding must be done locally as it is not economic to ship the raw product. This means that high value, skilled, highly paid, interesting, hi-tech jobs in the region and state²⁶.

The Hydrogen Energy Supply Chain Project (HESC) has received financial support from the Commonwealth and Victorian Government, each contributing \$50 million to the \$500 million project.

A world-first demonstration of an international hydrogen energy supply chain was completed earlier this year.

HESC operations in the Latrobe Valley, is an important beginning for Australia's hydrogen industry. The HESC project produced hydrogen using coal from Victoria's Latrobe Valley, with the liquefied hydrogen exported to Kobe in Japan.

This world-leading project is an important step in developing Australia's hydrogen industry, which is estimated could generate more than 8,000 jobs, many in regional Australia, and over \$11 billion a year in GDP by 2050.

The HESC operations are part of a significant joint collaboration between industry and the Australian, Victorian and Japanese governments²⁷.

The Liberals and Nationals members acknowledge the potential to integrate hydrogen fuel and energy sourced initially from blue hydrogen production transitioning to green hydrogen as it becomes available.

Other consortia presented their vision for a green hydrogen economy in a submission to the Economy and Infrastructure Committee Closure of Hazelwood and Yallourn Power Station Inquiry.

Gippsland Circular Economy Precinct (GCEP) Pty. Ltd., a collaboration between Gippsland businesses Marathon Electrical, Ferguson Civil, Solis RE and Nexsys Industries Consulting, has been established to drive and lead the development of the green hydrogen economy in Gippsland.

GCEP and our consortium partners are driving and facilitating industry investment in jobs and manufacturing capability in renewable energy. Green hydrogen and technology will lead to decarbonisation and emission reductions²⁸.

7.5 Wave Energy

Wave energy is renewable and abundant and also more predictable and consistent than solar and wind energy yet has been largely ignored in the Committee Report and has received little government support. Most populated cities tend to be near oceans and harbors, making it easier to harness this energy for the local population. Production of wave energy does not generate atmospheric emissions; however, construction and maintenance of the equipment results in some emissions and environmental challenges. Large machinery needs to be built nearby to help capture this form of energy, which can cause some mostly temporary disruptions to the ocean floor and the sea life that inhabits it. Rough weather produces lower energy output when compared to normal waves without stormy weather.

²⁶ Australian Carbon Innovations ACI (2021). Submission No 17 Attachment 1 to LC EIC Inquiry into the Closure of the Hazelwood and Yallourn Power Stations.

²⁷ <https://www.minister.industry.gov.au/ministers/pitt/media-releases/australias-hydrogen-industry-celebrates-production-milestone>

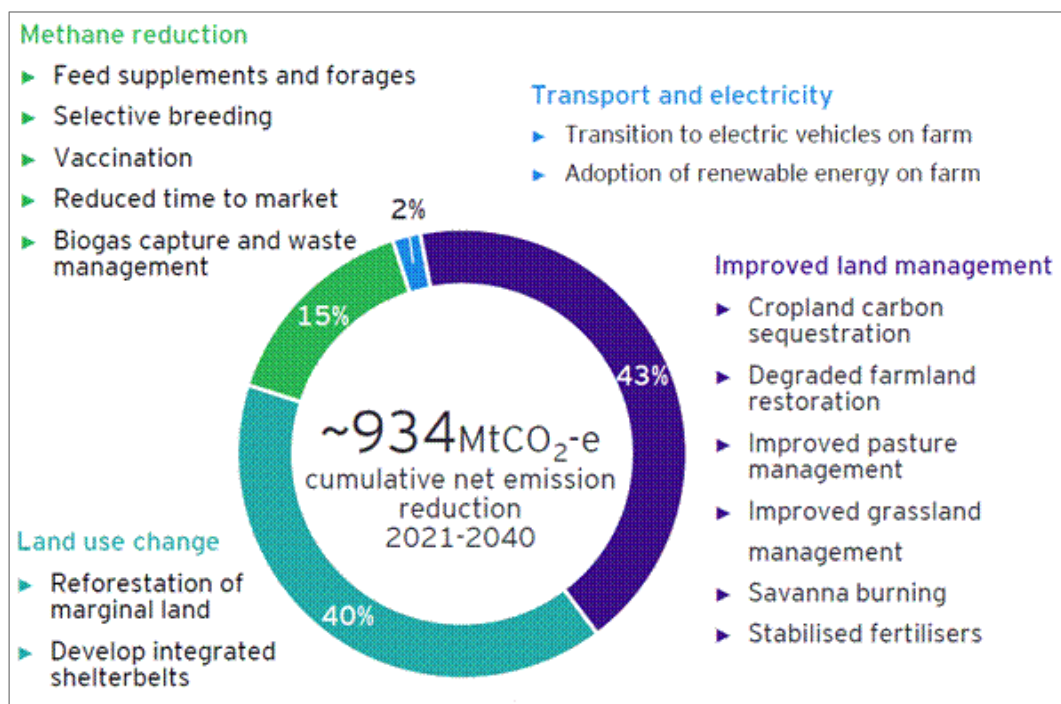
²⁸ Gippsland Circular Economy Precinct, Economy and Infrastructure Committee CHYPS Inquiry, Submission 44.

8. Reduced emissions through agricultural and industrial efficiencies

The Committee Report overlooked the considerable progress made through improving efficiency of energy use aided by Commonwealth Government assistance.

The Liberals and Nationals members acknowledge the Australian agricultural sector has made significant commitments to reduce carbon emissions, for example, the Australian red meat and livestock industry has set the ambitious target to be Carbon Neutral by 2030 (CN30)²⁹.

Figure 5: Farmers for Climate Action - Emissions Reductions³⁰



Australian farmers are significantly reducing CO₂ emissions through the introduction of new technologies and land use practises aided by producer levies and Commonwealth Government assistance that is substantially cheaper than government subsidies for renewable energy. As science evolves, our agriculture sector will play a key role in progressing to net zero as we learn and adapt to store carbon on our primary producer's soil.

Emissions reductions through agricultural and industrial efficiencies will be important in assisting to achieve Victoria's announced objective of 50% emission reductions by 2030.

9. Conclusion

The Victorian Liberals and Nationals members are committed to the attainment of net zero emissions by 2050, which is why this Minority Report has been submitted to help guide this achievement.

²⁹ <https://www.mla.com.au/research-and-development/Environment-sustainability/carbon-neutral-2030-rd/cn30/>

³⁰ Farmers for Climate Action Report, 13 September 2021 Ernst & Young Australia.