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Gippsland Future Directions Strategy – An Action-Based Plan



Regional
Development
Australia

GIPPSLAND



Committee for
GIPPSLAND

Prepared for the RDA Gippsland
and
Committee for Gippsland (C4G)

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1. The Overview

This Gippsland Future Directions Strategy (GFDS) sets out Strategic Imperatives and Key Actions to guide efforts by the Committee for Gippsland (C4G), in collaboration with its partners and stakeholders, to increase the resilience and diversity of the Gippsland economy and to prepare it for the future.

The GFDS is founded on a number of key aspects and principles. The first of these is C4G's objectives and vision. These were set out in May 2020. In brief, the first objective stipulated by C4G was:

To identify how Gippsland can be a thriving investment environment for growth, new and emerging opportunities diversifying our regional economy to secure long-term sustainability.

The second was to ensure that the GFDS is consistent with and supportive of the RDA's Gippsland Regional Plan strategy.

The third was to consider but not duplicate the extensive previous analytical reviews undertaken regarding the Gippsland economy and its ongoing structural adjustment.

The fourth was to consider the results of previous economic baseline work, including that completed by GHD as a precursor to, and part of, completion of this GFDS.

The fifth was to consider the results of the assessment by GHD of Gippsland's competitive and comparative advantages and the implications of global mega trends as they may relate to the Gippsland economy.

The sixth and final guiding principle was to ensure that consequential recommendations presented to C4G were action-oriented and consistent with C4G's ability to influence outcomes.

2. Introduction

The GFDS sets out potential future opportunities in a number of priority areas. In turn, the GFDS then sets out Strategic Imperatives and Key Actions associated with each Priority Area that can be taken by C4G. The Key Actions are identified based on an assessed ability of C4G and its partners to influence and deliver practical outcomes using available resources and operating constraints. Thus, our focus is on actionability and considering barriers to seizing the opportunities identified. There are a range of subordinate actions beneath the Key Actions within each Priority Area.

The GFDS is informed by GHD's diagnostic work to assess areas of comparative and competitive advantage, as well as by desktop research to understand Gippsland's economic and social assets, and the perspective of existing studies. The GFDS required a sequential approach – understanding past diagnostic work, understanding assessed competitive and comparative advantage, identification of future opportunities, understanding of policy and regulatory barriers to progression of those opportunities, distillation of realistic priorities for C4G action, and clarification of the delivery options available to C4G.

Appendix 1 provides an overview of key economic features and assets of Gippsland based on desktop research.

Appendix 2 briefly outlines some key principles for regional economic development.

Appendix 3 GHD – An economic context summary of findings

This report does not seek to regurgitate the extensive prior analysis that has occurred over the last several years on Gippsland and its economy and the transitional and structural challenges it faces.

Rather, it seeks, including by incorporating GHD’s companion diagnostic work, to recommend what to do in response to these conclusions.

The overriding approach to the Key Actions is a focus on practicality – what can be delivered with available internal resources or leveraged external resources and what are the barrier to achieving the diversification and future-proofing of the economy, identified as the overarching objective of C4G.

3. Gippsland Future Opportunities

The GFDS brings together assessments of Gippsland’s competitive and comparative advantage, economic baseline work, a stocktake of relevant state and federal policy priorities, including fast-moving policy changes/opportunities in relation to Covid-19, and goes on to distil an initial seven Priority Areas, each with an overarching Strategic Imperative and practical actions for C4G. Additional attention is likely to be focused on specific Covid-19 programmatic responses.

The initial seven Priority Areas for Gippsland Future Opportunities identified are:

Priority Areas	
1	Renewable and Cleaner Energy
2	New Economy Manufacturing
3	Education and Training
4	Health Care and Aged Care Services
5	Advanced Food and Fibre Production
6	Land Use Optimization
7	Digital and Tourism Connectivity

In addition, an initial three cross-cutting strategic imperatives have been identified. These are opportunities that would benefit achievement of actions in multiple priority areas. Further cross-cutting strategic imperatives are likely to be adopted over time, including in relation to building on Gippsland’s traditional strengths as well as supporting industry research innovation.

Cross-cutting Strategic Imperatives	
1	To grow local leadership capacities and strengthen collective efforts to build a collaborative whole-of-Gippsland approach to deliver Gippsland's future directions agenda
2	To build a collective focus on a practical response to Covid-19 and maximize the Gippsland economy's resilience and optimize its positioning
3	To constantly work to leverage off Gippsland's traditional strengths to successfully transition to a diversified, resilient and sustainable region

4. Competitive and Comparative Advantage Assessment

This report builds on the companion report (prepared by GHD) on the Gippsland region’s competitive and comparative advantages, which consider the relative strengths and inherent advantages of

Gippsland. The seven Priority Areas that we identify draw on this assessment. In addition, we have reviewed previous assessments of competitive and comparative advantage (see Appendix 3).

GHD considered that the natural amenity and liveability of Gippsland, including its environment and proximity to Melbourne, was a key source of both competitive and comparative advantage. Other areas highlighted included energy, given the highly developed infrastructure connections and potential for renewable and cleaner energy; and agriculture, given the high-value resources of quality soil, climate and water supply, although GHD noted the need to shift to higher-value products. A summary of GHD's discussion on competitive and comparative advantage is provided in Box 1 below.

Box 1: The GHD Report - Competitive and Comparative Advantage in Gippsland

GHD highlighted that Gippsland's many natural assets give it a competitive advantage in agriculture, mining, energy production, tourism, high amenity living and commercial fishing. Some of these activities result in greater wealth creation, identifying them as areas of comparative advantage for Gippsland. They noted that the highest value activity is the development of the coal resources, but this activity will be restricted due to carbon emissions and other environmental policies. Oil and gas are the second largest value producer and has already established in the region, however, the bulk of the benefits of this activity are taken by the State Government in royalties and the offshore companies.

Natural amenity / liveability and tourism GHD emphasised that the natural amenity of Gippsland with a beautiful coastline, mountain range, and forested areas results in a large untapped comparative advantage in attracting people to live in the region and to expand the tourism sector. Key factors constraining these areas of economic activity are the land constraints, development approvals that are highly restrictive, and poor local infrastructure (transport, telecommunications, tourism). Gippsland could become a large satellite city to Melbourne due to the close proximity and high amenity of the location. The GHD report also identified that the mega trends driving economies worldwide need to be taken into account. In particular, economies are increasingly driven by the possession of **human capital** that is highly mobile, requires good telecommunications, can work from home, and works in multiple global industries. High-value intellectual capital people seek high amenity locations to live where they can still access a big city and airport when needed. They will often work from home or small offices where they are a small part of a global team. Low cost/high quality housing near high amenity locations with good community assets and other infrastructure will attract these people. Gippsland has potential to be one of these places given it is close to Melbourne and is a high amenity place.

Energy will likely continue to be a high-value product out of Gippsland for a very long time given it holds a quarter of the world's brown coal and has high renewable energy potential. Gippsland's highly developed energy infrastructure connections into the national electricity and gas networks will be a driver of new energy for the foreseeable future.

Agriculture will likely continue to be a major part of the Gippsland economy given its large high-value resources of quality soil and water supply. Agriculture (including dairy and forestry) is a relatively low value product and is likely to become a lower proportion of the total economic output of the region. However, increasing demand from China and other Asian markets, and the success of other NZ's Fonterra point to opportunities in this area.

The seven priority areas build on our review of the GHD work, and identify practical actions associated with each.

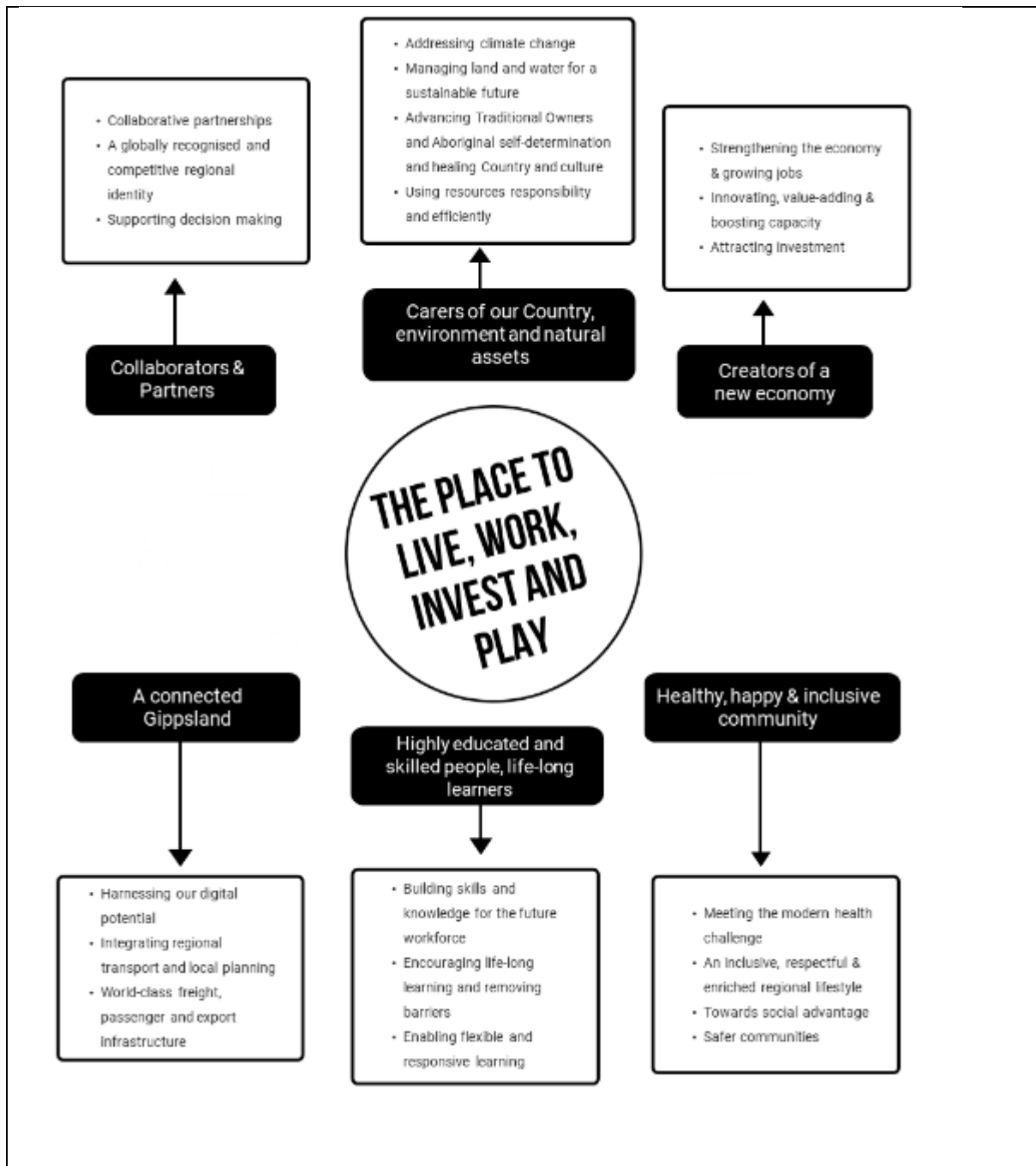
5. The Gippsland Regional Plan

The development of the Gippsland Regional Plan, the long-term strategic vision for Gippsland, has occurred as a parallel but separate process to this report. A key objective for C4G was to ensure that the GFDS is consistent with and supportive of the RDA's Gippsland Regional Plan strategy.

The GRP identifies five-year priority actions for Gippsland and has involved a comprehensive stakeholder consultation process, to consider the views and knowledge of the regional stakeholders. Although the GRP has been developed separately from this report and the GHD report, there are many areas of agreement and alignment.

The GRP identified that Gippsland's strengths are: 1. endowed with natural advantages (environmental and natural resources); 2. fertile land and reliable high quality water; 3. a powerhouse energy producer; 4. affordability and a quality lifestyle; 5. above average forecast population growth; 6. open for business - supported by Government; 7. strong engineering and manufacturing base; 8. well connected to Melbourne and beyond. Based on this assessment of strengths, the GRP identifies six key strategic themes for the Gippsland (see Box 2). The emphasis on the need for education/human capital, leveraging on the liveability of Gippsland and enhancing its connectivity, using its natural resources and focusing on a new economy are themes that correlate with the GHD assessment of competitive and comparative advantage and also with the priority areas that we identify in this report.

Box 2: The Gippsland Regional Plan: 6 themes to guide Gippsland's strategic direction



Gippsland Future Directions Strategy (GFDS)

Below we outline the GFDS, based on the seven priority areas identified, with strategic imperatives or objectives, and Key Actions.

As noted, the emphasis is on practicality and what can be effectively achieved by C4G in its role as a business and industry representative to increase the resilience and diversity of the Gippsland economy and to prepare it for the future.

C4G: Gippsland Future Directions Strategy

C4G Vision: To work toward ensuring that Gippsland will have a thriving investment environment for growth, new and emerging opportunities diversifying our regional economy to secure long-term sustainability

Priority Areas	Strategic Imperatives	Key Actions	Cross-cutting strategic imperatives 1. To grow local leadership capabilities and strengthen collective efforts to build a collaborative whole-of-Gippsland approach to deliver Gippsland's future directions agenda 2. To build a collective focus on a practical response to Covid-19 and maximise the Gippsland economy's resilience and optimise its positioning 3. To constantly work to leverage off Gippsland's traditional strengths to successfully transition to a diversified, resilient and sustainable region
1 Renewable and cleaner energy	To promote Gippsland as a renewable and cleaner energy powerhouse	To develop a roadmap for transition toward greater production of cleaner and renewable energy that recognizes and leverages the role of existing thermal energy production in a low emissions future. To promote Gippsland as a renewable energy zone (REZ) and conduct a study into the benefits it could bring to the region such as investment and jobs and assist in advancing the case for a Gippsland REZ.	
2 New Economy Manufacturing	To leverage off Gippsland's existing technical and manufacturing capability to expand its New Economy manufacturing industry	To identify and advocate for key specific market opportunities for New Economy manufacturing, in areas including resource recovery circular economy; carbon capture and storage; renewable energy manufacturing; alternative coal products (hydrogen-chemical-fertiliser). To work with government, education and research institutions, and industry to facilitate New Economy manufacturing opportunities in the current and projected market and attract new and expanded investment (and ensure an investment ready policy and/or regulatory environment).	
3 Education and Training	To constantly work to leverage off Gippsland's traditional strengths to successfully transition to a diversified, resilient and sustainable region	To increase access to and provision of the most applicable courses to grow New Economy industries. To establish an industry education advisory body to identify retraining skills and qualifications for workers transitioning into these new industries.	
4 Health Care and Aged Care Services	To position Gippsland as a capable and secure supplier of labour, infrastructure and services for the growing health and aged care services sector	To further develop Gippsland's competitive advantage as a service provider for health and aged care services by examining health education specialisations offered in the Gippsland region and ways to improve uptake to ensure development and retention of a skilled health workforce. To investigate and design a new aged care health model suitable for a post-Covid-19 world with supporting centres of excellence in Gippsland.	
5 Advanced Food and Fibre Production	To transition Gippsland's traditional agriculture base to higher-value advanced food and fibre production	To investigate successful models as well as identifying new markets for higher value agricultural and fibre production. To advocate for productive uses of land where there is a shift away from traditional industry uses (e.g. ex-forestry/logging land).	
6 Land Use Optimisation	To work with government and industry stakeholders to constantly examine and re-evaluate highest and best use of land to underpin Gippsland's economic transition	To lead the development of a whole-of-region long-term vision for land use optimisation to underpin Gippsland's economic transition. To analyse options for reforms of land use and development planning regulations to promote economic resilience and investment attraction.	
7 Digital and Transport Connectivity	To catalyse improved digital connectivity in Gippsland as an enabler for expanded virtual economic activity, tourism, and other industries (e.g. education, health, agricultural products)	To advocate for greater digital and transport infrastructure connectivity to support tourism businesses, the education and health sectors, and to boost business connectivity with Melbourne and interstate markets. To work with Destination Gippsland to ensure key tourism operators have digital connectivity to enable them to maximize industry growth	

6. Assessment Framework

We have developed an assessment framework to consider the opportunities and what C4G can do to progress them. The framework is outlined in the tables below, and then applied to each Priority Area.

Priority Area	
Strategic Imperative	Concise statement of opportunity relating to the Priority Area identified - as an advocate for business and industry in a resilient, diversified Gippsland, what is the overarching strategic imperative for C4G?
Key Actions	Within the broader strategic imperative, what are the two priority actions for C4G? C4G noted that actions should centre on: - influencing - convening (includes advocacy / research)
Why Selected	Reasons for selection include one or more of the following: - possession of natural or "created" factor assets - area of competitive or comparative advantage - alignment with "mega trends" identified by GHD, and whether there are prospects for future growth or decline given mega trends worldwide - contribution to diversification, economic growth and resilience of Gippsland
Progress to Date	What (if any) policies or reforms or investments are occurring in the Priority Area
Policy and regulatory barriers	Policy and regulatory barriers could include unnecessarily complex or costly regulations, a lack of "regulatory enablers" in certain areas, insufficient cooperation (e.g. no whole-of-Gippsland approach to certain priority areas), lack of connectivity to markets (digital and transport), and information barriers. Other barriers noted may include community opposition, insufficient funding, commercial viability.
Additional actions	Actions identified to progress the strategic imperatives beyond the two key priority actions.

7. Policy and Regulatory Barriers

In addition to identifying priority areas, we have considered barriers to progressing priority areas and related actions. Barriers can include policy and regulation that reduce flexibility and discourage people and businesses from taking up opportunities. Regulation and policy relating to land use planning, zoning, development processes, and environmental regulations are essential to ensure sustainable development but may be unnecessarily complex or costly and restrict what people and businesses can do. From another perspective, there may be a lack of "regulatory enablers" constituting a barrier to progress - for example, this has been identified as an issue in the bioenergy sector (see Priority Area 2). Failure to address such barriers can increase pressure on the Gippsland region and constrain its ability to progress Key Actions and priority areas.

Policy barriers can include a lack of coordination or whole-of-region approach - in some arenas, Gippsland's six local government areas work separately, when a whole-of-Gippsland approach is required to progress strategic imperatives (energy roadmap).

Other barriers that may adversely affect regional development include connectivity (both digital and transport) barriers and inadequate information (e.g., insufficient marketing information on some tourism destinations, greater need to promote the attractiveness of the region, lack of awareness of benefits of projects amongst the community, or a lack of information held by individuals on alternative employment, business or educational opportunities).

It is beyond the scope of this report to consider detailed barriers to progressing particular projects or opportunities. However, for each Priority Area, we have examined actions to date and barriers to further progress, and recommended actions for C4G to address barriers and actively pursue the Strategic Imperatives and Key Actions identified for Gippsland.

8. Implementation Pathways

In formulating the Key Actions under each Priority Area, we have focused on practical actions that C4G, can take in its role as a business and industry advocate in a resilient diversified Gippsland. The GFDS does not envisage that C4G will deliver on the priority areas and actions using its own resources. Rather, C4G's role will be to advocate the actions, form coalitions, set agendas and lead collaborative efforts.

The aim of the strategy is to sharpen strategic choices, tell a compelling "story" regarding Gippsland and articulate Key Actions. C4G's role in delivering on the Key Actions will be to:

- unify leaders - gather leaders and coalitions of the willing to act in the priority areas where relevant - e.g., a Post-Secondary Education and Advisory Board is recommended under the Education & Training Priority Area
- build engagement - mobilise stakeholders and keep the community informed and interested - e.g. ensure the community is aware of the benefits of new energy projects for Gippsland
- align commitments - set agendas and coordinate parties to act in the priority areas - e.g. to intermediate between industry and the education sectors and government/s
- advocate for funding and support - in some areas, state or federal support may be required; C4G could also keep businesses and industry informed of existing funding opportunities
- research and build evidence bases - in some priority areas, more studies and research are required to build an evidence base or to collate existing regional knowledge and disseminate it to others - e.g., there is strong local knowledge of the advantages of Gippsland as a renewable energy zone that needs to be shared with and advocated to the State Government.

9. Priority Area 1: Renewable and Cleaner Energy

Priority Area 1	Renewable and Cleaner Energy
Strategic Imperative	To promote Gippsland as an energy powerhouse with plentiful natural resources and infrastructure
Key Actions	<p>To develop a roadmap for transition towards greater production of cleaner and renewable energy that recognizes and leverages the role of existing thermal energy production in a low emissions future.</p> <p>To promote Gippsland as a renewable energy zone (REZ) and conduct a study into the benefits it could bring to the region such as investment and jobs and assist in advancing the case for a Gippsland REZ</p>
Why Selected	<p>Gippsland has traditionally focused on energy but is transitioning out of fossil fuels and refocusing on the opportunities offered by renewable and cleaner energy sources. Victoria’s Climate Change Act 2017 establishes a long-term target of net zero greenhouse gas emissions by 2050, which increases the viability of renewable and cleaner energy investments. Reasons for selecting this Priority Area are therefore:</p> <ul style="list-style-type: none"> - The long-established energy sector and associated expertise in Gippsland - The availability of supporting infrastructure for renewables (especially the transmission network) - Natural endowments - Gippsland is an ideal location for wind, solar, bioenergy, hydrogen and carbon capture and storage, as discussed in more detail below - The shift towards cleaner and renewable energy forms aligns with the megatrends, as countries worldwide respond to climate change and shift away from sole reliance on traditional energy sources - Refocusing on renewable and cleaner energy will contribute to the diversification, economic growth and resilience of Gippsland
Progress to Date	<p>Wind and solar energy</p> <p>Wind farms could contribute to meeting Victorian and Australian climate change targets and drive investment and create new opportunities for Gippsland. Gippsland is an ideal location for wind farms because it has strong and consistent winds over 6 m/s (average 8-10 m/s); sufficient land; significant capacity in terms of the transmission network distribution of power lines to connect wind farms to the electricity network; availability of a skilled workforce, leveraging off the skills of existing energy sector workers.</p> <p>Gippsland also has solar resources, with an average annual solar exposure of around 15.3 MJ/sqm. The Victorian energy roadmap notes that areas in Victoria range between 14 and 19 MJ/sqm. Solar could contribute to the renewable and cleaner energy offerings of Gippsland, including via planned offshore solar farms. Planned solar projects are smaller scale than wind but can still make a significant contribution to energy supply, combined with the uptake of</p>

rooftop solar by homes and businesses (see here and here) and there are also large-scale floating solar projects outlined by retired engineer Chris Barfoot.

The Victorian Energy Roadmap noted that taking into account existing rooftop solar, solar farms and wind farms, there is up to 1.5 MW of renewable energy capacity. Solar and wind farms that are under construction or approved, combined with a full rollout of rooftop solar across the region would add a further 36.2 MW of capacity.

The Australian Energy Market Operator (AEMO) noted that the proposed Star of the South offshore windfarm would add 2000 MW (see Appendix 1, Box 4). There are three wind farms in operation - Bald Hills wind farm currently supplies around 106 MW (AEMO); also, Toora (21 MW) and Wonthaggi (12 MW) wind farms. Combining this with existing rooftop solar and solar farms results in 1.5 MW of renewable energy capacity (Victorian Energy Roadmap) A 33 turbine wind farm at Delburn planned - would add 180-200 MW renewable energy capacity (OSMI Australia, wind farm investors).

Planning laws

Wind farm planning laws have been reformed in Victoria as of March 2019: planning controls have been changed to reduce the distance from two kilometres to within one kilometre in which a landowner's consent is required to make an application for a turbine nearby a dwelling, and primary responsibility for wind farm planning approvals has been returned to the Minister for Planning. Also, the transmission or distribution of power lines to connect the wind farm to the electricity network can now be considered holistically as part of the wind farm planning proposal.

The Victorian Government is also examining whether there are other anomalies in relevant regulations or guidelines.

Renewable energy zones (REZs)

Gippsland has been identified as 1 of 6 REZs by the Victorian Government in its Renewable Energy Roadmap. The Gippsland REZ is located along the coast south of Sale and has an area of around 172,000 hectares. The REZ has good access to wind resources (wind resources 6.1-8.0 m/s) and is in close proximity to major transmission infrastructure due to its location near traditional power stations in the Latrobe Valley (no part of the region is further than 30 km from this transmission network according to the Energy Roadmap report on Gippsland). If this transmission infrastructure is extended, these could facilitate many new connections. There is also existing spare capacity of 2,000-3500 MW in the network. Other areas lack spare capacity (e.g. northern Victoria). Despite these advantages, the AEMO scorecard for Gippsland ranked Gippsland as "low priority" with other regions in Victoria and other states ranked higher, and it is not yet clear whether the Gippsland REZ is being prioritized by the Victorian Government under its Renewable

Energy Roadmap program.

Renewable Energy Roadmaps

These are being developed separately for groups of local government areas (LGAs). There is a South Gippsland Renewable Energy Roadmap, an East Gippsland Shire “New Energy Technology Roadmap”, and a Latrobe Valley “New Energy Jobs and Investment Prospectus” (covering Wellington, Latrobe and Baw Baw Shire regions).

C4Net

The Centre for New Energy Technologies (C4Net) has been established with the aim of supporting and capitalize on the energy transformation, building skills, capabilities and instilling innovation in Victoria’s new energy technologies sector

Hydrogen

Hydrogen is a source of clean energy and considered to be a potential fuel of the future. Hydrogen production involves gasification of brown coal - reacting brown coal with oxygen and steam under high pressures and temperatures forms a synthesis gas that is a mixture primarily made up of carbon monoxide and hydrogen. Hydrogen is a significant opportunity for Gippsland because it offers an alternate use for Gippsland’s vast reserves of brown coal and would assists in meeting climate change targets

A pilot project, the Hydrogen Energy Supply Chain (HESC), is underway in Gippsland. It involves producing hydrogen in Victoria and exporting it to Japan. The pilot project runs 2018-2020 (for further details, see Appendix 1). This project is providing substantial information about the handling, storing and shipping of hydrogen. It is also linked to the development of Carbon Capture and Storage (CCS) which has been proposed as another potential industry for the Gippsland region.

Bioenergy

Bioenergy refers to using biomass or organic matter for renewable energy or new products energy. Organic matters and biomass from paper / pulp, timber and other industries can be better utilized through new processes, e.g., producing renewable energy or fertilizer. Bioenergy requires a very large amount of space to harvest and store biomass, making Gippsland a practical location. Further, Gippsland has many biomass sources including:

- -Straw and chaff production from broadacre crops
- - Dairy manure and effluent from the dairy cattle industry
- - Bark residues from plantation forests and woodchip and sawdust and shavings generation from sawmills
- - Poultry litter from chicken farming and layer and pullets

- - Paper and cardboard and organics (food, garden and timber)

Sustainability Victoria (SV) is identifying biomass resources for Gippsland as part of the Australian Biomass for Bioenergy Assessment (ABBA), funded by ARENA.

Opal, previously Australian Paper, partnered with SUEZ to create a 50 Mw biomass Energy for Waste (EfW) facility, to be located at the Maryvale Mill, in the Latrobe Valley. The EfW plant would use lignin (an organic liquid compound that binds the fibre in trees and is extracted to make pulp and paper) to make a range of high-tech, renewable bioproducts (biofuel, aviation fuel, bio-carbon fibre, bio-plastics). It is estimated it will reduce Victoria's net CO₂ emissions by 543,000 tonnes annually.

There are six bioenergy plants in Gippsland currently being used in the timber, paper and horticulture industries. The generated energy is used by the owners in their respective industries, for example, drying timber, producing paper and raising plant seeds.

There are high associated costs to commercialize new technologies and market barriers to the introduction and use of new fuels. However, bioenergy is becoming more affordable due to Victoria's long-term target of net zero greenhouse gas emissions by 2050 and technology developments internationally. In some situations, bioenergy could compete for feedstocks and land that would otherwise be used for food production. In other situations, new tree crops for bioenergy may enhance agricultural activities, and the environment through salinity mitigation, soil protection and increased biodiversity.

Carbon capture and storage (CCS)

In a carbon constrained environment, ongoing utilization of Gippsland's extensive brown coal reserves will require substantial mitigation of the related greenhouse gas emissions. The Gippsland region provides an ideal platform from which large-scale CO₂ storage projects of global importance may be undertaken. The development of commercial CCS opportunities is being investigated in Gippsland, most notably via the CarbonNet project.

CCS is a potential emissions mitigation technology for the region, with the Gippsland Basin identified as a potential site for CCS. CCS involves capturing CO₂ released by industrial processes, compressing it and then transporting it to an injection site to be sequestered deep underground for safe, long-term storage in suitable geological formations – similar to the way oil and gas has been stored underground for millions of years

(<https://earthresources.vic.gov.au/projects/carbonnet-project>). The IPCC Special Report on CCS suggests that the environmental risks are low: “well-selected geological formations are likely to retain over 99% of their storage over a period of 1,000 years. Overall, the risks of CO₂ storage are comparable to the risks in similar existing industrial operations such as underground natural gas storage” (cited in

<https://www.aph.gov.au/binaries/house/committee/scin/geosequestration/report/fullreport.pdf>; for a more recent review, see also “Significant aspects of carbon capture and storage – A review” (2019), available at :

<https://www.sciencedirect.com/science/article/pii/S2405656118301366>.)

Natural assets / advantages - Gippsland Basin offshore and Bass Strait have been shown to rank highest in terms of accessibility and storage capacity over other potential Victorian locations. The National Carbon Taskforce (2009) found that the offshore Gippsland Basin has the highest technical ranking of 25 major basins across Australia and the largest storage potential of any east coast basin. Gippsland also has some industries ideal for capturing storage - some industrial processes (natural gas fertilizer, hydrogen and biofuel sectors) separate CO₂ as part of their normal operations, reducing capture costs for CCS. Alignment with government climate change policy and targets and thus identified mega trends, as assists in addressing climate change. CCS endorsed by the International Energy Agency and Intergovernmental Panel on Climate Change - both believe that CCS can play an important role in helping to meet global emission reduction targets.

Commercial-scale CCS would contribute to the diversification, economic growth and resilience of Gippsland - it would enable new industries in Victoria and may assist in maintaining existing power industry and jobs in the Latrobe Valley if they can undertake carbon capture.

The CarbonNet Project:

CarbonNet is investigating the potential for establishing a commercial-scale CCS network in Gippsland. It would bring together a number of existing CO₂ capture projects in Latrobe Valley, transport CO₂ via a shared pipeline and inject it into deep underground, offshore storage sites in Bass Strait. The project is exploring the potential to initially capture and store up to 5 million tonnes of CO₂ per year. Successful implementation of the project could be the starting point for an expanding commercial-scale carbon transportation and storage system.

Fossil fuels / traditional energy sector

Gippsland has a long history of supplying electricity via brown coal power stations. In the transition to more renewable and cleaner energy sources, the role of the traditional sector and the MW contributions it provides should not be overlooked, nor should capital stock and skills in relation to traditional energy sources be lost. Although this is a declining sector it remains very important in terms of jobs and the supply of electricity and it will continue to provide a significant proportion of Victoria's power in future.

Barriers to Progress

Wind and solar

Barriers to further progression include:

- community opposition to wind farms and large-scale energy projects. In this regard, issues raised by community in relation to Star of the South include location of onshore components, cost of power, impact on marine animals, fishing exclusion zones. Further, community opposition may undermine investor confidence

- policy/information barriers: uncertainty over prioritization of Gippsland REZ by the Victorian Government - policy is not yet clear to Gippsland. Information barriers may be affecting this lack of clarity - e.g. many stakeholders noted an insufficient focus by government and in REZ documentation on the advantages of Gippsland in terms of transmission infrastructure and also solar opportunities and uncertainty whether full extent of resources is being taken into account in the REZ - e.g. does the Gippsland REZ identified in the Renewable Energy Roadmap include the Strzelecki ranges and the planned Delburn wind farm?
- policy coordination barriers: lack of coordination by Gippsland local governments - no joint whole-of-Gippsland clean energy roadmap

Hydrogen

Not clear if commercially viable yet, exploring cost, safety issues (highly explosive, difficult to use and transport as the molecules are very small so it leaks out of normal gas plumbing).

Bioenergy

Lack of regulatory enablers: Growth could be limited by environmental regulations at national and state levels. A 2018 Discussion Paper by QUT found that “investment in bio-based technologies and deployment has been modest in relation to other renewable energy technologies. There are no dedicated programs for technologies available for non-energy bioproducts and biomaterials technologies”, at the national level. They concluded that “the policy environment in Australia has been inadequate, and that a better enabling environment with more effective policy implementation is required” Their roadmap for the future includes: 1. Develop a national biofuels, bio-based products and bioeconomy strategy; 2. implement a national biofuels mandate supporting the introduction of higher quality fuels; 3. provide supporting mechanisms—education, incentives and infrastructure; 4. adoption of advanced and drop-in biofuels for aviation, military, marine and other markets - particularly the creation of a clean (or low-carbon) fuel standard, such as that introduced in California and proposed for Canada; 5. Support commercial developments through industry and research collaboration (Biofuels to bioproducts: a growth industry for Australia, QUT Discussion Paper, 2018; available at: <https://www.dropbox.com/s/4ipthrygu5gk6m4/QUT%20Discussion%20Paper%20-%20No%20bleed%20FINAL.pdf?dl=0>)

CCS

Possible barriers include funding and commercial viability (which is still being investigated under CarbonNet), high capital costs, and community concerns about environmental consequences (leakage leads to environmental acidification and impacts on marine life) and maintaining amenity of beaches / coastline (pipelines required across dunes 90 mile Beach)

Priority Area 1

Renewable and Cleaner Energy

Traditional energy sector

Government is shifting away from a focus on traditional energy sector with the closure of power stations and the development of renewables. The “mega trends” also indicate a shift away from brown coal resources worldwide. Actions in this area should focus on recognizing the role of the traditional sector and on maintaining capital stock and jobs in Gippsland while transitioning to an increased focus on renewable and cleaner energy technologies (low emissions). Barriers to progressing out of the sector include the long history, incumbents, and the fact it is more labour intensive than renewables.

Additional actions

To support the exploration and development of onshore gas resources that meet rigorous environmental standards to heat Victorian homes and power its industries, providing local jobs and economic activity to Gippsland

To advocate for community support for large-scale renewable energy projects that provide significant opportunities for Gippsland, including CarbonNet, Star of the South and the Hydrogen Energy Supply Chain Project

To advocate for a policy and regulatory framework that will secure new energy investment

To advocate that the Victorian Government investigate ‘regulatory enablers’ for bioenergy projects, in line with opportunities and funding offered for wind and solar

10. Priority Area 2: New Economy Manufacturing

Priority Area 2	New Economy Manufacturing
Strategic Imperative	To leverage off Gippsland's existing technical and manufacturing capability to expand its New Economy manufacturing industry
Key Actions	<p>To identify and advocate for key specific market opportunities for New Economy manufacturing, in areas including resource recovery circular economy; carbon capture and storage; renewable energy manufacturing; alternative coal products (hydrogen-chemical-fertilizer).</p> <p>To work with government, education and research institutions, and industry to facilitate New Economy manufacturing opportunities in the current and projected market and attract new and expanded investment (and ensure an investment ready policy and/or regulatory environment)</p>
Why Selected	<p>Manufacturing makes up approximately 10% of Gippsland's gross value add, however this share has been declining since 2006. This is broadly consistent with trends across the state, in that manufacturing sectors have declined, while service-based sectors increased (largely due to the growing and ageing population)¹. However, there are opportunities in "new manufacturing" relating to alternative uses of brown coal, aerospace, and clean energy manufacturing (e.g. solar and wind infrastructure components).</p> <p>Coal to products manufacturing Progress development of alternative uses for brown coal as a potential source of gas, diesel and fertilizer for domestic and export markets - see also renewables section on CCS and hydrogen</p> <p>Solar and wind components Wind and solar infrastructure components are high value</p>

¹ Aither. 2019. Gippsland Regional Profile

Opportunities for the Latrobe Valley to be a centre for manufacturing, research and training on installation and maintenance of network infrastructure and safety equipment (which is being considered in the design of Gippsland Hi-Tech Precinct, the purpose of which is to align research with industry).

Aerospace manufacturing

According to KPMG (2019) Australia ranks in the top 10 amongst OECD countries for its quality of research in the aerospace industry. High standards of product safety and Australia's reputation in the industry globally were identified as two key strengths of the industry. In Gippsland, aerospace is third highest manufacturing export sector. Mahindra Aerospace (GippsAero) based at Latrobe regional airport manufacturers only aircraft of its kind of Australia. However, there are concerns that Mahindra may be leaving the region.

Gains have been identified in building industry-academia partnerships and tapping into universities and institutions like CSIRO for commercializing research work through development of innovative industry tools. Niche segments within the aerospace industry like Unmanned Aerial Systems and advanced manufacturing present good opportunities to expand industry offerings and alleviate the negative impact of contractions in traditional sectors.

Gippsland has a regional airport with established high quality airport infrastructure. Whether Mahindra Aerospace and the sector as a whole can and should be retained should be investigated further, including potential regulatory barriers (noted below).

Progress to Date

Alternate uses for brown coal

Alternate uses for brown coal being investigated / underway (options include gas, diesel, fertilizer)

- e.g. Advanced Lignite Demonstration Program involves three companies developing high-value energy products, including oil, fertilizer and upgraded coal for local and export markets
- Other developments in this space include the Regional Carbon Innovation Centre (RCIC) - feasibility study completed (received \$100K funding from Regional Development Victoria (RDV))
- Carbon Technology Research Centre (CTRC) established at Federation University - has interim funding
- C4NET - Centre for New Energy Technologies has been established (2018) - industry-led, government supported, not for profit company
- Waste to compost / fertilizer - Dutson Downs producing fertilizer from biomass

Solar and wind manufacturing components

There are some existing businesses in the region, but a desktop study yielded little information on this.

Priority Area 2	New Economy Manufacturing
	<p><i>Aerospace</i> KPMG examined the potential for aerospace expansion in Australia (2019). They noted workforce issues - access to a skilled labour force remains a key challenge for the industry. A decline in the number of new trainees and an ageing workforce is limiting the number of skilled workers available to the industry (KPMG 2019). They also found that many businesses consider the regulatory environment and the lack of mutual recognition of certifications challenging, with some industry participants indicating that this “negatively impacts on the industry’s global outreach”.</p>
Barriers to Progress	<p><i>Information barriers</i> The relevant technologies and whether they are commercial is still being investigated. See the discussion under CCS and hydrogen for instance. The commercial viability of solar and wind components also needs to be investigated.</p> <p><i>Regulatory barriers:</i> Workforce issues affect the aerospace industry. In particular, access to a skilled labour force remains a key challenge for the industry. A decline in the number of new trainees and an ageing workforce is limiting the number of skilled workers available to the industry (KPMG 2019). KPMG (2019) found that many businesses also find the regulatory environment and lack of mutual recognition of certifications challenging. Further, Mahindra is rumoured to pulling out of Gippsland – there are concerns re whether Gippsland has sufficient aero assets to leverage this area.</p>
Additional actions	<p>To advocate that the Victorian Government investigate ‘regulatory enablers’ for bioenergy projects, in line with opportunities and funding offered for wind and solar</p> <p>To investigate the feasibility of maintaining and expanding an aerospace industry in Gippsland</p> <p>To investigate opportunities for the Latrobe Valley to be a centre for manufacturing, research and training on installation and maintenance of network infrastructure and safety equipment</p> <p>Gippsland local procurement growth – to strengthen relationships with tier 1 & 2 entities, deployment of GROW, development of a Gippsland manufacturing capabilities profile</p>

11. Priority Area 3: Education and Training

Priority Area 3	Education and Training
Strategic Imperative	To deliver new education models in Gippsland that respond to demand and match Gippsland's economic transition
Key Actions	<p>To increase access to and provision of the most applicable courses to grow New Economy industries.</p> <p>To establish an industry education advisory body to identify retraining skills and qualifications for workers transitioning into these new industries.</p>
Why Selected	<p>At a broader scale, it is well known that successful economies require skilled workers. There is a need to continuously improve "created factor conditions" (Porter model) including human capital and upgrade them to ensure competitive advantage. The analysis of "mega trends" indicates that there is an increasing need for a skilled workforce and knowledge economy to ensure growth.</p> <p>However, a high proportion of Gippslanders attain only secondary or lower vocational certificate levels and rates of completion of year 12 are lower than the Victorian average; at only 35% Year 12 or equivalent completion, Gippsland lags both regional Victoria at 39% and the Victorian state average of 54%. Tertiary enrolment and retention are also lower than the Victorian average; only 9.9% of Gippslanders holding bachelor degrees, advanced diplomas or post graduate qualifications.</p> <p>To some extent, the lack of tertiary educational qualifications is a reflection of the industries and skills required in Gippsland - for instance, many of the more highly paid jobs in the Latrobe Valley require certificate-level qualifications. Thus, Gippsland has a higher proportion of vocational qualifications than the Victorian average, with 26% of Gippslanders having Certificate or Advanced Diploma qualifications compared to the state average of 21%. However, in general, there is a lack of aspiration and lack of recognition of the benefits of education, which is reflected in high rate of absenteeism in Gippsland from early childhood through to secondary schools, as well as in lower educational attainments. Access to educational facilities and ageing infrastructure are also issues in Gippsland.</p>

Degrees in some courses that would benefit the region (e.g. health, given lack of local GPs, problems retaining GPs) are not always being taken up by locals even if offered in the region (e.g. Monash School of Rural Health).

Thus, there is a need to promote connections between industries and higher education facilities to ensure the “right courses” are being offered to develop the skills appropriate for Gippsland (e.g. skills for growing industries such as renewables and new manufacturing, but also courses for local to develop useful skills that are lacking - e.g. insufficient GPs).

In addition, there is a need to transition workers out of declining industries (electricity, forestry) and to gain new skills - e.g. skills are required in renewable and clean energy industries. An important part of the energy transition is ensuring there are adequate numbers of appropriately qualified personnel to develop, manufacture, install and maintain the necessary components and equipment for new energy industries. The existing LV workforce has training in a range of energy related fields. However, retraining in renewables and cleaner energy-specific skills and qualifications will be required for these workers to transition to new industries.

One option to improve education in Gippsland is to advocate for investigation of improved access (e.g. light rail) to the Churchill campus of Federation University.

Another option is to leverage existing regional infrastructure and services as education hubs. For instance, Bairnsdale Regional University Study Hub, established with support from Federation University, TAFE Gippsland and East Gippsland Shire Council, provides a model for this development. This opened in 2019 and allows local students to undertake university study without relocating to Melbourne. The hub provides internet access, video conferencing and teacher support. Students register to complete university contact hours at the hub and are to tutorials through skype, and other technologies. It was established at former high School site in Dalmahoy Street, Bairnsdale.

Progress to Date

Gippsland Regional Workforce Plan, early intervention behaviour and support programs in early school years and the implementation of the Broadening Horizons program have assisted in achieving a small increase in educational attainment (2.4% increase since 2011).

Remote / blended learning models

Technology is enabling more remote learning and student preferences for learning are also shifting. The Covid-19 pandemic and its ongoing consequences will only increase this trend. In regional areas, blended learning assists in overcoming the barriers of distance and thin educational markets. Remote / blended learning models involve regionally located, technology-enabled learning centres, with the capacity to host courses from other providers. Examples include

Bairnsdale's Regional University Study Hub (noted above) and the recently announced Wonthaggi Country University. They allow students to live locally for longer before needing to travel to complete advanced level courses. For example, the Wonthaggi Country University / Bass Coast Regional University Centre, to open in 2021, is one of nine new centres being established across regional Australia under the Australian Government's \$53.2 M Regional University Centres program. The university hub will enable students from Bass Coast and South Gippsland to link with any one of 31 universities around Australia, offering about 180 degrees. It will provide study spaces, academic support, video conferencing and other social and academic support for students. It aims to encourage local students, who may be reluctant to undertake tertiary study because have they to leave region to do so, to gain skills and qualifications locally. Bass Coast LG surveyed local students and found "nearly all said they would go to university if they could study locally." The aim to attract younger students and older people to increase their skills or change career course.

Investments in Federation University, TAFE Gippsland and the Gippsland Hi-Tech Precinct:

Gippsland is home to Federation University, which brings together the University of Ballarat with the previous Monash University Gippsland campus. Nearly 2,000 students are enrolled at the Gippsland campus of Federation University. Federation University offers access to higher education, research opportunities and TAFE (from its Western campuses).

TAFE Gippsland has an extensive TAFE network, with significant investment and upgrades particularly in Sale and Morwell. The Technical Training Centre of Excellence is being established at the TAFE Gippsland Campus in Morwell.

The Victorian Government through RDV have also funded development of the Gippsland Hi-Tech Precinct, the purpose of which is to align research with industry. The Hi-Tech Precinct will be a centre for research, business incubation, new product development, start up support and education and training. The aim is that it will enable alignment between industry and universities, TAFEs and other educational and training institutions, and will support the growth of local industry and expansion of key growth sectors. The Gippsland Tech School within the Hi-Tech Precinct in Morwell will offer education and training; it will be a skills-based secondary school focusing on food and fibre, health, new energy and advanced manufacturing education. Renewable energy related training and accreditation courses are provided at the Yallourn Campus of TAFE Gippsland in the Latrobe Valley through their New Energy Technology Systems course.

Location of C4G at the Hi-Tech Precinct

C4G's location at the Hi-Tech Precinct may facilitate its ability to liaise with industry and research and education institutions to ensure the "right courses" relevant to new industries and the transitioning economy, and to a post-Covid

Priority Area 3

Education and Training

world, are being offered in Gippsland. Federations University's role as thought leader will also be important in this regard. C4G has an important role to play in connecting industry and higher education.

Barriers to Progress

Information barriers: As noted above, in some areas there may be a lack of aspiration for educational attainments / lack of recognition of benefits of university education in particular. It has all been indicated that there is a lack of information on the benefits of education or what opportunities are available. As a result, there is a thin market for education, with low demand. This also leads to problems with skills shortages, with GPs and early childhood teachers identified in particular.

Policy barriers: Another issue is that information and policy barriers, particularly insufficient coordination, may be preventing the right courses being offered for transitioning Gippsland to 'new economy' industries.

Connectivity barriers: Federation University campus is remote and located a long way from the main population centres of Gippsland and it is difficult to access via public transport; TAFEs are much closer to main population centres. Rail transportation to Melbourne educational institutions is inadequate. Longer term, allowing allow greater development around railway stations to increase the population and make public transport may make improving this linkage a more viable option. However, the remote learning model noted above in relation to Bairnsdale is also a promising direction.

Additional actions

In partnership with Fed Uni, Industry & community secure funding to establish Workforce- Careers model with nodes across Gippsland to focuses on assisting people in transition and but also sectors connected with new energy, mining, food and fibre, advanced manufacturing. Industry focused worker in transition model for Gippsland.

In partnership with Federation University and TAFE Gippsland, to work with new economy manufacturing entities to identify retraining skills and qualifications for workers transitioning into these new industries.

To co-design (with Fed Uni and industry) training packages and increase the number of student work placements

To use the advisory body recommended to secure innovation and research partnerships

To facilitate an environment that will foster apprentices and trainees – connecting industry and young people to build career aspiration.

Priority Area 3

Education and Training

To advocate for funding to fill known skills gaps, particularly in education (early childhood teachers) and healthcare (GPs)

12. Priority Area 4: Health Care and Aged Care Services

Priority Area 4	Health Care and Aged Care Services
Strategic Imperative	To position Gippsland as a capable and secure supplier of labour, infrastructure and services for the growing health and aged care services sector
Key Actions	<p>To further develop Gippsland’s competitive advantage as a service provider for health and aged care services by examining health education specializations offered in the Gippsland region and ways to improve uptake to ensure development and retention of a skilled health workforce</p> <p>To advocate that the Victorian Government investigate and design a new aged care health model suitable for a post-Covid-19 world with supporting centres of excellence in Gippsland and improved digital / telehealth access for remote areas</p>
Why Selected	<p>Health is a key employing industry in Gippsland and health-related services are expected to continue to grow in line with the ageing population trend. As noted in the GHD work, the population in Gippsland is ageing faster than in Victoria. Health is being given a strong emphasis in funding and policy documents. Medical technologies and pharmaceuticals are one of six directions under the Victorian Government Futures Fund. Health is also being prioritized by the Gippsland Innovation Centre website.</p> <p>Gippsland, especially Latrobe Valley, performs poorly on key health indicators e.g. obesity, smoking, etc., and lacks a sufficient healthcare workforce, e.g. GPs.</p> <p>Availability & retention of skilled workforce/resources –e.g. doctors - is a key concern. Note linkages with education priority, as allied health courses offered at TAFE and Federation University. Gippslanders are not necessarily taking up or being given opportunities to train as GPs, despite the existence of the Rural Health Centre.</p> <p>Covid-19 highlights the importance of adequate health and aged care, needs that will continue in the post-Covid world.</p>
Progress to Date	Previous policy documents have emphasised advocating for funding for hospitals in Gippsland (see Appendix 1). Some progress has been made in this area and Gippsland has a high-quality hospital service. Focus should now shift to other (less political) actions with a broader benefit for the region as a whole. Despite quality hospitals, there are issues with

Priority Area 4	Health Care and Aged Care Services
	access to GPs and specialists and retaining a sufficient workforce in this area. There is high demand but a lack of supply of GPs despite poor health record of Gippsland, particularly the Latrobe Valley.
Barriers to Progress	<p>Low value for university educational qualifications, including medicine in some areas</p> <p>Lack of access to university education, including medical degrees, due to transport or digital connectivity issues</p> <p>Lack of access to health services due to remoteness or lack of digital connectivity or insufficient telehealth services</p>
Additional actions	<p>To advocate for all Gippslanders to have access to quality health services and to ensure the importance of remote care, including telehealth services, is recognized</p> <p>To work with Invest Victoria and Gippsland local governments to target and attract health investment in new medical technologies and pharmaceuticals (leveraging our manufacturing capability)</p> <p>To advocate for funding to encourage greater access to healthcare and medicine courses to address shortage of GPs</p>

13. Priority Area 5: Advanced Food and Fibre Production

Priority Area 5	Advanced Food and Fibre Production
Strategic Imperative	To transition Gippsland's traditional agriculture base to higher-value advanced food and fibre production
Key Actions	<p>To investigate successful models as well as identifying new markets for higher-value agricultural and fibre production</p> <p>To advocate for productive uses of land where there is a shift away from traditional industry uses (e.g. ex-forestry/logging land)</p>
Why Selected	<p>Gippsland has strong natural endowments that make it highly suitable for food and fibre production (grazing land suitable for dairy, beef cattle, high and reliable rainfall, productive soils, also suitable for horticulture, forests)</p> <p>It has an established reputation for quality food products (fresh and specialized products) and a skilled workforce in agriculture and food manufacturing. Nearly 40% of the agriculture and food processing workforce in Gippsland reported having completed tertiary education, which is higher than the equivalent figure for many other regions. Federation University Australia's Gippsland campus in Churchill provides local training facilities.</p> <p>Access to government funding is being prioritized at the Victorian Government level - Food & Fibre is a key focus of the Future Industries Fund.</p> <p>In line with global trends (see GHD report), there may be a shift away from significant reliance on traditional food and fibre sectors (e.g., dairy and forestry) but this should be balanced with the need to maintain "sovereign capacity", particularly in the light of covid-19 and relations with China and given that Gippsland has ideal natural attributes for agricultural sector production that make it more "climate proof" compared with other regions of Australia.</p> <p>The success of Fonterra in NZ in entering Chinese markets is showing opportunities in the area of dairy and food processing.</p> <p>Agritourism - farm, meal, winery (food trail) experiences - are also an area of potential expansion, post-covid.</p>

Priority Area 5	Advanced Food and Fibre Production
<p>The logging industry is in decline but there are opportunities to use timber for bioenergy and land for other development purposes, including tourism assets, and to transition to plantations.</p>	
<p>Progress to Date</p>	<p>Food and fibre are traditionally a strong area for Gippsland, which has an established reputation for high quality products. It was identified as an area of comparative advantage based on historical trends (see ACIL Allen 2019 and GHD) and has been a strong policy focus (e.g. funding Future Industries, formation of Food & Fibre working group and industry body, Gippsland Food Plan, development of Food & Fibre Strategy with KPMG). There is also a “Smart specialization” process prioritizing agriculture, as noted by GHD.</p> <p>Fibre: Forestry / logging The long-established forestry/logging industry in Gippsland is part of “fibre” production. Timber harvesting by VicForests has been permitted in a portion of state forests (see GHD report for details), with much of the logging used as woodchip and exported to Japan and China, among others. However, the Victorian Government has committed to phasing out logging of native trees, with all native timber logging to cease by 2030. The government have also enforced an immediate ban on logging in old-growth forest. A large proportion of the Gippsland forest area is native forests. The reduction in supply will cause many small timber mills to close, as availability of supply dwindles, and operating costs increase. The decision will result in considerable damage to the local economy in the short term, particularly in the two Gippsland LGAs (Latrobe and Wellington) which have the largest proportions of the workforce employed in the forests and wood products industry. As Gippsland moves out of native timber forestry, options for future directions include bioenergy (see direction 5 above) and plantation forestry.</p> <p>The Government has recently announced the establishment of a National Institute for Forest Products Innovation Centre (NIFPI) in Gippsland. NIFPI is funded by the Victorian and Federal Governments (\$4M over 4 years jointly) and aims to promote and encourage R&D and innovation in the forest and wood products industry. There is also a Timber innovation Fund which will provides grants to transition out of native timber harvesting to plantation timber.</p> <p>Other innovative options flagged for transitioning the industry include bioenergy (production of electricity from bio-organics, including timber) as noted above.</p>
<p>Barriers to Progress</p>	<p>Connectivity issues</p> <ul style="list-style-type: none"> ▪ - lack of digital connectivity on-farm to connect producers to markets and customers

Priority Area 5

Advanced Food and Fibre Production

- - some issues with road transport connectivity - “To expand local food manufacturing there is a requirement to extend capability of local supply chain and improve connectivity to ports and other key domestic markets” (ACIL Allen 2019).

Community opposition

- - Community opposition to intensive agriculture (e.g. intensive dairy farming) - preference for maintaining ‘lifestyle farming’. Regulation / permit process in LGAs may reinforce this preference. Also, opposition to plantations

Information barriers:

- fibre - forestry / logging - high land prices and small lots, long lag between investment and harvesting for plantations. May not be competitive with prime agricultural land uses, further investigations required to understand how the fibre industry will be affected.

Additional actions

To secure the region’s fibre by working with industry to understand needs beyond 2030 and how the region can adapt to continue successful operation beyond 2030.

To investigate ways to activate private sector investment in the fibre industry

To investigate the success of Fonterra in NZ in entering Chinese markets, showing opportunities in the area of dairy and food processing.

14. Priority Area 6: Land Use Optimization

Priority Area 5	Land Use Optimization
Strategic Imperative	To work with government and industry stakeholders to constantly examine and re-evaluate the highest and best use of land to underpin Gippsland's economic transition
Key Actions	<p>To lead the development of a whole-of-region long-term vision for land use optimization to underpin Gippsland's economic transition</p> <p>To analyse options for reforms of land use and development planning regulations to promote economic resilience and investment attraction</p>
Why Selected	<p>One of the mega trends identified by GHD is increasing levels of wealth. People with higher levels of wealth seek locations to live that offer a high standard of living, access to a city, close to education facilities, have good health systems, and the ability to live in a larger house with land. Gippsland has a lot of undeveloped land, is close to Melbourne, supports a university, is equipped with Australian's high standard health care facilities, making Gippsland a desirable location for high wealth individuals to live and work. This desirability will be a powerful attractor for intellectual capital and wealthy people from around the world to come and live, if conditions are right and they are aware of the offering.</p> <p>There is scope for significant long-term growth of Gippsland by allowing greater development of homes in natural areas (forest and coastal), particularly as the forestry industry shuts down. Gippsland could offer holiday and weekend housing enabling city dwellers to escape Melbourne and enjoy the natural assets and lifestyle that Gippsland offers. Ultimately, this would boost the visiting and permanent population, increase expenditure in the region, and hence increase economic growth and address the drain of the regional population to the city. Environmental concerns could be addressed by councils implementing environmental management systems financed by increased rates.</p> <p>Reviewing land use could enable some development in natural areas currently reserved for forestry and/or agricultural land to facilitate development of Gippsland as a weekend / holiday home destination, particularly for Melbourne city dwellers, boosting the population and spending in Gippsland. A review of land use could also enable new industries, including agritourism uses.</p>

Priority Area 5	Land Use Optimization
	<p>National parks need to remain protected but there is scope for change to agriculture and forestry areas to allow higher-value use / controlled environmentally friendly development.</p> <p>This would enable Gippsland to capitalize on trends identified by Regional Australia Institute ("Big Movers: Population Mobility in Australia", released June 2020) for millennials to stay in or move to regional areas rather than shift to capital cities. Covid-19 could accelerate this trend.</p>
Progress to Date	<p>There have been efforts to promote Gippsland as an attractive region, but these tend to be smaller scale, focused on natural assets and lifestyle, rather than involving additional development / changes in land use, and have not involved a whole-of-Gippsland approach.</p>
Barriers to Progress	<p>Policy and regulatory barriers: land use planning and development planning result in 90% of land being locked up in national parks, agricultural and forestry. Can lead to perverse incentives in some areas, e.g. prevention of agritourism opportunities, prevention of developing of weekend / holiday housing market.</p>
Additional actions	<p>To investigate agritourism opportunities and barriers</p> <p>To investigate holiday and weekend housing opportunities and barriers in Gippsland</p>

15. Priority Area 7: Digital and Tourism Connectivity

Priority Area 7	Digital and Tourism Connectivity
Strategic Imperative	To catalyse improved digital connectivity in Gippsland as an enabler for expanded virtual economic activity, tourism and other industries (e.g., education, health, agriculture)
Key Actions	<p>To advocate for greater funding for digital and transport infrastructure connectivity to support tourism businesses, the education and health sectors, and to boost business connectivity with Melbourne and interstate markets</p> <p>To work with Destination Gippsland to ensure key tourism operators have digital connectivity to enable them to maximize benefits industry growth</p>
Why Selected	<p>Strong tourism assets and growth in sector over time</p> <p>Gippsland has a wide range of beautiful natural assets –The Lakes, The Prom, Philip Island, the mountains, the plains, the forests, the national parks - all significant nature-based tourism assets</p> <p>As noted by GHD, the “natural” factor conditions in Gippsland region with three quarters of it being forested public lands and national parks, natural water courses and floodplains, and areas of bushland, provides an opportunity for the tourism Industry.</p> <p>Tourism has shown great promise in the past 5 years for Gippsland region, with the average number of international visitors at 46,000 and spending at \$28M in 2015 and increasing to 83,000 visitors and spending at \$41M in 2019 (GHD). 10.8 M domestic and international visits per year, 5.45 M overnight stays (Destination Gippsland).</p>
Progress to Date	<p>Gippsland has a significant nature-based tourism sector that contributes to economic growth. Philip Island is a significant attraction and Wilsons Prom. However, appreciation and use of parks could be increased in general.</p> <p>In addition, digital and transport connectivity have been identified as issues (e.g. AITHER Report (2019) and Infrastructure Victoria (2019). They found that there is weak digital coverage in key tourist locations and primary production areas, limiting access to markets for tourism and primary production.</p> <p>Other existing studies have focused on specific actions such as improving roads and cycling and walking trails (e.g. Gippsland Regional Partnerships Roadmap recommended redevelopment of the Croajingolong Coastal Wilderness</p>

Priority Area 7	Digital and Tourism Connectivity
	Walk, further development of a Gippsland Trails Strategy, additional development for South Face Road to enhance access to Mt Baw Baw, and additional development under the Gippsland Destination Management Plan).
Barriers to Progress	<p>There are barriers limiting usage and appreciation of some tourism assets</p> <p>Connectivity Existing studies and consultation with community indicate that national parks are difficult to access and lack amenities that would encourage greater visitation, including digital connectivity. Both digital and transport connectivity are key barriers to further development of tourism, agritourism and agricultural production according to the existing research studies.</p> <p>Policy / regulatory barriers: development approvals and land use regulations Lack of tourism accommodation and low quality has been identified as a barrier to further development of tourism in the region. Local government development approvals processes may represent a barrier to improving the tourism industry as strict developmental controls limit new developments and also mean there is a lack of incentives for existing tourist accommodation to improve standards/ quality of tourist accommodation. Gippsland's proximity to Melbourne and wide range of natural assets make it ideal as a weekend holiday home destination for city dwellers keen to escape the city on weekends and for holidays, However, reserving land for agriculture and forestry through land use regulations limits development of this nature.</p> <p>Information barriers Greater focus required on presenting Gippsland as an attractive region for domestic tourists, particularly post-COVID19.</p>
Additional actions	<p>To advocate for increased government support to promote Gippsland as a tourism destination to a captured Victorian market "come explore your backyard" due to Covid 19 travel restrictions. i.e. take part on Tourism Australia's 'holiday here this year' campaign</p> <p>To advocate for support to struggling tourism operators and related businesses following the bushfires and as COVID19 travel restrictions to ensure their operations can continue.</p> <p>To work with partners to identify digital coverage gaps with a priority to grow tourism and primary production.</p>

16. Cross-Cutting Strategic Imperatives

In addition to the seven priority areas, DeltaPearl Partners has identified three cross-cutting strategic imperatives, that are relevant across the boundaries of the industry areas identified as priorities. These are opportunities / priorities that would benefit achievement of multiple priority areas:

Cross-cutting Strategic Imperatives	
1	To grow local leadership capabilities and strengthen collective efforts to build a collaborative whole-of-Gippsland approach to deliver Gippsland's future directions agenda
2	To build a collective focus on a practical response to Covid-19 and maximize the Gippsland economy's resilience and optimize its positioning
3	To constantly work to leverage off Gippsland's traditional strengths to successfully transition to a diversified, resilient and sustainable region

To grow local leadership capacities and strengthen collective efforts to build a collaborative whole-of-Gippsland approach to deliver Gippsland's future directions agenda

Efforts to grow local leadership capacities and strengthen collective efforts to build a collaborative whole-of-Gippsland approach would facilitate C4G's ability to deliver the GFDS. At present, in many priority areas, the local governments of Gippsland work separately, reflecting the geographical and socioeconomic differences between the LGAs.² For instance, it has been pointed out that there is no overarching whole-of-Gippsland Energy Roadmap.

Thus, a key opportunity for C4G is to act as a facilitator to grow local leadership capacities and strengthen collective efforts to build a collaborative whole-of-Gippsland approach. This will be important in delivering the GFDS in the areas of education, connectivity, health care and new manufacturing in particular. A whole-of-region approach will also be significant in convincing governments to see the benefits of Gippsland as a renewable energy zone over other regions in Victoria and across Australia.

A possible framework for progressing a collaborative approach to the GFDS is via a Regional Deal. This framework could facilitate cooperation between Gippsland LGAs and also with the state and federal governments. Regional Deals are agreements between all three levels of government and community around a clear set of objectives or shared vision to promote liveable and prosperous regions. The box below provides further information on the nature of Regional Deals and the regional areas in which they have been implemented to date.

Box 3: Regional Deals: A Framework for Collaboration

Regional Deals involve a partnership between all three levels of government and the community, working collaboratively and cooperatively around a clear set of objectives or shared vision for

² Gippsland is often divided into three subregions: the Latrobe regional hub (Latrobe LGA); the Western peri-urban fringe (Baw Baw, Bass Coast and South Gippsland LGAs); and the Eastern regional areas (Wellington and East Gippsland LGAs). See Appendix 1 for more details on the characteristics of each subregion.

liveable and prosperous regions. Deals are tailored to each region's comparative advantages, assets and challenges.

Regional deals have been established in regional locations in Queensland and the Northern Territory: the Hinkler Regional Deal covers the Bundaberg and Hervey Bay region in Queensland (signed January 2020) and the Barkly Regional Deal covers the Tennant Creek region in the Northern Territory (April 2019).³ A third regional deal is currently being negotiated for Albury Wodonga, expected to be finalised in mid-2021.

The existing deals have focused on creating liveable and prosperous regions. Consultation with local industry, business and the community are a key feature in establishing the shared objectives/vision. The deals set out an objective and vision that reflects the specific needs and growth opportunities of this community, governance arrangements, key milestones for projects, timeframes and who will be responsible for delivery.

The Albury Wodonga Deal (under negotiation): centres on six priority areas: economic development, harmonisation of cross-border issues, infrastructure and connectivity, liveability, quality regional education and health services, and supporting the Indigenous community. Aim is to negotiate the deal by mid-2021. Consultations planned for second half of 2020.

The Hinkler Deal: this is a 5-year deal between the Australian Government (\$17.9M) and the Bundaberg and Fraser Coast Regional Councils (\$90M) for the Bundaberg and Hervey Bay region and its surrounds. The Hinkler deal is focused on three core themes: economic development (Investing in job creation, promoting business growth and developing a skilled workforce), resilience (enhancing the resilience of the community and the environment); and liveability and community (Building strong and cohesive local communities and ensuring the area is a destination of choice for generations to come).

The Barkly Regional Deal: this was the first regional deal and is a 10 year \$78.4M commitment between the Australian (\$45.4M), NT (\$30M) and Barkly Regional Council (\$3M) governments. The deal aims to improve the productivity and liveability of the Barkly region by stimulating economic growth and improving social outcomes, including reducing overcrowding and improving child safety.

To build a collective focus on a practical response to Covid-19 and maximize the Gippsland economy's resilience and optimize its positioning

It will also be important in developing a collective and practical response to Covid-19 and to ensure a successful transition for Gippsland's that leverages off traditional strengths. Covid-19 obviously has significant impacts on the tourism industry, as a result of restrictions on travel both domestically and internationally. C4G in concert with Destination Gippsland should advocate a focus on domestic tourism, i.e., taking part in Tourism Australia's "holiday here" this year campaign, and improving transport connectivity to Melbourne and beyond to enable Victorians to access and support the tourism market in Gippsland.. In addition, Covid-19 will affect the education sector, impacting the ability of the tertiary education sector to attract international students, and requiring new digital approaches and off-campus approaches to study. The aged care and health sector is also affected, with Covid-19 highlighting the need for a sufficient skilled health workforce, especially GPs, an issue in many regional areas, including Gippsland, the need for remote care, including via digital services, and reassessment of aged care models. Ensuring a sufficient skilled health workforce will require consideration by the education sector of its course offerings and advocacy by the education sector and C4G to ensure government funding is aligned with the particular needs of Gippsland for tertiary education.

³ For more details, see <https://www.regional.gov.au/regional/deals/>

To constantly work to leverage off Gippsland's traditional strengths to successfully transition to a diversified, resilient and sustainable region

Finally, Gippsland needs to leverage off its traditional strengths in dairy, forestry and energy to successfully transition to new economy areas, including advanced food and fibre initiatives and renewable and cleaner energy opportunities, C4G can play a significant role in facilitating interaction between the education sector, traditional and new industries, to assisting workers in the traditional industries to be aware of new education and training and employment opportunities. C4G also has a role in promoting the benefits of Gippsland to communities and to State Government as the ideal location for new industries, including renewables and cleaner energy, the carbon capture and storage CarbonNet project, the hydrogen project, and advanced food and fibre initiatives, and ensuring that these projects and the associated funding remain in Gippsland.

Appendix 1: Key Economic Features

This is not intended to be a complete economic and social profile of Gippsland, but rather is a brief overview, complemented by GHD's diagnostic work, to provide a basis for identification of Priority Areas and Key Actions and inform DeltaPearl Partners' understanding of some of Gippsland's key issues and future directions.

Key features of Gippsland

Gippsland is located in south eastern Victoria and has approximately 283,000 residents. It encompasses six local government areas (LGAs), Bass Coast Shire, Baw Baw Shire, East Gippsland Shire, Latrobe City, South Gippsland and Wellington Shire.

It has a vast footprint of 41,600 km², covering 18% of Victoria (it takes ~ 5 hrs to drive the 412 km from north to south and 6 hrs to drive the 495 km from east to west) and has a diverse landscape ranging from alpine regions to coast to Philip Island.



For ease of analysis AITHER (2019) divided Gippsland into three subregions “with broadly distinct characteristics”:⁴

- • Latrobe regional hub (Latrobe LGA): The City of Latrobe LGA (Latrobe LGA), comprising the large population centres of Moe, Morwell and Traralgon, is the regional hub and is located within the western portion of the region.
- • Western peri-urban fringe (Baw Baw, Bass Coast and South Gippsland LGAs): The western part of the region extends to the fringe of Melbourne and includes the towns of Warragul and Drouin.
- • Eastern regional areas (Wellington and East Gippsland LGAs): The eastern part forms the southern extent of the Australian eastern seaboard, with Bairnsdale being the main regional centre. The eastern areas are dominated by national parks with smaller established towns, lower population growth and fewer associated development pressures than the western regions.

⁴ Source: <https://www.sgsep.com.au/publications/insights/the-economic-impact-of-covid-19-and-bushfire>

Key facts

Location	SE Victoria
Population	283,000 (RDV); 271,804 (ABS 2016) = 4.6% of Victoria's population (1.32% growth 2008-2018) forecast to reach 346,000 by 2036 40% of population live in towns of less than 1,000 people Population in rural areas predicted to continue declining and ageing (AITHER)
LGAs (6)	• Bass Coast Shire, Baw Baw Shire, East Gippsland Shire, Latrobe City, South Gippsland and Wellington Shire
Subregions (3)	• Latrobe regional hub (Latrobe LGA) • Western peri-urban fringe (Baw Baw, Bass Coast and South Gippsland LGAs) • Eastern regional areas (Wellington and East Gippsland LGAs).
Key settlements	Latrobe Valley corridor is the major economic and population centre of the region. Latrobe City, as Gippsland's regional city, consisting of Moe, Morwell, Traralgon and Churchill, is seen as a collective urban system or networked city. The regional centres of Bairnsdale, Sale, and Warragul/Drouin are located along the Princes Highway. The regional centres of Leongatha and Wonthaggi, and the townships of Korumburra and Inverloch lie along the Bass and South Gippsland highways. Cowes (Phillip Island), Lakes Entrance, Orbost, Maffra and San Remo are also significant settlement locations. 40% of population live in towns of less than 1,000 people
Population of towns	• City of Latrobe LGA (Latrobe LGA) (62,500) - 23% of Gippsland population comprises the three large population centres of Traralgon (26,000), Moe (14,000) and Morwell (14,000), as well as Newborough (7,000) and Yallourn North (1,500). Other regional centres: • Bairnsdale (15,000) • Sale (15,000) • Warragul (14,000) • Drouin (12,000) • Leongatha (5,000) • Wonthaggi (4,000). Some of the larger regional towns (over 4,000 person) • Inverloch (6,000) • Maffra (5,000) • Lakes Entrance (5,000) • Cowes (4,000)

Overview of key industries, economic situation

Some key features of the economy and dominant industries are outlined below. The economy is dominated by agriculture and energy (electricity supply). Gippsland's GRP has been declining over the last 10 years, in contrast with the Victorian average, and SGS Economics predicts further decline, greater than the national average, due to the impact of Covid and bushfires (see below). There are concerns regarding the need to transition certain industries (power station closures, forestry). Despite this, Gippsland residents rate their wellbeing than the Victorian average.

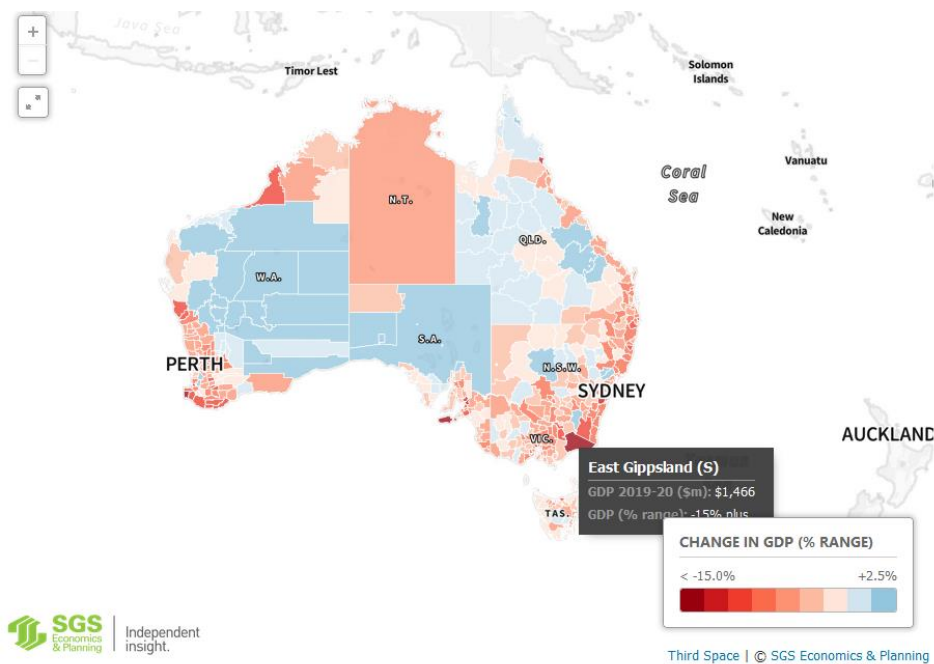
Economy	Fast facts • 2.03 billion litres of milk produced in Gippsland per year • 97% of Victoria's natural gas comes from Gippsland • 60% of Victoria's electricity is produced in Gippsland
Gross regional product	Top sectors contributing to GRP (59% in total) • Agriculture (14%)

	<ul style="list-style-type: none"> • Manufacturing (10%) • Construction (10%) • Energy (9%) • Health care (8%) • Mining (8%) <p>GRP lower than the Victorian average (The low relative output can partly be attributed to lower labour productivity, lower participation rates and an ageing population) GRP has declined in the last 10 years while Victorian GRP has grown AITHER notes that output is also impacted by the commuters living in Melbourne's peri-urban fringe and commuting to Melbourne - resulting in their economic output being attributed to other regions not Gippsland.</p>
Industry structure	<p>Regional economy is highly concentrated within both agriculture and energy / electricity supply (AITHER). Employment is growing in service-based industries but the concentration of employment in service-based industries is lower than in Victoria as a whole. Agriculture and associated industries are important exports for the region.</p>
Employment and unemployment	<p>Employment by industry:</p> <ul style="list-style-type: none"> • Most jobs are in the health care and social assistance sector (note major hospitals in Gippsland) and retail trade (but experienced contractions over 2006-11). • Job contractions in agriculture, retail sector and electricity sector in recent years (REMPPLAN) • Projected employment growth in health care and social assistance, education and training and construction (AITHER) <p>Lower participation rates than Victoria Unemployment similar to the Victoria average except for Latrobe LGA which is higher</p>
Impact of bushfires and Covid	<p>SGS Economics Report (2020) > 22% contraction expected in Gippsland annual GDP- three times the national average⁵</p>
Median incomes	<p>below those of Victoria and Australia</p>
Wellbeing	<p>Higher levels of reported wellbeing than the Victorian average</p>

Impact of bushfires and Covid-19

According to SGS Economics, due to the summer bushfires and Covid-19 pandemic, East Gippsland is likely to see a decline in annual GDP of 22.6% - three times the national decline.

⁵ Source: <https://www.sgsep.com.au/publications/insights/the-economic-impact-of-covid-19-and-bushfires>



However, analysis by DPP at the SA4 level indicates unemployment may not be an issue for Gippsland.

Tourism assets (nature-based tourism and national parks)⁶

Gippsland has a range of tourism assets, centred on nature-based tourism and national parks. Key assets include Philip Island, Wilson’s Promontory and many other national parks, and Gippsland Lakes.

Tourism assets	<ul style="list-style-type: none"> • Major national and state parks • Gippsland Lakes • Philip Island • Rural villages and heritage locations
Visitor numbers	10.8 M domestic and international visitors per year (Destination Gippsland) 5.45 M overnight stays
Jobs	visitation supports 3,000 businesses generates 15,000 direct and indirect jobs

Gippsland’s tourism assets include:

- Major National and State Parks - including Wilsons Promontory, Mount Baw Baw and the Alpine, Cape Conran, Morwell, Croajingalong and Tarra Bulga National Parks
- Gippsland Lakes
- Phillip Island (one of the premier tourist attractions)
- A wide range of rural villages and heritage locations, including Walhalla.

Current visitor numbers and jobs

⁶ RDV, Destination Gippsland

Destination Gippsland estimates that more than 10.8 million domestic and international visitors per annum are attracted to the region’s significant nature-based experiences including the Gippsland Lakes, Ninety Mile Beach, Wilson’s Promontory, Phillip Island Nature Parks and the Mt Baw Baw, Croajingalong, and Tarra Bulga National Parks. There are currently 5.45 million overnight stays.

The current level of visitation to the region supports 3,000 businesses and generates more than 15,000 direct and indirect job (Destination Gippsland).

Manufacturing assets - food, timber & paper, aviation (aerospace)

Gippsland has a well-developed food production / manufacturing industry, specializing in dairy and vegetable processing. It has timber and paper production assets, particularly Opal (previously Australian Paper) Maryvale.

New / advanced manufacturing assets include aerospace manufacturing.

Food manufacturing assets	Macalister Irrigation District Dairy production Vegetable processing Beef production
Timber and paper production assets	centred on Opal (previously Australian Paper) Maryvale
Aviation / aerospace	The multinational company Mahindra Aerospace, trading as GippsAero, is based in the Latrobe Valley at Latrobe Regional Airport and manufactures the only aircraft of its kind in Australia. In the short term this industry is under stress from Covid-19. But long-term aviation will resume. Significant exports plus support RAAF base at East Sale and Defence Force Pilot Training School. Aerospace manufacturing is the next highest manufacturing export after food and paper processing.
Gippsland Hi-Tech Precinct	Centre for research, business incubation, new product development, start up support, and education and training. It will support the growth of local industry and play an important role in supporting the expansion of the region’s growth sectors – health, food and fibre, advanced manufacturing and new energy.

Dairy and vegetable processing: As a major food producer and food manufacturer specializing in *dairy and vegetable processing*, Gippsland farms account for at least one quarter of Victoria’s milk, vegetable and beef production with a number of Gippsland’s businesses exporting food across the world. Gippsland is a major producer of quality and high-value foods and products.

Timber and paper production are centred on Opal (was Australian Paper) Maryvale.

Aerospace/aviation manufacturing. The multinational company Mahindra Aerospace, trading as GippsAero, is based in the Latrobe Valley at Latrobe Regional Airport and manufactures the only aircraft of its kind in Australia. Significant exports plus support RAAF base at East Sale and Defence Force Pilot Training School. Aerospace manufacturing is the next highest manufacturing export after food and paper processing.

Gippsland Hi-Tech Precinct in Morwell, an initiative between Federation University Australia, TAFE Gippsland, Gippsland Tech School, Latrobe City Council and the Victorian Government. The Gippsland Hi-Tech Precinct will be a centre for research, business incubation, new product development, start up support, and education and training. It will support the growth of local industry and play an important role in supporting the expansion of the region’s growth sectors – health, food and fibre, advanced manufacturing and new energy. It will also create jobs by accelerating technology adoption and attracting new investment in the region and centralise and connect the research and innovation already taking place. The Precinct will be centred on the physical site of TAFE Gippsland’s

Morwell campus, on the corner of Monash Way and Princes Way, and will be virtually connected throughout the region and beyond.

Energy assets

Energy production is one of Gippsland’s major industries with the region producing around 60% of Victoria’s electricity, 70% of Victoria’s natural gas (and around 40% of eastern Australia’s domestic gas), and produced almost half of all oil produced in Australia to date.

Gippsland has significant brown coal deposits and electricity production - there is a need to diversify the energy mix and transition this industry as power plants are shut down. Alternate uses being investigated. Gippsland has a strong knowledge of the energy market. “New energy” assets include wind farms, including proposed offshore wind farm, and the pilot hydrogen project. Also, a proposed Regional Carbon Innovation Centre (RCIC), which has reached feasibility stage.

Energy assets	<ul style="list-style-type: none"> •Power stations •Significant brown coal deposits •High voltage transmission lines •Offshore oil and gas fields •Longford gas plant •Oil and gas pipelines
“New energy”	<ul style="list-style-type: none"> •Major wind farms are established • Offshore wind farm being investigated (Star of the South) • Hydrogen pilot project underway (Hydrogen Energy Supply Chain (HESC) project) CarbonNet project investigating CCS
Alternate uses for brown coal	<ul style="list-style-type: none"> • Alternate uses for brown coal being investigated / underway (options include gas, diesel, fertilizer) <p>Other developments in this space include the Regional Carbon Innovation Centre (RCIC) - feasibility study completed (received \$100K funding from RDV)</p> <ul style="list-style-type: none"> • Dutson Downs fertilizer •Carbon Technology Research Centre (CTRC) established at Gippsland’s Federation University campus
Opportunities and requirements for growth	<p>Opportunities</p> <ul style="list-style-type: none"> • Bio energy and solar - Latrobe Valley and Gippsland Plains • Wind projects - Gippsland coast and offshore • Hydrogen pilot project • establishment of CTRC at Federation University • CarbonNET •Renewable Energy Zones <p>Need to:</p> <ul style="list-style-type: none"> • Gain community support for wind farms • advocate for supportive state and local government policies

Power station shutdowns

Coal-fired power stations being shut down. In Vic, shutdowns have included Morwell August 2014, Anglesea August 2015, Hazelwood March 2017. The Yallourn power station is due to begin shutting down from 2029. It provides about a fifth of Victoria’s electricity. Loy Yang B is set to close from 2047 and Loy Yang A is set to run until 2048 although some doubts have been raised about whether generators will reach their scheduled closure dates.

Alternate uses for brown coal

Vast coal reserves could be used to produce high-value energy products, gas, diesel and fertilizer for domestic and export markets. Alternate uses for brown coal being investigated / underway - e.g. Advanced Lignite Demonstration Program involves three companies developing high-value energy

products, including oil, fertilizer and upgraded coal for local and export markets. Also, other “very active” developments in planning and design.

Carbon Technology Research Centre (CTRC) Gippsland Regional Partnership recommend support for the Carbon Technology Research Centre (CTRC) as a roadmap action. CTRC is an interim centre at Federation University Australia (FedUni), having received \$2.3M in Education Investment Fund (EIF) funding for carbon capture research and training. The re-furbished and re-equipped laboratory officially opened in September 2016. It conducts specialized analytical training, research and testing in the brown coal space.

Regional Carbon Innovation Centre: Another development in this space is the Regional Carbon Innovation Centre (RCIC) proposed for the Latrobe Valley -a feasibility study has been completed. The proposed RCIC is a collaboration between Australian Carbon Innovation (ACI) and Federation University’s Carbon Technology Research Centre (CTRC). Its purpose is to take new carbon-related products and technologies developed in the lab and turn them into commercial opportunities. Funded jointly by ACI and Federation University and supported by \$100k in funding from Regional Development Victoria after being considered in the highest priority project category following a Regional Partnerships forum in Wonthaggi, the feasibility study has found that the Centre could bring over 1,000 jobs to the Latrobe Valley in next-generation industries and associated services. By helping to lower the costs associated with demonstrating this research at commercial scale, the RCIC would play a pivotal role in commercializing high-value carbon-related products and technologies in the Latrobe Valley to supply markets both domestically and overseas. The RCIC is particularly relevant for the Latrobe Valley, as the region has significant carbon resources stored not just in its coal but within the paper industry and forests. The region also possesses the skilled workforce, higher learning capabilities and technology centres to support the Centre in these activities. By retraining workers in the region’s declining energy industry and its supporting industries, the Centre has the potential to enable a transition towards a low-emissions economy, using the Latrobe Valley’s existing natural resources to drive significant economic growth. It comes at a critical time for Gippsland, with the closure of power plants, loss of small-to-medium enterprises, challenges within the fibre industry and an ageing population likely to impact the local economy and employment. The Centre would continue to help facilitate research currently being undertaken by Federation and ACI in the region, covering areas such as agricultural products, advanced carbon materials, high-value chemicals, alternative fuels including hydrogen, and technologies for carbon capture, utilization and storage. The proposal builds on decades of partnerships, technology and science driven by ACI and Federation, and which have been developing locally, nationally and internationally. The Centre has strong support from Regional Development Australia, Regional Partnerships, Latrobe City Council, and more than 17 separate local and international industry organisations. Facilities like the RCIC exist in a number of regions across the globe, with government support playing a key role in their success. It is estimated that a total government investment of \$25-30m will be required to successfully establish the Centre.

Alternative energy sources / Renewables

Bioenergy, solar and wind all offer economic, social and environmental opportunities in the region. Large-Scale wind projects are suited along the Gippsland coast, while large-scale bioenergy and solar are suited to the Latrobe Valley and Gippsland Plains. Renewables include developments such as the Bald Hills Wind Farm in South Gippsland, a 52-wind turbine facility that was commissioned in 2015, was a \$300M investment, creating construction jobs and enough electricity to power 60,000 homes every year. One of the key challenges to growing investment in renewables will be gaining community support for further large-scale developments (Regional Plan).

Star of the South Offshore wind farm SE coast

Star of the South Offshore Wind Farm project

The Star of the South is Australia’s first offshore wind project (see Box 4). Offshore wind is a proven method of generating electricity, with offshore wind projects installed across Europe producing reliable and sustainable energy over the last 20-plus years. Asia and North America have also more recently adopted offshore wind energy production.

The south coast of Gippsland appears to be a great location for offshore wind due to strong and consistent winds, relatively low water depths and access to ports. A major advantage is that there is plenty of capacity in the existing electrical transmission network in the Latrobe Valley. The project is in the feasibility phase operating under an exclusive exploration licence granted by the Australian Government. An advantage of offshore wind is that it avoids visual amenity impacts and competition with agricultural land compared with onshore wind projects.

Box 4: The Star of the South

The Star of the South is Australia’s first offshore wind project, proposed to be located off the south coast of Gippsland. It has the potential to supply up to 18% of Victoria’s electricity needs. Development of the project is at an early stage (currently in the feasibility stage), but the company estimates it will include up to 250 turbines within a 574 km² area.



The Star of the South project involves the following main components:

- • Wind turbines and offshore substations in the ocean off the south coast of Gippsland.
- • Submarine cables from the wind farm perimeter to the Gippsland coast.
- • A transmission network of cables and substations connecting to the Latrobe Valley.
- • Upgrades to ports to allow for construction, operation and maintenance may also be required.

The south coast of Gippsland is an ideal location for an offshore wind farm due to strong and consistent winds, relatively low water depths and access to ports. A major advantage is that there is plenty of capacity in the existing electrical transmission network in the Latrobe Valley.

In March 2019, the Australian Government granted Star of the South an exploration licence, allowing the project team to carry out a range of site investigations. These investigations will assess local wind, seabed and environmental conditions and will help to confirm if the project can go ahead, subject to Australian and Victorian Government approvals.

Based on initial investigations, the project would:

- • have the capacity to generate enough energy to power hundreds of thousands of homes
- • create a valuable source of clean energy, assisting the transition from existing energy sources, decreasing carbon emissions and providing a reliable energy source.
- • contribute towards Victoria and Australia meeting their local, national and international climate change targets
- • drive investment and create new opportunities for Gippsland, the Latrobe Valley and Victoria.

- • create numerous direct construction jobs and indirect jobs as well as numerous local permanent jobs during its operation and maintenance period.

Hydrogen energy supply chain (HESC) project

Support for this project advocated by Gippsland Regional Project as a roadmap action

The HESC is a pilot project to produce hydrogen in Victoria and export it to Japan.

Runs from 2018 to 2021.

Hydrogen could provide a secure and clean source of energy as countries tackle the challenge of meeting national and international emissions reduction targets.

This project will develop and trial a seven-stage hydrogen supply chain.

1. Gasification of Victorian brown coal to produce synthetic gas (carbon monoxide and hydrogen).
2. Refining the gas to hydrogen.
3. Transporting the gas by truck from the Latrobe Valley to the Port of Hastings in Victoria.
4. Liquefaction of gas to hydrogen liquid.
5. Storing the liquid hydrogen for transport by ship to Japan.
6. Transporting the liquid hydrogen to Japan using an advanced technology, purpose-built ship.
7. Unloading and storing the liquid hydrogen in Japan.

A successful pilot project will be a first step towards establishing a commercial hydrogen production and export industry.

The project will deliver significant economic benefits to Australia. It will also build on Australia's long-standing and productive relationships with Japan.

The decision to move to commercial production will be made in the 2020s and operations would be established in the 2030s. This will depend on the successful completion of the pilot, regulatory approvals, community backing and demand for hydrogen.

This project is an important step for Australian science and innovation as we investigate new ways to create and use energy in the global economy.

HESC timeline:

- 2017 to 2018 Planning and Approvals: Front end engineering and design (FEED). Regulatory approvals and engagement with local communities.
- 2019 to 2020 Pilot Construction: Detailed design and construction of pilot facilities to commence from 2019.
- 2020 to 2021 Pilot Operations: Pilot operations and delivery of hydrogen to Japan.
- 2020s to 2030s Technical Reviews and Commercial Operations: The decision to proceed to a commercial phase will be made in the 2020s with operations targeted in the 2030s depending on the successful completion of the pilot phase, regulatory approvals, social licence to operate and hydrogen demand.

HESC governance and partners

The Australian funded portion is coordinated by Hydrogen Engineering Australia (HEA), a consortium comprised of Kawasaki Heavy Industries (KHI), J-POWER, Iwatani Corporation, Marubeni Corporation, Sumitomo Corporation and AGL. HEA is a 100 per cent subsidiary of KHI. This portion involves refining the hydrogen gas in the Latrobe Valley, transporting it to the Port of Hastings, converting it to liquid and then loading it onto the marine carrier. The Australian and Victorian governments are providing funds to the Australian portion.

The Japan funded portion of the HESC pilot phase is coordinated by the CO₂-Free Hydrogen Supply Chain Technology Association (HySTRA), acting on behalf of KHI, J-POWER, Iwatani Corporation, Shell, JXTG Nippon Oil and Energy Corporation and “K” line (Kawasaki Kisen Kaisha Ltd). The Japanese funded portion includes converting brown coal to gas in the Latrobe Valley, transporting liquid hydrogen by sea and then unloading it in Japan.

Australian and Victorian Governments

The Australian, Victorian and Japanese Governments are supportive of the HESC project and its potential to deliver zero-emissions hydrogen to Japan. They are providing funds to their respective jurisdictions for the HESC project. The Australian and Victorian Governments provided funds to the development of the Front End Engineering and Design (FEED) stage of the HESC pilot project in 2017 and will continue their support throughout the pilot phase to maintain oversight to ensure a pathway towards commercialization is possible.

Project advisers

External advisers engaged to assist with HESC activities in Australia, include KPMG (lead strategic adviser); GHD (technical, approvals, community and stakeholder engagement adviser); Advisian (technical adviser); Clayton Utz (legal adviser).

Key issues with hydrogen include:

- It is very expensive to produce
- It can be produced with any sort of source energy, but the aim is to use renewables to make hydrogen as a sort of battery storage for clean energy
- Big demand from Japan and Korea as they need to meet carbon emissions targets but don't have much land to use and import most of their energy. Nuclear has become unpopular in Japan
- State gov are looking at adding hydrogen to the LNG supply up to 10% is thought to be ok with current plumbing but not yet fully tested.
- Problems include: cost, difficult to use and transport as the molecules are 10 times smaller than LNG so it leaks out of normal gas plumbing, highly explosive but evaporates quickly, burns much hotter than LNG or LPG so need to change domestic gas fittings and pots if it put into the gas supply pipes, leaking issues could be dangerous if in cars parked in enclosed garages....
- One method being explored is to make ammonia that is exported and then turned into hydrogen at the power plant or other uses as the ammonia is easier to ship. Not sure what the cost of turning the ammonia into hydrogen but the conversion is about 4:1. Uses a lot of energy

Links

<https://arena.gov.au/projects/australian-hydrogen-centre/>

<https://h2council.com.au/>

<https://www.industry.gov.au/sites/default/files/2019-11/australias-national-hydrogen-strategy.pdf>

<https://www.hydrogenaustralia.org/>

<https://www.ga.gov.au/scientific-topics/energy/resources/hydrogen>

CarbonNet project - carbon capture and storage

In a carbon constrained environment, ongoing utilization of Gippsland's extensive brown coal reserves will require substantial mitigation of the related greenhouse gas emissions. CCS is a potential emissions mitigation technology for the region, with the Gippsland Basin identified as a potential site for CCS. CCS involves capturing CO₂ released by industrial processes, compressing it and then transporting it to an injection site to be sequestered deep underground for safe, long-term storage in suitable geological formations – similar to the way oil and gas has been stored underground for millions of years (<https://earthresources.vic.gov.au/projects/carbonnet-project>).

The IPCC Special Report on CCS suggests that the environmental risks are low: “well-selected geological formations are likely to retain over 99% of their storage over a period of 1,000 years. Overall, the risks of CO₂ storage are comparable to the risks in similar existing industrial operations such as underground natural gas storage” (cited in <https://www.aph.gov.au/binaries/house/committee/scin/geosequestration/report/fullreport.pdf>; for a more recent review, see also “Significant aspects of carbon capture and storage – A review” (2019), available at : <https://www.sciencedirect.com/science/article/pii/S2405656118301366>.)

The Gippsland region provides an ideal platform from which large-scale CO₂ storage projects of global importance may be undertaken.

Natural assets / advantages - Gippsland Basin offshore and Bass Strait have been shown to rank highest in terms of accessibility and storage capacity over other potential Victorian locations. The National Carbon Taskforce (2009) found that the offshore Gippsland Basin has the highest technical ranking of 25 major basins across Australia and the largest storage potential of any east coast basin. Gippsland also has some industries ideal for capturing storage - some industrial processes (natural gas fertilizer, hydrogen and biofuel sectors) separate CO₂ as part of their normal operations, reducing capture costs for CCS. Alignment with government climate change policy and targets and thus identified mega trends, as assists in addressing climate change. CCS endorsed by the International Energy Agency and Intergovernmental Panel on Climate Change - both believe that CCS can play an important role in helping to meet global emission reduction targets.

Commercial-scale CCS would contribute to diversification, economic growth and resilience of Gippsland - would enable new industries in Victoria and may assist in maintaining existing power industry and jobs in the Latrobe Valley if can undertake carbon capture.

The CarbonNet Project:

CarbonNet is investigating the potential for establishing a commercial-scale CCS network in Gippsland. It would bring together a number of existing CO₂ capture projects in Latrobe Valley, transport CO₂ via a shared pipeline and inject it into deep underground, offshore storage sites in Bass Strait. The project is exploring the potential to initially capture and store up to 5 million tonnes of CO₂ per year. Successful implementation of the project could be the starting point for an expanding commercial-scale carbon transportation and storage system.

C4Net Centre

Gippsland Regional Partnership identifies “Progress New Energy Technology Centre (C4NET)” as a roadmap action.

C4Net was established in 2018 (see <https://c4net.com.au/>). It is an industry-led, and government supported not for profit company.

C4NET is supporting the energy sector’s transformation through the delivery of data driven projects and partnerships”

Our founding members are Swinburne University, Monash University, RMIT University, Federation University, Deakin University and the University of Melbourne, AusNet Services and Powercor (on behalf of Citipower and United Energy). Each organisation has been instrumental in shaping C4NET’s structure and mission. The AEMO was also involved in C4NET’s development and continues to be closely involved in our work, providing support under a Memorandum of Understanding.

The centre was incorporated on 16 May 2018 and officially launched on 27 August 2018, with a Board of Directors appointed at this time.

Transport infrastructure

Gippsland is well connected via Melbourne to a number of key economic centres as well as a key airport and port. Key transport infrastructure is consequently centred around the Princes Highway and rail that connects Melbourne to Latrobe LGA and Bairnsdale

Major highway to Melbourne	Princes Highway
Major regional highways and road network	see below
Rail	Gippsland Rail Corridor • Direct passenger and freight rail routes from Bairnsdale to Melbourne through the Latrobe LGA and Warragul.
Airports	The region does not have a major airport; however, it does have several smaller regional airports. Gippsland also hosts the East Sale Royal Australian Air Force base
Ports	Local ports including Port Hastings • Port of Hastings - further development as Victoria’s second major port being considered - concerns re negative impact on Bass Coast environment and Philip Island.
Requirements for Growth	Need to improve access to Melbourne via increasing functionality and safety of Princes Highway and regional highways

The road network through Gippsland includes:

- • Princes Highway – Melbourne-Latrobe LGA-Bairnsdale-Sydney link
- • Great Alpine Road – Bairnsdale-Omeo-Wangaratta link
- • South Gippsland Highway – Melbourne-Leongatha-Longford link
- • Strzelecki Highway – Leongatha-Morwell link.
- • Bass Highway – Lang Lang-Grantville-Wonthaggi-Leongatha link
- • Monaro Highway – Cann River-Cooma-Canberra link
- • Phillip Island Road – Cowes-Anderson link

Digital infrastructure

AITHER (2019) and Infrastructure Victoria (2019) have investigated digital infrastructure in Gippsland. Results are summarised below. Weak coverage in key tourist locations and primary production areas, limiting access to markets for tourism and primary production.

Table 1 General findings for the supply of digital infrastructure in regional Victoria

	Fixed broadband access	Mobile access
Cities and large towns, such as Traralgon and Morwell	Generally comparable to metropolitan Melbourne with some access to FTTP and widespread provision of FTN within town centres, but fixed wireless and satellite serving the town fringe and beyond.	Generally comparable to metropolitan Melbourne with multiple carriers operating 4G networks, but quality and reliability of access can fade beyond town centre.
Small towns and localities, such as Wurruk and Venus Bay	Generally provisioned with fixed wireless services in the town centre with the fringe and surrounding areas receiving satellite. Some small towns receive higher-speed FTN or FTTC services.	Less capacity and reliability than in larger towns. Better quality within the town centre than when moving into surrounding areas and between towns.
Primary production areas, such as beef and dairy grazing around Warragul	Lower capacity fixed broadband technologies like fixed wireless and satellite available due to remoteness of these farms / businesses. Fixed wireless is more available closer to population centres.	Variable service quality across primary production areas. Better when closer to population centres and unimpeded by local topography.
Tourist locations, such as Wilsons Promontory	Most relevant to tourist operators and businesses. Higher capacity technologies like FTN available to operators in town centres, but lower capacity services like fixed wireless and satellite in more remote tourist locations.	Often weak coverage in remote locations such as trail walks and national parks and network limitations in accommodating large influxes of visitors during periodic events and peak tourism seasons.
Transport corridors, such as major highways and rail lines	N/A	Stronger and more reliable coverage on large highways and rail lines out to Traralgon, with service quality and reliability compromised on smaller roads and in more remote areas such as East Gippsland.

Source: Infrastructure Victoria 2019.

Education

Education assets	Federation University Campus TAFE Gippsland Gippsland Tech School Gippsland Innovation Centre (to open in 2020) (part of Hi-Tech Precinct at Morwell)
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Education plays a critical role in ensuring a displaced workforce is skilled and trained to capitalize on new employment opportunities and curriculum continues to be contemporary and in alignment with new and emerging industry sectors. Education, training and skills development at the forefront of recovery. Education assets include Federation University, TAFE Gippsland and Gippsland Tech School.

Federation University: Federation University has a Gippsland campus, located in the township of Churchill in the foothills of the Strzelecki Ranges; It is about 2 hrs drive from Melbourne on the Princes Highway or 90 minutes by train.

Gippsland Innovation Centre at Federation University: \$16m Innovation Centre in Gippsland is set to provide students and businesses with access to the latest knowledge in innovation and technology. Opening in 2020, the Gippsland Innovation Centre will house dynamic spaces designed to promote

creative thinking and practice and support local enterprise and entrepreneurship. It will allow for new collaborations to support transition and economic growth in the Gippsland region, and is being built in response to the region's need to: increase the adoption of technology, support industry growth, transition and employment growth; enhance and strengthen the region's social capital by strengthening existing networks.

The Gippsland Innovation Centre is part of the Hi-Tech Precinct in Morwell, an initiative between Federation University Australia, TAFE Gippsland, Gippsland Tech School, Latrobe City Council and the Victorian Government.

It will support the growth of local industry and play an important role in supporting the expansion of the region's growth sectors – health, food and fibre, advanced manufacturing and new energy. It will also create jobs by accelerating technology adoption and attracting new investment in the region and centralise and connect the research and innovation already taking place.

Funding for the Gippsland Innovation Centre has been granted from the Victorian Government through Regional Development Victoria.

It will form an integral part of the wider Hi-Tech Precinct in Morwell: an initiative between Federation University, TAFE Gippsland, Gippsland Tech School, Latrobe City Council and the Victorian Government.

By helping to enable economic, research and innovation partnerships, it is hoped the Gippsland Innovation Centre will be a flagship for the University and a hub for technology and innovation activities in the region.

Decision-makers in Gippsland

Local governments	Bass Coast Shire, Baw Baw Shire, East Gippsland Shire, Latrobe (City), South Gippsland Shire, and Wellington Shire.
Regional bodies	Regional Partnership Gippsland Committee for Gippsland (C4G) Regional Development Victoria (RDV) Destination Gippsland
Local business leaders, chambers of commerce, industry organisations	Food and Fibre Gippsland, Gippsland Regional Partnership Food & Fibre Working Group.
Educational institutions	Federation University, Gippsland Campus
Residents	C4G survey

1. Local business leaders, chambers of commerce and industry organisations – for information on the local labour market, skills needs, economic trends, demographic trends, innovations and new technologies, trade issues, current export specialization, opportunities to build access to markets and comparative advantage.
2. Residents – for information on factors driving population and demographic change, and local opportunities for education and training.
3. Educational institutions and training providers – for information on trends in educational attainment, interest in apprenticeships and traineeships and the rate of enrolments, innovations and new technologies, and opportunities to undertake research and development.
4. Local government – for information on population and demographic change, infrastructure issues and upcoming investments, and land planning, including development application rates for housing and commercial construction

Appendix 2: Regional Economic Development Principles

Principles for transitioning regional economies / assessing the scope for economic and social development in regions

According to the Productivity Commission, in assessing the scope for economic and social development in regions, the following principles should be taken into account:

- Incorporate the views and knowledge of regional communities.
- Consider a **region's relative strengths and inherent advantages**.
- Identify **barriers to people or businesses relocating**, either within the region, or to other regions.
- Identify **unnecessary regulatory impediments to people or businesses** taking up economic opportunities.
- Include robust and transparent evaluation of existing programs and policies.
- Include **rigorous strategic regional planning and cost–benefit analysis** of any proposed programs, policies or strategies.
- Consider the **scope for private economic activity** that is not dependent on ongoing government financial support (other than payments made under general taxation, social security and welfare laws)

Regulatory reforms relate to **land use planning and development**, environmental, agriculture-related regulation and **occupational licensing**.

- “Governments can primarily facilitate successful development by removing unjustified or excessively burdensome regulations that impede people and businesses from taking advantage of opportunities. Significant benefits would arise from expediting regulatory reforms in land use planning and development, environmental, agriculture-related regulation and occupational licensing. These ‘win-win’ reforms benefit all regions but are particularly important to regions that do not have the advantages and range of opportunities found in capital cities and major regional centres” (PC 2017).

“Strong and **effective local leadership is critical** in developing and implementing regional development plans. There is a case for State and Territory governments to **build capacity in leadership of regional institutions and community groups** and to ensure these entities can attract skilled leaders”.

Enablers of regional development

Enhancing the capabilities of people

Inadequate human capital (including skills, education and experience) has emerged as a key factor contributing to low adaptive capacity in Australia's regions. Improving human capital does not necessarily involve increasing participation in higher education. Rather, improving capabilities is about improving the ability of people in a region to take advantage of employment opportunities and industry trends, and/or to take up business and entrepreneurial opportunities. Building capabilities in this sense might mean **better targeting vocational or professional training courses to industry requirements and promoting access to and participation in these forms of education and training**. It may also involve facilitating leadership within the community to plan for and drive change.

Governments may be able to encourage improvements in human capital in regional communities through initiatives such as:

- **promoting stronger relationships between local industries and education providers** to ensure education and training programs meet industry demands. Universities could also help by linking research and technology developments with local business owners to help them find new and innovative ways of doing business (University of Newcastle, sub. DR64)
- **encouraging skilled workers to relocate into, and remaining in, regional areas, such as by promoting the lifestyle benefits of a region and improving its amenity and attractiveness.** This can be seen, for example, in the G21 Geelong Regional Alliance's objective of developing a 'vibrant and active region' characterised by cultural diversity and nationally significant events and activities, as a means of attracting 'educated, skilled and interesting people' (2014, p.21).
- **It may also involve improving the social infrastructure and amenities of a region (such as the provision of quality health and education services)** to assist in attracting and retaining a skilled workforce (CEDA2016, p.28)
- **collecting and providing information (to people within a region and those in nearby regions and capital cities) about skills in demand within a region** (RASC2013, p.17).

Enhancing regional connectivity and infrastructure

Building capacity in regional communities might also involve investment in infrastructure that facilitates 'connectivity' —the movement of goods, services and people, and communication between people.

improved transport and telecommunications infrastructure would enable people and businesses in regional communities to take advantage of opportunities.

investment in transport infrastructure, including connecting relatively closed and isolated regions to external markets, and ensuring that transport infrastructure capitalizes on privileged geographic positions' (2012, p.23).

quality broadband services are critically important to a region's integration with other parts of Australia and the world

Regional Economic Development Guide (Australian Government) (2013)

Five key determinants of economic development

- human capital, particularly education and skills
- sustainable communities (economically, environmentally and social) and population growth
- access to international, national and regional markets
- comparative advantage and business competitiveness
- effective cross-sectoral and intergovernmental partnerships and integrated regional planning

Source: Regional Economic Development Guide 2013, Australian Government.

Types of activities

Figure 2 Different types of regional economic development activities

<p>Human Capital</p> <p>Skills and employment development</p> <ul style="list-style-type: none"> • Education and training • Workforce skills development 	<p>Social and environmental sustainability</p> <p>Social and environmental sustainability</p> <ul style="list-style-type: none"> • Land planning and development • Urban space and community infrastructure development • Social and green development activities • Urban service delivery
<p>Access to Markets</p> <p>Promotion</p> <ul style="list-style-type: none"> • Regional branding and international promotion • Investment attraction • Events and expos (trade, tourism, sports, etc) 	<p>Comparative Advantage and Business Competitiveness</p> <p>Investment and Development</p> <ul style="list-style-type: none"> • Developing funding applications and managing projects <p>Organisational Capacity Building</p> <ul style="list-style-type: none"> • Fostering entrepreneurs and SMEs • Technical assistance and educational programs • Promotion of technology, creativity and innovation
<p>Partnerships and Integrated Planning</p> <p>Strategic Development</p> <ul style="list-style-type: none"> • Fostering the formation of partnerships and consortiums • Strategic planning for economic development 	

- Six steps to strengthen regional economies

Figure 3 Six steps in strengthening regional economic development



Appendix 3: GHD Gippsland Future Directions: An economic context

Summary of Findings

This report presents an overview of Gippsland's regional economic performance, using key economic indicators from recent history, and comparisons to other regional benchmarks. It summarises seven global macro-economic changes, or mega trends, and consideration of their ongoing impact and effect on Gippsland.

The report then introduces concepts to understand and analyse economic conditions and competitive advantages. It analyses major industry sectors, and highlights Gippsland's competitive and comparative advantages. Report findings include:

Gippsland faces a challenging economic future, unless there are significant changes to the fundamental settings of all layers of government, and acceptance from the residents of those changes. Victorian Government policy changes are impacting key regional economic drivers, including the power sector, commercial fishing in the Gippsland lakes, and native forestry industry. These industries have underpinned the Gippsland economy for decades. The region will have to adapt economically, or residents are likely to experience falling wealth and a lower standard of living.

The region will need a fresh cultural and structural approach to invoke change, including collaboration at all levels of government, to create a friendlier regulatory and funding framework, which encourages new investment and industry. Government will need to work with businesses and residents to facilitate change and opportunity. With its proximity to the major metropolitan centre of Melbourne, Gippsland growth opportunities include encouraging tourism/recreation, quarrying, coal, new energy, offshore fishing, education, high value agriculture and forestry, and the knowledge economy.

Government regulatory constraints are an impediment to economic activity in Gippsland, for example overly restrictive and complicated land and building development rules and approval processes. Government rules protect some 91 percent of land from further development (28 percent agriculture, 34 percent forestry, 28 percent national park, or similar). This restricts most of the economic activity to just nine percent of available land. A five percent reduction in land development constraints on agriculture, for example, could increase annual Gross Regional Product (GRP) by \$1.8 billion (11.5 percent); a five percent reduction on land development constraints on forestry could increase annual GRP by \$2.3 billion (14.8 percent).

Government can ease housing supply by approving more supply, and streamlining approval processes, thereby reducing barriers to entry. Currently, relative mortgage payments to wages in Gippsland are higher than regional centres such as Ballarat, Bendigo, and Geelong. Importantly, Gippsland is almost 1.5 percent higher in relative mortgage payments than Melbourne. This, combined with a higher chance of gaining work, makes Melbourne a much more attractive location for young workers and families.

Incentivised and targeted population growth, which attracts more people to the region, temporarily or permanently, will improve the economy through increased consumption and greater economic activity. Transport investment is key to fostering growth. It will reduce travel times, creating a more accessible region, and open commercial routes for export. Approving land for development, including residential and commercial, will entice people and enterprise.

Agriculture needs to rediscover its natural competitive advantage, following a difficult period of low to negative returns, a trend expected to continue. Gippsland's high-quality soil, good water security and long-established agricultural practice give a natural competitive advantage, somewhat

obscured in today's highly competitive global agriculture market. The cost of agricultural production in Gippsland constrains its competitiveness, though some areas remain profitable.

Gippsland's beauty and long coastline coupled with its closeness to Melbourne are highly desirable for increasingly mobile business and people. Technological advancement, greater remote working, accelerated by the current pandemic, means investment and productive activity is shifting away from physical capital and towards intellectual capital. High value people and small businesses are increasingly looking for attractive locations, with good services, near a major business centre and airport. Gippsland could become a vibrant Victorian 'Silicon Valley', with the support of the community, and government changes to structural economic policy.

The future growth in tourism employment is high and could be improved by targeted policy and investment. Tourism is becoming an important part of the Gippsland economy showing up in the GRP and employment figures as accommodation and food services, even as primary industries remain the economic drivers of wealth that local workers spend on services.

The Gippsland Basin is the region's largest natural competitive and comparative advantage, holding a quarter of the world's known brown coal resources, and massive gas reserves. The future use of brown coal in the region, beyond the life of the existing power stations, remains limited without government support to develop the resource for value-add products, and with a smaller carbon footprint than current thermal power generation.

An ageing demographic is a challenge for Gippsland, which has the highest percentage of people over 65 of all Victoria's regions, at 22 per cent. That is expected to increase to 32 percent by 2056. Melbourne, by comparison, has 14 percent, forecast to grow to 19 percent by 2056. Ageing population will increase employment opportunities in aged care, health care and social support, but these are low paid compared to the region's traditional industries, such as power generation.

The forestry industry has become a low value, low profitable activity, despite a long history in Gippsland, and established skills base. Forestry - like many industries, affected by megatrends - is today much smaller. The Victorian Government until recently supported the industry by allowing operations in state forests, which had the benefit of reducing bushfire risk. But the current state government has decided to stop forestry activity in native forests, which amounts to about 50 percent of the region's total forestry activity. The affected workers will require help into new industry/employment. The need for bushfire risk management will remain but will need significantly less labour input than the past forestry business.

Commercial fishing in Commonwealth fishing zones could present a viable future industry in Gippsland. The Australian Fisheries Management Authority (AFMA) set a total allowable catch (TAC) of fish of each species but each year much of the TAC remains uncaught. Commercial fishing in Commonwealth fishing zones could boost viability, even as the Victorian Government phases out the commercial lakes fishing industry.

Raising education levels in the Gippsland population will improve outcomes for people. Education levels in Gippsland are below average. About 41 percent of people in the region do not pursue further education or training compared to a Victorian total of 25 percent. Some 37 percent of Gippsland residents have a bachelor's degree compared to 54 per cent Victoria-wide. The changing economy needs workers with higher education levels to fuel innovation, and business development.

