

Great South Coast Economic Futures

FINAL REPORT | MAY 2020

This report was commissioned by:



















Disclaimer

This is a final report for the client intended to establish pathways for securing investments in reliably high-value sectors in their region. It is intended to be distributed widely by the client group to encourage pilots and commercialised research and development programs as well as to inform government policy development for this region. For proper context it is designed to be read in conjunction with the preceding *Interim Report*.

The authors have taken reasonable measures to ensure the information in this document is correct at time of publication, but give no guarantee or warranty that the content is up-to-date and accept no responsibility for the accuracy or completeness of the material.

The information contained in this report does not constitute investment advice. To the extent permitted by law, the authors exclude liability for any and all loss caused by the use of and reliance on this information.

Key Contacts:

Authors
Mr Luke Fraser, Principal,
Juturna P/L

Mr David Downie, Strategic Advisor
Deakin University

Project Manager
Dr Rebecca Lester, Director,
Centre for Regional and Rural Futures,
Deakin University
www.deakin.edu.au/cerrf







Contents

Disclaimer 2

Executive summary 4

Why commission this report - and where to next? 6

Opportunities and threats 10

High value economic development pathways 14

- Significant and targeted green hydrogen industrial research and development investments 15
- A collaborative regional renewables generation, transmission, storage, investment and policy forum 18
- High-value, water-secure agriculture and horticulture precincts 22
- Sustainable land-based aquaculture precincts 28
- High-value tourism networks - including hot springs and Indigenous cultural tourism 32
- Closer tertiary institution support for these high-value sectors: an emphasis on the valorisation process 39
- Cross-border collaboration with south-east South Australian communities 42

A mandate to pursue higher-value 43

Post-script: a local approach to unlocking potential 44

References 45

Executive summary

The Great South Coast is an Australian region blessed with many significant natural and inherited comparative advantages which, if harnessed, can drive more prosperous and diversified futures for its communities. It is also home to remarkable Indigenous, physical and cultural heritage and achievement.

Nevertheless, this region continues to be a low-growth economy with an ageing population; it faces considerable socio-economic challenges ahead if new approaches to higher-value industry investment, greater productivity and skilled labour cannot be developed.

This report does not intend to summarise Great South Coast regional industry as it exists today. An *Interim Report* (June 2019) provided an early research and analytical basis for this report. It assumed that many existing Great South Coast industries will continue to play prominent roles in the region's future - for example, the region represents over a fifth of national dairy production and almost a fifth of national plantation forestry output. However, these foundations can and should be complemented by new higher-value pathways.

The following categories are thought to offer the most significant and practical paths to higher value, greater productivity and skilled job creation for the region:

1. **Significant and targeted green hydrogen industrial research and development investments -** harnessing compelling regional advantages to create a path to a greener Victorian energy grid, new fixed and mobile power applications and a potential new export sector;

2. **A collaborative regional renewables generation, transmission, storage, investment and policy forum** - a 'clearing house' to achieve the shift to renewable generation and transmission infrastructure and market access sooner for the region's strong renewable industry, for local communities and to guide better State and Federal policy to this end;

3. **High-value, water-secure agriculture and horticulture precincts** harnessing the region's underutilised water resources sustainably so as to generate more value in modest-scale, fully water-secure precincts employing modern approaches to water use, high-value food production, research and innovation;

4. **Sustainable land-based aquaculture precincts** which similarly take advantage of latest technology and scale to deliver high-value export and domestic production;

5. **High-value tourism networks - including hot springs and Indigenous cultural tourism -** strategic market investments in emerging offerings which are culturally-appropriate, high in value, sustainable and capable of securing broad support from local communities;

6. **Closer tertiary institution support for high-value sectors: an emphasis on the valorisation process** - linking more curriculum and research effort to these sectors and partnering where possible in applied development solutions with market projects; and

7. **Cross-border collaboration with south-east South Australian communities** recognising that these neighbouring regional economies share common high-value opportunities which will benefit from collaborative investment and planning effort.

Post - *Interim Report* effort has focussed on understanding where the blockages to these new higher-value opportunities might lie.

In many cases, current approaches to policy, regulation and development approvals do not appear well-suited to the scale or intent of developments envisaged in this report. The challenges are more significant than 'red tape' - they relate primarily to the complex field of investment structure design: how to develop projects which reflect local community expectations while remaining profitable and aligned to regulatory and other policy requirements. Failed processes in these areas can lead to failed market investment efforts. Better attention to this field will encourage better projects.

For this reason, this report outlines suggested new engagement pathways for some of the identified high-value sectors. Ideally these would be led and coordinated at the regional level where possible, with help from State and Commonwealth governments where necessary. They could be classed as pilot projects. The intended pathways are not intended to be onerous or costly processes for the region to lead: the emphasis is on starting useful engagements at productive scale between the region and prospective investors.

This report does not attempt to estimate scale of investments or job creation at this early stage, or attempt to assess the long-term economic impact of these sectors, but each area has been examined for its commercial potential and each sector has been advanced based on the *Interim Report* analysis of Great South Coast region's underlying comparative advantages, which will do much to shape the economic competitiveness of these sectors.

First steps

It is recommended that the five local governments of the Great South Coast present the broad contours of these potential pathways to their own communities in a consultation. This builds awareness and bestows a stronger mandate on these local governments to then lead subsequent investment processes with the market, local community and with State and Commonwealth governments in support.

Finally, the report attempts to incorporate its efforts with an understanding of the remarkable Indigenous cultural and community developments which are underway in the Great South Coast. In the past year, after decades of quiet and determined effort, the local Gunditjmara people witnessed the Budj Bim National Park network - one of the world's oldest and largest ancient aquaculture systems - receive UNESCO World Heritage listing for its cultural value - the first ever such listing for any Australian Indigenous site.

This event is part of a broader story of Indigenous self-determination and respectful reconciliation with wider Great South Coast communities which deserves wider attention. It is perhaps no coincidence that several of the highest-value futures identified for the region involve things with direct cultural resonance for these communities. In looking ahead to future efforts towards sustainable high-value, Great South Coast First Nations communities have a right to their views on these matters but, just as importantly, they may themselves offer pathways to more sustainable higher value for all people in the Great South Coast.

Why commission this report - and where to next?

Original commission

Like most regions of Australia, the Great South Coast - comprising the south-west Victorian local government areas of Corangamite, Glenelg, Moyne, Southern Grampians and Warrnambool - can already point to much literature on the subject of economic development.



But it was generally acknowledged that - with the best of intentions - many of these past plans, strategies and reports had tended to 'itemise' the existing economy and its challenges, rather than chart a path to a reliably stronger economic future for the community, for would-be major investors and for government policy-makers.

In early 2018, the chief executives of these local governments commissioned a fresh appraisal; this initiative was supported by the State government through its Regional Development Victoria agency.

This fresh approach was intended to take a strategic and practical view on the broad economic and demographic challenges facing the region. It was expected to identify the most prospective new high-value economic sectors which the Great South Coast had particularly strong claims to pursue. This followed the authors' successful community-and market-led exercise for the nearby Geelong region (*Geelong Economic Futures* 2016), which identified prospective new high-value opportunities, taking best advantage of the region's particular comparative advantages and latent potential.

This meant that work for *Great South Coast Economic Futures* would not centre on summarising local industries as they exist today; it was assumed that most current industries would remain prominent in future. Instead, prospective new higher-value economic pathways were sought which might generate higher economic value and skilled jobs. Likely commerciality of investment outcomes was the test employed for inclusion in the report: if a sector or a project was judged unlikely to make commercial returns, it was not considered further.

For the commissioning regional local governments, the problem was not so much that these higher-value solutions could not be guessed at, rather that pathways to commercial outcomes were not evident, or had not delivered fully to date.

As such, the report was expected to identify barriers to why such major investments were not already happening - and to suggest more reliable pathways to unlock solutions.

The intention was to create a credible, 'plain-speaking' narrative to bind local communities, industries, future investors and State and Commonwealth governments into a shared understanding about the best pathways to growth and opportunity.

The client group required that the work 'pull no punches' in calling out key challenges, as this would help question traditional thinking about regional economic development.

Interim report

An *Interim Report* was produced in June 2019. It presented a strategic appreciation of the Great South Coast economy as it exists today; it framed key regional challenges and opportunities: whether, economic, demographic, technological, climate-driven or export demand-led.

The *Interim Report* documented many comparative advantages that Great South Coast enjoyed in these respects - whether natural, such as strong wind energy, a mostly benign climate and extensive groundwater reserves - or man-made advantages, such as the presence of a substantial regional university campus at Deakin Warrnambool, or strong electricity infrastructure like the powerful twin 500kV electricity transmission lines which extend from the main State grid directly to Portland's aluminium smelter.

The *Interim Report* identified seven (7) high-value pathways which appeared to warrant further attention. These were:

- **High-value farming and food value-adding based on total water security**
- **Fisheries and aquaculture including large-scale land-based aquaculture**
- **Energy, especially improved wind power transmission and green hydrogen storage**
- **Minerals, esp. supply chains to Portland to support a potential export sector**
- **High-value tourism, particularly hot-springs-based and Indigenous cultural tourism**
- **Applied scientific research and development partnering with high value sectors**
- **Cross border collaboration with communities and industries in south east SA**

Final report (this document)

These prospective high-value development paths were interrogated further to understand why such development had not already occurred and to consider the sort of practical mechanisms which would be required to encourage large-scale and sustainable investment in these areas.

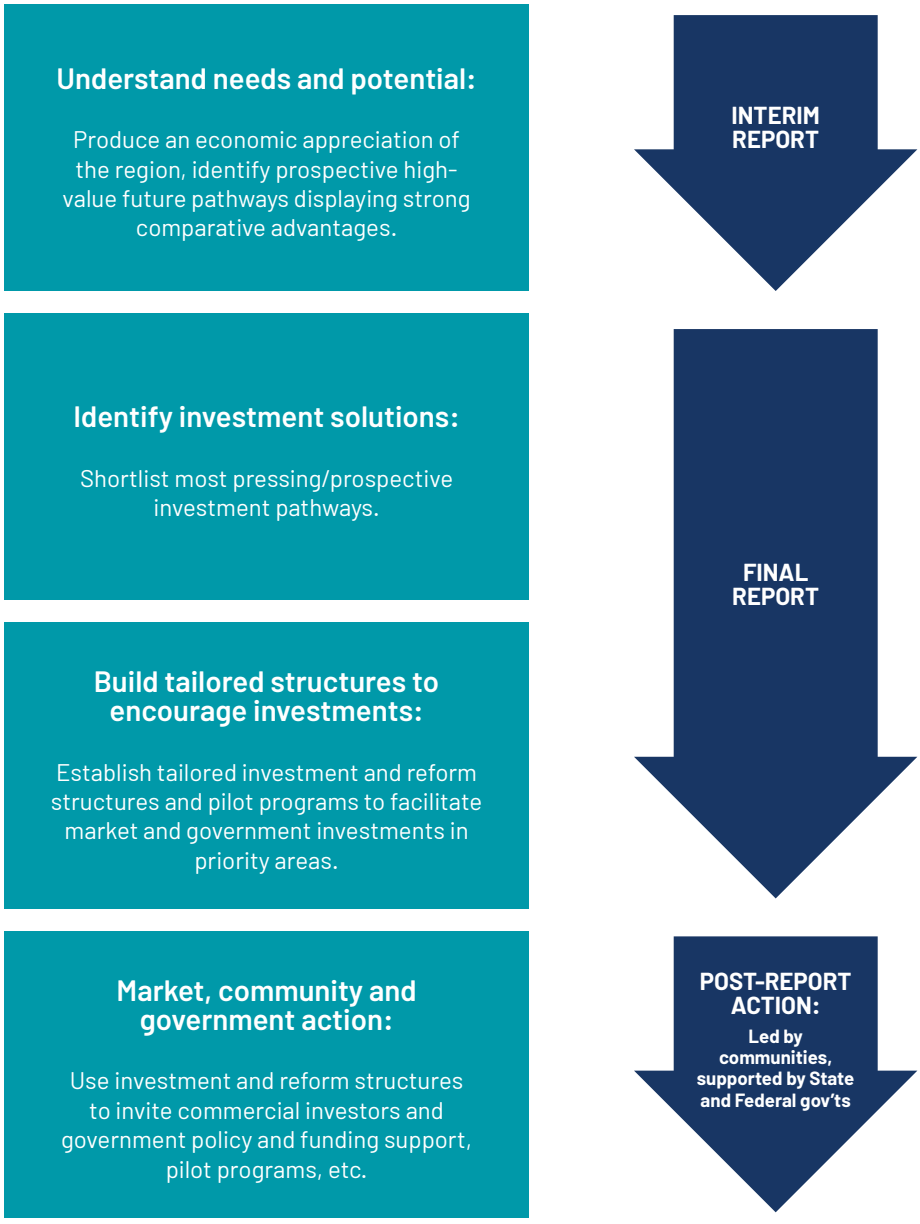
This final report shortlists the highest value and/or most prospective new sectors and offers paths towards actual physical investment projects in these areas: in some cases, where they might occur, who they might involve, what scale and development processes are they likely to require and - most importantly - how local governments might bring their communities into a closer understanding of these efforts, so that investors can have confidence that the broad contours of these investments find support amongst Great South Coast communities.

The list as outlined in this final report is not exhaustive. Some *Interim Report* priorities have not been developed further at this point. Sometimes this has been due to sequencing considerations: for example, the need to develop minerals rail supply chain to bring mineral production to the Port of Portland for export is still required but, given that it would take in the order of a decade for the resources sector to complete their final investment decisions for such resources, this area has been left for later assessment.

In the body of this report, structures and pathways are identified for each high-value area to follow and next steps are suggested in order to generate maximum local community understanding and support around these developments.

The development of this report involved widespread consultation but, in many cases, commercial proponents of particular proposals were quite deliberately not engaged. In part this was to protect their own intellectual property and out of a wish not to disturb or confuse development processes and applications which were already afoot. It also reflected the fact that the things which most needed reform existed at a structural level regardless of the claims of individual proponents. The pathways suggested in this final report are intended to offer opportunities for market investors and community to consider concrete investments from all perspectives.

Fig 1. Development methodology and key phases of effort.



Opportunities and threats

A fortunate inheritance, but challenges lie ahead

The Great South Coast is fortunate to have been blessed with a climate, resources, natural beauty and a legacy agriculture-based economy which together have provided a relatively prosperous past. It is a lightly-populated region, being home to just over 100,000 people in an area one third the size of Tasmania, generating almost $AUD 6 billion *per annum* in economic output; in international terms, Great South Coast's landmass is slightly larger than Wales.

Like all regions everywhere, any successes reflect the hard work of the local communities as much as any natural and inherited advantages of place, but the Great South Coast is the envy of many communities for a number of reasons:

- **The 2019 IPSOS *Life In Australia* survey ranked Warrnambool and the South-West the most liveable regional community in Australia** and unemployment levels remain lower than the State average.
- **Great South Coast mostly enjoys a temperate, well-watered climate even as much of Australia's agricultural community reels from drought and as the forecast impacts of climate change become better understood**. The region presents mostly volcanic soils and abundant groundwater reserves: Glenelg Shire's annual rainfall is 857mm - this can fall by half, north of Great South Coast boundaries.
- **The ultra-rich oceanic conditions of the region are home to significant and sustainable wild catch fisheries** which provide up to a third of Victoria's fresh fish and underpin many high-value exports such as rock lobster and abalone. In turn, these communities have cultivated generations of fisheries and aquaculture experience and skills; a regional tertiary research capability in this field exists at Deakin University Warrnambool.
- **Budj Bim - the region's ancient Indigenous National Park complex of weirs, dams, channels and stone houses built by the local Gunditjmara people over 6,000 years ago represents one of the world's oldest and extensive aquaculture systems and settlements.** In June 2019 Budj Bim received UNESCO World Heritage listing based on its Indigenous cultural value - the first ever such listing for Australia and a development expected to underpin a major growth in sustainable domestic and international cultural tourism.
- **The recent announcement of Australia's first industrial-scale hydrogen fuel cell manufacturing, safety, testing and pilot program at Deakin Warrnambool in partnership with the City of Warrnambool and national and international industry partners - HyceL** - reveals this part of regional Australia as having outstanding potential access to leading edge applied research and development outcomes.

This paints an optimistic picture, but significant challenges also lie ahead:

- **the long-run regional economy is low-growth and in some areas has shrunk** - as the *Interim Report* revealed, for the past two decades the region has barely registered one *per cent* real overall annual economic growth; in one of the five council areas (Corangamite), net real growth has in fact been negative across this period. This occurs in the context of Victoria's State regional productivity falling every year over the past sixteen years and regional Victoria as the worst-performed of any Australian capital city or regional economy for more than two decades.
- **the community is generally older than the State average** - within a decade, over a third of the local population is forecast to be 60 years of age or older (ABS); this will place more pressure on local business job markets as well as health and aged care liabilities; over time it will reduce regional labour force participation and tax take.
- **Educational attainment lags the State average significantly** - almost 60 *per cent* of the region's young people fail to finish secondary school compared to the State average below 40 *per cent* (RDV/NIEIR 2016). The region's job profile, with many traditional agriculture and forestry sector jobs offering immediate employment for low or semi-skilled workers, may be affecting lower educational attainment, but these jobs in turn do not always provide long-term job security, reliably high wages or ongoing training and development opportunities for young people.
- **High-value investments in water for food production remain immature, despite a substantial sustainable resource** - with the region boasting extensive aquifer systems as well as relatively strong rainfall, water resources are relatively abundant and low-cost. Many current agricultural water licence holders do not use all of their licenced resource. Higher-value non-commodity farming practices could make better use of some of these available water resources given the right investment, access, trading and compliance structures.
- **While impressive in Australian terms, regional agriculture lags behind benchmarks** - Agriculture is the traditional 'anchor' sector of this economy and production is impressive in relative Australian terms, but Great South Coast farmland produces $AUD 2.3 billion in agricultural commodities annually, whereas the nation of the Netherlands - employing almost exactly the same size of farmed area as Great South Coast and with Dutch rainfall levels comparable to the southern parts of this region - produces over $AUD 150 billion *per* year in farm and food exports.
- **Significant aquaculture opportunities remain underdeveloped** - aquaculture has a deep historical association with the region, with Budj Bim representing one of the oldest and largest aquaculture settlements on earth. The region's rich ocean conditions produce up to a third of Victoria's commercial fresh fish catch and the existing trained workforce and tertiary research and education infrastructure in these fields are significant, but high-value, land-based aquaculture, taking advantage of the extensive high-quality water sources, remains an immature sector, with few successful new major investment initiatives and particularly complex and challenging approval pathways for new entrants.

- **Applied scientific research and development benefits remain hard to access** The Commonwealth's recent *National Regional, Rural and Remote Tertiary Education Strategy (2019)* noted that regional communities like the Great South Coast have, in practical terms, been locked out of experiencing applied scientific research and development benefits, which are usually reserved for capital city economies.
- **Portland's fossil-fuel-powered aluminium smelter faces challenges ahead** - the smelter, which was built in the 1980s, generates over 2000 direct and indirect jobs across the city and region and offers value-adding opportunities to wider industries. It plays a strategic role in current State energy use patterns and pricing structures. In October 2019 the smelter's owner announced a review of all of its high-cost and high carbon emission assets. In the absence of a well-developed structural transition program for these communities, any future decision to close the plant presents a real and significant socio-economic threat.
- **Best-in-class wind energy production remains without storage solutions or grid reliability and stability pathways** - the region boasts amongst the strongest wind conditions on mainland Australia. There is now almost exactly the same amount of total wind farm generative electrical power either in operation or under construction or permit in the Great South Coast as is available in the generative power of Australia's largest power station - the massive Victorian brown-coal powered Loy Yang A and B complex. Yet renewable power remains intermittent and lacks a clear electricity supply and investment pathway which might provide stable green grid power and guide more efficient new investments in the electricity network.

Future high-value sectors and pathways to them

This report further refines the *Interim Report* shortlist of the most practical, immediately achievable and prospective high-value sectors that could be identified.

This is not a reflection of assumed mature economic impacts of these sectors, which are likely to be far larger, because each is based on material comparative advantages of place - the Great South Coast has specific claims to their establishment. These comparative advantages were assessed in the *Interim Report*.

Investment pathways

The client group did not want a report which would sit on the shelf. A clear part of the brief was the design of paths to real investments in these sectors. Suggested development pathways for the most prospective sectors follow below. Each one is different. In many cases, it would be premature to provide specific locations for investments. The focus is on scale, fully-commercial returns and processes which give maximum certainty to investors and confidence to communities. Most pathways involve pilot programs which would trial better approaches.

The design process has been very conscious of the fact that the local governments, water authorities and other bodies which would drive the regional pathways in the first instance are not resourced to take on complex major projects. The emphasis therefore has been on simple, early-stage engagement: bringing the region together with prospective investors to consider the right sort of projects at the right scale, so that subsequent more detailed processes involving perhaps State government agencies can proceed based on good foundations.

Dividing up roles and effort: governments and market

In some cases governments at State and Federal level would be expected to sponsor pilot programs in early phases to encourage subsequent commercial investment. This is the case for green hydrogen - an industry which Australian governments believe will involve governments

> *'Supporting early stage technology development, then stepping back and letting the market take over as the industry matures'*[1].

In other cases (e.g., agriculture and aquaculture) markets are expected to bring investment, while governments would support such investment with better regulatory approval structures. Governments could also document processes and lessons learned to inform subsequent investment programs and better regional development policy.

HIGH VALUE ECONOMIC DEVELOPMENT PATHWAYS

Significant and targeted green hydrogen industrial research and development investments

Harnessing compelling regional advantages to create a path to a greener Victorian energy grid, new fixed and mobile power applications and a potential new export sector.

First steps

Complementary industrial-scale commercialised green hydrogen research, development, power generation and manufacturing opportunities should be developed in the regional centres of **Warrnambool** and **Portland** - incorporating other strategic regional assets such as **Deakin University's** Warrnambool campus, the **Mortlake gas generator** and the **Portland aluminium smelter**.

Pilot commercialised research and development programs developed by high-quality industry, community and academic partnerships, including international industry partners.

Both programs likely to require early investments from governments, recognising a need to overcome the gap to commercialised hydrogen development by market proponents.



The opportunity for the Great South Coast

In line with the *Australia's National Hydrogen Strategy*, the *Interim Report* detailed the importance to the renewable energy sector of moving to store renewable energy as it is produced, for later use. Without a move to storage so that green energy can be produced for electricity supply instantaneously and on demand, grid stability and reliability *via* low marginal cost renewables cannot be approached. This has negative implications for Victorian and broader south-eastern Australian renewable energy policies, for carbon emission reductions and ultimately for consumer pricing. It impedes a strategic longer-term transition to low-cost, reliable and stable renewable energy.

Green hydrogen is a major national energy policy objective for all governments but it is also recognised that, if the feedstock to the process is not green, then the resulting energy may not be particularly competitive against other renewable storage alternatives such as lithium ion batteries or pumped hydro which employs green feedstock.

Two major development centres - Warrnambool and Portland

HyceL@Warrnambool - first phase of a nationally-significant green hydrogen industry in the Great South Coast- Warrnambool is the administrative centre of the Great South Coast and the home of the region's university campus at **Deakin University Warrnambool**.

In December 2019 the Commonwealth government announced[2] initial funding towards building an industrial-scale Proton Exchange Membrane (PEM) fuel cell manufacturing, safety compliance and industry piloting program - known as **HyceL@Warrnambool**.

This positons the Great South Coast at the leading edge of Australia's scientific and industrial push into the green hydrogen space. It will bring eminent scientific skills and experience to address critical knowledge gaps in Australia's hydrogen economy around fuel cell industrial manufacturing, safe testing and distribution through pipelines as well as much-needed large heavy vehicle cell applications. Deakin estimates that when the **HyceL@Warrnambool** is fully established it will generate up to 200 jobs[3].

The region's main TAFE provider, **South-West TAFE**, also shares this campus site and is well-positioned to play an important role in developing practical training programs that can drive wider uptake of the hydrogen economy nationwide.

National objectives for hydrogen emphasise the need to bring community to the forefront of understanding of an involvement with the sector as it develops, ensuring that the community can bestow social licence to operate on the results.

Warrnambool City Council and its community have already made clear their ambitions to play a lead role in this field, both by its ambition to become the most environmentally-sustainable city in Australia as well as its recent partnering with the world-leading regional hydrogen microgrid community of **Mariestad Sweden**. With **HyceL@Warrnambool,** allows the city partner to partner with Deakin to drive leading industrial scale research outcomes in the region.

Portland - The other logical hydrogen industry foundation for the region lies in Portland - the industrial centre and export port of the Great South Coast. Portland's engagement with hydrogen is likely to be focussed on industrial-scale introduction of green electricity as a stored hydrogen energy source for re-use into its **aluminium smelter** and potentially into the grid (Portland's smelter is directly connected to the State's main 500Kv powerlines) and, over time, a developed capability to harness the plentiful regional green energy feedstock as a hydrogen export from Portland. Portland has many strong preconditions (*see below*) to suggest that it has a comparative advantage in developments in this field.

More generally, there is an excellent opportunity to consider opportunities to involve the region's extensive natural gas underground storage, pipeline networks and major gas generator at **Mortlake** into the green hydrogen economy over time.



Important regional comparative advantages for green hydrogen

Thanks to its many underlying advantages, these proposals appear to have strong claims to producing a nation-leading regional green hydrogen sector:

Prolific and productive green energy conditions and infrastructure - some of the strongest wind power conditions on mainland Australia as well as good solar conditions in the north of the region and particularly strong wave energy (the latter remains unharnessed).

Strong electrical infrastructure in close proximity to main markets 500Kv lines extend to Portland aluminium smelter which represents c. 10 *per cent* of State electricity demand.

Extensive access to pure water supply - part of the hydrogen electrolytic process requires access to pure water: the region has access to extensive clean groundwater reserves and relatively high rainfall;

Access to a potential future deep-water hydrogen export port - a longer-term goal of Australian hydrogen is transport of reconstituted hydrogen to Asian economies such as South Korea and Japan, which have flagged that their future energy needs will rely on green hydrogen. Port of Portland appears well situated for this task, in principle.

Local access to gas turbines, pipeline and underground storage infrastructure - green hydrogen may present the natural gas industry of the Otways with a renewable transition opportunity, as the region has access to a major (550Kw) gas turbine generator (Mortlake) as well as pipelines and underground storage assets.

Local access to leading tertiary research infrastructure - the presence of Deakin University's Warrnambool campus provides ready infrastructure and some key areas of scientific expertise which will allow the region to move quickly into commercialised development programs. Other university collaborations, for instance at Portland, would add to this regional capability.

Availability of a skilled and experienced workforce and manufacturing capability - the region's Portland aluminium smelter, extensive wind farms and natural gas sector ensure there is already considerable relevant workforce skills and training capacity in the region which could bridge to a green hydrogen sector. In the large Keppel Prince facility at Portland, which is Australia's largest wind tower manufacturer and maintainer, the region also has considerable manufacturing infrastructure and skills to bring to bear.

A collaborative regional renewables generation, transmission, storage, investment and policy forum

A 'clearing house' to achieve the shift to renewable generation and transmission infrastructure and market access sooner for the region's strong renewable industry, for local communities and to guide better State and national policy to this end.

First steps

The first suggested step is not investment, but finding common voice: **a regional energy forum** should be established to propose and coordinate better planning, investment and market and community settings at a regional scale, supported by the State and Commonwealth government authorities to help drive better renewables policies, faster, in the region's own best interests.

Design of this forum should look to other practical templates for complex regional industry collaboration, planning and investment, such as the **Hunter Valley Coal Chain Coordinator** (*see below*).

The forum is likely to consider potential for augmented transmission infrastructure investments and improvements to renewables market access settings and develop new strategies for managing community concerns.



Loy Yang power station is spinning across the Great South Coast - and in need of strategic transmission solutions

It is generally recognised that Australian energy policy remains a complex and imperfect field. As yet, there remains no clear master strategy agreed by governments to deliver a clear, structured market transition from Victoria's ageing lignite-fired power stations to more renewable energy generation, storage transmission and supply - delivering eventual grid reliability and stability and lower prices for consumers.

Great South Coast region has an enormous economic stake in this outcome.

In wind power alone, the region's now boasts an almost identical level of generative megawatt electrical power either in operation, under construction or awaiting permitting (3,208 mW[4]) as Australia's largest power station - the Loy Yang A and B complex (3,270 mW combined). Solar arrays add to this capability.



As noted in October 2019 by the Australian Energy Market Commission[5], the introduction of major renewable electricity supply needs action now, not at some distant point in the future - this especially relates to how transmission networks in renewables-rich regions such as Great South Coast are renewed and redesigned in the near term to meet this impending challenge and unlock greater returns and jobs to these regional investments.

A 'ground-up' forum to complement 'top-down' government policy effort

The open question is whether Great South Coast needs to wait exclusively upon 'top-down' State and Commonwealth government and regulator design decisions around such matters in order to secure better regional solutions. Perhaps the region can play its own important, complementary role.

The Great South Coast renewable energy community is already strategic in size, strong in generative power and supported by highly-engaged, informed and collaborative local governments, interested communities, engaged electricity infrastructure providers and manufacturers, prospective infrastructure investors and willing collaborators in the scientific research community. In principle, it has much to bring to the debate around a shift in the access regime and transmission landscape to accommodate renewables.

The region could benefit from complementing higher government and regulatory efforts with a 'ground-up' collaborative approach to these challenges. The *Interim Report* also found there were other barriers to optimising the efficiency and growth of regional renewables:

- **Need to optimise transmission infrastructure investments**
  The profusion of new wind farms across the region and into surrounding regions has seen local councils doing their best with the region's energy infrastructure providers to make transmission connections to main lines, but this has happened in an iterative fashion, without an overall consolidated plan. Anecdotally, many wind energy proponents still seek better connectivity to the grid as a means of improving the efficiency and scale of their energy transmissions. More collaboration is in order.
- **Community sentiment and policies**
  Pressing community issues have arisen around siting of wind farms, royalty arrangements and how initial construction might be backed up with more ongoing employment from the sector. A move to green energy storage plays a key role in such solutions.

Productive collaboration can begin with simple steps

Lessons from other successful sectors show how smart industry, government and community collaboration can resolve many problems when pursued by willing local practitioners and communities through an effective forum: one such case study from another part of regional Australia is the Hunter Valley Coal Chain Coordinator in New South Wales:

CASE STUDY:

The value of simple, localised collaboration: the Hunter Valley Coal Chain Coordinator



In 2001-02, the Port of Newcastle ranked as the world's largest export coal port, but bringing coal efficiently from Hunter Valley mines by large and complex heavy rail networks to this large and congested port was proving very challenging.

No mechanism existed to serve the region with coordinated logistics operational policies and infrastructure investment programs. Delays to coal movements cost millions and such operational risks and uncertainties made new investments more costly. At the time most responsibility was left with State transport and rail bodies, which were struggling to provide solutions to this fast-growing sector.

At this point, the New South Wales transport director-general convened a dinner of all major coal miners, rail operators, port and shipping parties and government planners. The Hunter Valley Coal Chain Coordinator (HVCCC) was born out of recognition that almost none of the parties knew each other, much less understood how the entire supply chain should be optimised and invested in. An agreement was struck to begin working collaboratively to run problems to ground, agree productive new investments and build towards shared outcomes.

After 15 years of more and more formalised collaborative effort and supportive technology and processes, sponsored and supported by State government but led by the regional proponents themselves, the HVCCC is widely recognised as one of the world's most efficient and technologically advanced large-scale mineral export supply chains, it has shaped better infrastructure policies and investments to everybody's benefit[6].

While coal logistics is a very different industry to the Great South Coast energy sector, HVCCC demonstrates the value of collaboration from simple beginnings at a regional level amongst commercial parties which, without the presence of such a forum, are unlikely to shape better collegiate solutions for industry and community.



First steps

A Great South Coast regional renewables forum could bring key parties into an open collaborative discussion. Parties are likely to include:

- **Great South Coast group of local governments**
- **Regional gas and electricity grid operators (Ausnet Services and Origin Energy)**
- **Great South Coast renewables operators (wind farms and solar)**
- **Tertiary and other research and technical providers and electricity grid designers**
- **State government energy officials**

The forum could invite in national energy operators, regulators and prospective infrastructure investors, new technology proponents and community groups as required. A work focus could include:

- **Solutions for optimising existing transmission infrastructure**
- **Pathways to regional green hydrogen and/or battery energy storage and how this might influence regional electricity infrastructure design over time**
- **Policies to improve market entry and renewables access to grid**
- **Community policies around approvals, royalties and planning issues**
- **Pilot programs to trial progressive approaches at scale on behalf of State and Commonwealth governments.**

A proper forum could prove a 'clearing house' for informed regional insights and ideas from wind and solar farms, energy infrastructure and service providers as well as prospective infrastructure investors. It may start to influence better local and perhaps national solutions for the move towards renewable energy market supply and infrastructure renewal.

High-value, water-secure agriculture and horticulture precincts

Harnessing the region's underutilised water resource sustainably so as to generate more value in modest-scale, fully water-secure precincts employing modern approaches to water use, high-value food production, research and innovation.

First steps

Up to three (3) industry and water authority pilot programs are proposed across the region; these pilot investments would develop high-value food production precincts underpinned by strategic and sustainable groundwater (aquifer) supplies and assisted by a more reliable framework for water trading in and around these ventures.

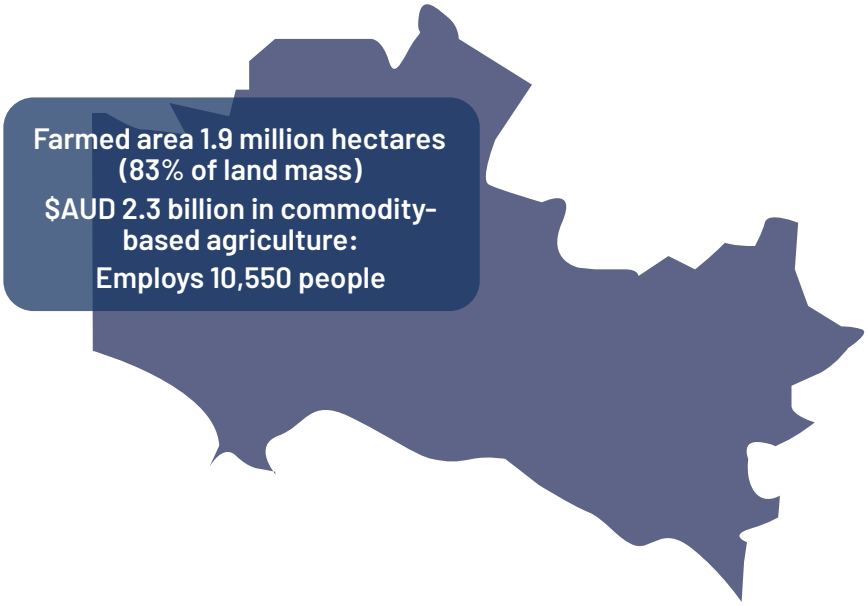
These precincts would incorporate leading-edge applied research and development expertise in food and water technology, ideally from a university collaborative partner, as seen in high-value applied research and development partnering arrangements between large Dutch growing interests and world-leading Dutch agricultural universities.



Traditional regional farming productivity: nation-leading, but not yet world's best

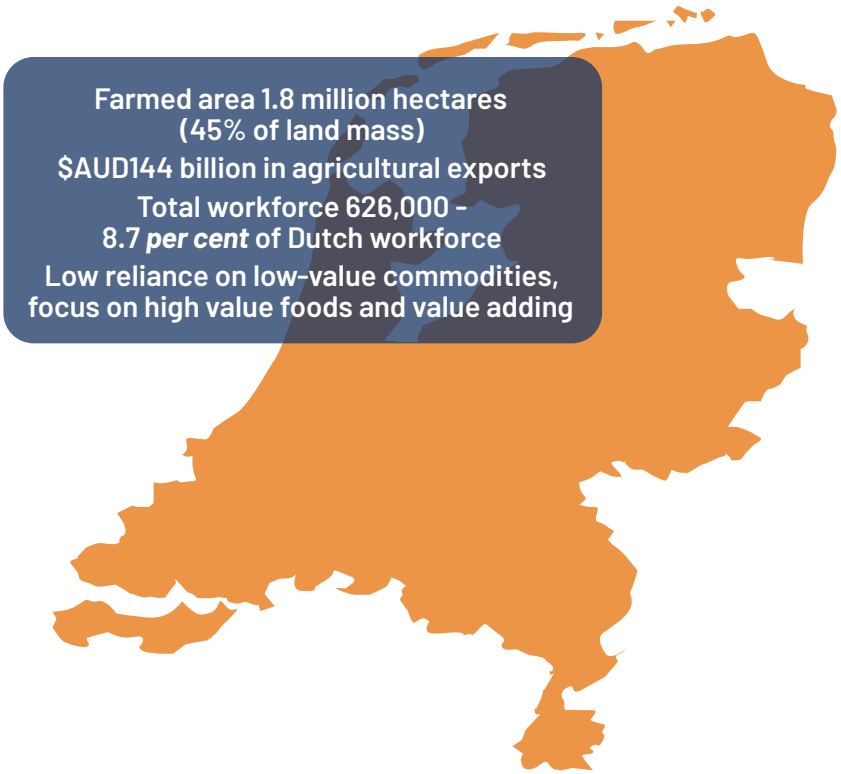
The Great South Coast is one of the highest-value agricultural regions in Australia, a fact about which it can be justifiably proud: it produced over $AUD 2.3 billion in agricultural products in 2018. However, the *Interim Report* noted that the nation of Holland employs almost exactly the same farmed area as Great South Coast for its own food production, yet managed to produce over $AUD 144 billion in food exports in the same year (2018).

Great South Coast



- No agricultural university
- Produces mainly dairy, beef and sheepmeat, wool, grain and forestry commodities along with a strong dairy and meat processing presence.
- Not 100 per cent water-secure; large-scale aquifer resources exist, but not used.
- Increased growing production risks from drought and drying climate, especially in the north

The Netherlands[18]



- Focus on high-quality, large-scale tech-intensive cut flowers, fruit, veg, meat, dairy, food processing; major exporter of manufacturing equipment and advanced farm technology.
- 2nd largest food exporter in the world. Net exporter of food
- Home to world's number one-ranked Agricultural University (Wageningen)
- Strong on-farm research and development commitment - Between 2014-16 average per farm R& D spending increase (19%) was nearly double the national company average
- Production risks from drought and drying climate growing, but appear offset by increased scale of investment in water-efficient high-value production techniques.

This led the *Interim Report* report to consider what drives such higher-value food production. At a fundamental level, fully-secure water supplies across all seasons are the essential ingredient for growers investing heavily in advanced technology, larger-scale, higher-value food systems and value-adding processes: without fully-secure water supplies, regional farming cannot meet exacting contracts and supply chains and therefore, lack of secure water acts as a disincentive to costly cutting-edge technology investments on farm.

Farmers without completely secure water are forced back to commodities - a lower-value product inherently, for which value-adding is less rewarded and where often growers - regardless of the quality of their products - are price-takers on volatile global markets.

The *Interim Report* found that Great South Coast has the potential to shift at least part of its food production from commodities towards Dutch-style high-value agri-complex solutions. This is thanks in large part to the region's remarkable groundwater resource.

Great South Coast enjoys better access to water than most other farming regions in Australia - the region contains extensive groundwater systems which at the time of the last published technical estimate (2011) were found to be as much as 300,000 gigalitres, or the equivalent of 600 Sydney Harbours of groundwater[7]. This is supplemented by relatively good rainfall.

A cautious approach to the groundwater asset is required

Only a fraction of these vast aquifers would ever be exploitable sustainably for agriculture and horticulture use - the region's aquifer system must be in a position to recharge itself and the science surrounding sustainable recharge rates is not yet entirely settled, meaning scale of water operations must take a very cautious approach to expansion. However, two factors are in favour of a more progressive approach:

- **Even relatively small amounts of water can lead to higher-value food production** - the *Interim Report* considered the example of South Werribee market gardens south-west of Melbourne, which produces over $100 million annually in lettuce, brassica and broccoli products each year thanks to a mostly secure (albeit low-quality) water supply; those operations employ around 600 people.
- **Current allocations of agricultural water are not being fully utilised** - it is estimated that around 80 gigalitres (80 billion litres) of licenced bore water remains unused by traditional Great South Coast farming practices from year to year - these licenses are referred to as 'sleeper' and 'dozer' licences. This is a function of traditional farming practice plus generally good rainfall not placing a call on such licenses. However, due to this oversupply, the price for water is correspondingly low and trading of such water between farmers is less commonplace than in other places.

The opportunity therefore exists to derive much more value from the regional food production process and from this water resource - this translates to higher agricultural output, more profitable new types of farming operations, incentives to more advanced scientific and technological farming and a wider array of products offered to markets, especially Asian export markets, where demand for products such as fruit and nuts has been growing rapidly - for example, the value of Chinese fruit and nut imports increased by over 80 *per cent* in the five years to 2018[8].

In this way, higher-intensity, higher-value crops and value-added food products can employ more people and lift parts of Great South Coast agriculture away from the 'commodity trap'.

A suggested pilot structure for establishing high-value precincts

Further work post-*Interim Report* has focussed on establishing a pilot process that would lead to these outcomes. The following table shows the recommended structures and pathway to establishing and running such high-value, water-secure food precincts:

Table 1. Great South Coast high-value water-secure food precincts - pilot pathway

Stage	Key parties
'Anchor' water resource identification by authorities **Establish duration of licences and other mechanisms such as allocations of water (rather than entitlements) to protect both investors and water authorities in the pilot process**	**Southern Rural Water** as the regulator of this groundwater resource and **Wannon Water**, being the urban water authority for the Great South Coast region. **Specialist tertiary research capabilities** could play an important and practical role in assisting water authorities to examine sustainable limits and productive areas within the region's Limestone (upper) and Dilwyn (lower) aquifer systems.
Advise pilot participants and match 'anchor' water locations to most prospective high-value food production areas **Establish long duration licences and other mechanisms such as allocations of water (rather than entitlements) to protect both investors and water authorities in the pilot process**	Water authorities and the Great South Coast group could invite participation from any credible high-value food and fibre growers and investors. Authorities should encourage partnering and multi-party precincts to afford large and small operations an opportunity to access these areas.
Establish structures and systems to enable additional commercial purchase of excess water allocations from surrounding farming community	Water authorities, working with pilot precinct proponents, technology providers and willing traders of surplus water across the region.
High-value farming precinct operations underway - opportunity to expand	Successful pilot proponents, working in collaboration with water authorities Regional tertiary partners in applied research and development

Comment

Water authorities would catalyse market interest by identifying three or more sites across the region which could be reliably expected to offer a sustainable strategic allocation of groundwater suitable for large-scale intensive food production.

For the purposes of high-value food precincts operating at scale sustainably, site reserves are expected to be in the realm of 5 to 10 gigalitres each.

Details of water licence duration and other features will be developed at this stage to give confidence to the market to make long-term investments and so as to protect the authorities in the event of changed aquifer circumstances.

This water would act as a secure, 'anchor' water allocation for interested parties on which to base precinct investment.

In parallel, authorities would undertake ongoing work to further refine their understanding of these aquifers.

The second step in the process would see experienced high-value growers and investors work with the water authorities to match 'anchor' water resources with sites which are optimal for productive growing, processing and dispatch.

Subject to demand, an expression of interest or auction process might be required to select pilot participants. This in turn is very likely to establish a new (higher) market value for the region's groundwater.

A final overlay of these precincts would see attention paid to encouraging transparent commercial trading of available water licences from the surrounding farming communities, reporting of trades and allowing the high-value precincts to augment and expand their operations over time.

Suitable protections could be considered by the authorities to prevent speculative purchases of this water.

If successful, proponents can come to commercial terms with surrounding farmers for more water or land for higher value growing and value-adding.

Opportunity for partnering with universities and TAFEs in high-value applied research and development on-farm, driving value adding and innovation as *per* Dutch agricultural university practice.

Sustainable land-based aquaculture precincts

Which similarly take advantage of latest technology and scale to deliver sustainable high-value export and domestic production.

First steps

One or more industry pilot programs to be pursued, working with water authorities to develop large scale, high-value land-based aquaculture operations in pilot precinct(s) underpinned by secure and sustainable water supply, with the possibility of being partnered with leading-edge tertiary applied research and development expertise in aquaculture.

Pilot(s) could be overseen by a working group with representatives from regional water authorities, local governments, local Indigenous community representatives as well as expert representation from bodies such as the Fisheries Research and Development Corporation and the National Aquaculture Council.



A regional history of aquaculture, fresh opportunities ahead

The *Interim Report* found Great South Coast could build on its deep legacy and skill base in wild catch fisheries and coastal and ocean ranching and aquaculture of high-value species such as southern rock lobster and abalone.

In addition to these development areas, a particularly prospective development appears to lie in high-technology land-based freshwater aquaculture, feeding both domestic and increasingly strong Asian and European demand for products including Barramundi, Murray Cod, Rainbow Trout, Shortfin Eels and Yabbies.

These developments would echo the region's ancient and continuous Indigenous associations with such aquaculture. The region can also point to a modern history of fish and eel farms in the modern era, including current Indigenous programs for eel harvesting at Budj Bim.

This would be consistent with other success stories in this field in Victoria, such as the Mainstream Aquaculture barramundi hatchery using geothermal springwater in Werribee on Melbourne's western outskirts[9]: this facility now supplies a substantial share of world barramundi fingerlings and has balanced sustainability and commercial objectives to global best-in-class best standards.



The *Interim Report* found considerable investor and proponent interest in major developments of these kinds in the Great South Coast - a region which has extensive geothermal reserves and whose water authorities are in principle open to productive, sustainable and culturally-appropriate access to such assets in sustainable locations. In addition to thermal springs hatcheries, other proposals are well-developed in the region, such as Crown Land Eel Aquaculture, which can involve sharing resources with traditional Indigenous owners and recreational fishers as part of a wild-catch farming process from river systems.

Notwithstanding this promise, post-*Interim Report* effort has focussed on appreciating past challenges and barriers to such large-scale aquaculture developments and on designing a pilot structure that might overcome these difficulties for the region.

New development and approval barriers remain substantial

The barriers to a more consequential land-based aquaculture sector have been recognised for decades, but overall progress in resolving these challenges has been slow. As long ago as 2004, the Productivity Commission outlined key challenges[10]:

- Aquaculture production is subject to an unnecessarily complex array of legislation and agencies — covering marine and coastal management, environmental management, land use planning, land tenure, and quarantine and translocation
- State aquaculture and/or fisheries legislation have multiple objectives and these are not always clearly defined. The objectives may overlap or conflict, and there is often a lack of guidance as to the relative weights to be placed on each objective.
- State government departments primarily responsible for aquaculture regulatory arrangements often have potentially conflicting functions of policy development, implementation of regulation, industry promotion and development, and research
- (Limited progress in the sector)...may constrain marine aquaculture, or result in ad hoc approvals for individual sites, and conflicts over resource use
- In most jurisdictions, there are complex approval processes. Obtaining required approvals can take significant time. There would appear to be scope to rationalise the number of approvals, coordinate approval processes, and incorporate statutory timeframes for assessing approvals.
- Increased efficiency and effectiveness of regulatory arrangements for aquaculture could be obtained from greater use of environmental risk assessment based on species, production system, management practices, site location and the condition of the environment.
- There is potential for greater use of innovative policy instruments to complement (or, in some cases, replace) existing regulatory and administrative controls. For example, auctions could be used to allocate leases of public land or water, and tradeable permits could be used to manage pollution discharges.

These findings have been reproduced in full in this report to underline the nature of the challenge. Twelve years later, in 2016, the Productivity Commission revisited these matters and found that the sector was growing, but the regulatory systems remained largely unchanged[11].

A regional pilot can instruct better national development effort

The development of this report has evinced considerable local government and water authority goodwill and support for new and productive high-value aquaculture pilot programs. This should be harnessed into one or more large-scale best-practice pilot projects, preferably partnered with a tertiary institution to provide applied research and development support as per the Dutch agricultural university model mentioned in the *Interim Report* and discussed later in this report.

The pilot should be supported by broader expert oversight that would help the region make such projects an environmental and commercial success, capable of being repeated sustainably where appropriate. Pilot structures would benefit from including bodies such as the Fisheries Research and Development Corporation's Victorian Research Advisory Committee and the Victorian Seafood Industry Association as parties to pilot development.

There would also be value in coordinating such pilots with potential points of productive collaboration in other high-value pathways, such as Indigenous cultural tourism and hot springs tourism. It may be that synergies for use of water resources and employment could be found in these connections at the development and design stage.

Suggested pilot development structure

A suggested early stages process is offered below:

Table 2. Great South Coast high-value land-based aquaculture precincts - initial steps

Stage	Key parties	Comment
Water resource identification - surface and/or groundwater	**Southern Rural Water** as the regulator of these resources assisted by **Wannon Water** as the region's urban water authority	Water authorities would catalyse market interest by identifying a number of rivers, geothermal springs, other groundwater areas and other assets such as reservoirs which could be considered for sustainable commercial aquaculture pilot(s). Scale of water resource entailed will be substantially less than required for high-value agriculture pilots.
Formation of a pilot working group and invitation to participate in market pilot(s)	A representative working group might include representatives from water authorities, **Great South Coast local governments**, potential **tertiary sector aquaculture research partners**, local **Gunditjmara** and **Eastern Maar** people, **Fisheries Research and Development Corporation (Victorian Research Industry Committee)** and **National Aquaculture Council**	Interested market and community group proponents would be invited to register interest with the working group.
Agree pilot candidates and move forward with an improved planning and approvals process	Working group parties and relevant State government regulatory agencies	

High-value tourism networks - including hot springs and Indigenous cultural tourism

Strategic market investments in emerging offerings which are culturally-appropriate, high in value, sustainable and capable of securing broad support from local communities.

Likely initial investments

A region-wide process should seek market expressions of interest in strategic investments in priority tourism areas across the Great South Coast, including Indigenous cultural tourism and hot springs tourism, employing the strengths that Great South Coast possesses in these fields.

This process should be underpinned by preceding consultation between local governments and Great South Coast communities seeking broad consultation on and support for such paths to sustainable higher-value tourism.

In considering Indigenous cultural tourism paths, government should consider connecting the traditional owners of the Great South Coast with First Nations communities globally who have succeeded in developing these sort of sustainable tourism offerings so as to inform local efforts and build a stronger support and consultative network for these communities.

The need for higher-value tourism - and its challenges

The Great South Coast region is already recognised as one of the nation's most outstanding areas of natural beauty: it is home to the iconic Gariwerd/Grampians National Park, which is in turn linked by the Great South Touring Road to the famous Shipwreck Coast, which includes the world-famous Twelve Apostles and Great Ocean Road; a little to the west lies the now World Heritage-listed Budj Bim ancient indigenous aquaculture settlement. This wider region is Victoria's most visited tourism destination, attracting 7.4 million visitors annually.

To date, regional tourism has involved a large amount of day trips from Melbourne which have brought many visitors as well as placed increasing pressures on legacy road and services infrastructure but, for the most part, this traffic has not resulted in high tourism dollar inflows to the region. The challenge therefore lies in pursuing infrastructure and attractions which would encourage longer-stays and greater spending.

Rather than examining current individual tourism proponent claims in this space, the *Interim Report* consulted experienced parties outside the region with substantial global tourism investment experience and with insights into some successful international approaches to similar challenges.

The feedback received was that the region and perhaps the State more generally was not considered particularly 'open for business' for tourism developments of catalytic scale and quality - the sort of investments that might otherwise start to address the challenge which the region faces.

In particular - consistent with informed investor feedback regarding other high-value sectors - these parties pointed to fragmented opportunities and a perceived need for investors to conform to pre-developed bureaucratic plans and approaches to regional tourism, rather than to allow the market the space to present strategic and innovative proposals. Current processes involved considerable at-risk capital and time to be ventured by proponents with little certainty around alignment of objectives between investors and communities.

With this feedback in mind, subsequent effort focussed on:

1. finding aspects of genuine regional comparative advantage in tourism which could present the basis for more significant tourism infrastructure investment.

2. considering investment structures which might de-risk the market for major conforming investments and attract high-quality proposals at scale which might meet with community approval.

Two major regional strengths stood out to the authors in this respect: Indigenous cultural tourism and hot springs resort-style tourism.

Indigenous cultural tourism



The local Indigenous custodians of what is now referred to as the Great South Coast are principally the Gunditjmara and Eastern Maar peoples. Over the millennia, these peoples have left a remarkable living and physical cultural legacy, which they continue to nurture. The extensive ancient rock art of Gariwerd (the Grampians) and the remarkable stone houses, weirs, dams and channels which form an aquaculture settlement at Budj Bim (Mount Eccles) National Park around Tae Rak (Lake Condah) and the flora and fauna reserve at the Tower Hill Volcanic Crater near Warrnambool are notable examples of a continuous and remarkable Indigenous connection across the Great South Coast.

These communities, often assisted by wider Great South Coast communities and governments, have worked hard to rehabilitate, heal and protect country. This has led to successful Indigenous cultural tourism beginning to blossom, as wider communities begin to understand and take greater interest in this remarkable legacy.

World Heritage Listing to accelerate global interest and tourism

These developments took on renewed consequence when in June 2019, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) bestowed World Heritage status on Budj Bim - the first World Heritage listing of any Australian Indigenous place to be registered explicitly for its cultural values.

The UNESCO listing of Budj Bim is expected to create unprecedented interest in the Indigenous culture and landscape of this region and to drive a far higher level of Indigenous tourism into the region in future.



Giving local custodian communities more agency over next steps

In the first instance, the views of local Indigenous custodians themselves are most central to how matters of Indigenous cultural tourism develop; it would be counter-productive not to afford these communities time to consider how these opportunities are to play out.

In parallel, it is also evident that other First Nations communities around the world are developing productive and successful partnered approaches with the market for higher-value cultural tourism.

Charting an approach to larger-scale, higher-value Indigenous tourism is another field where tertiary partnering and curriculum involvement can be of assistance. The *Harvard University Project on Native American Indian Economic Development*[12] is one prominent example of how the tertiary sector and First Nations can collaborate in the development of better models:

> *'Through applied research and service, the Harvard Project aims to understand and foster the conditions under which sustained, self-determined social and economic development is achieved among American Indian nations'.*

A sensible first step for the Great South Coast would be for the traditional owners themselves, rather than higher government agencies, to connect and perhaps visit some of these First Nations success stories to inform thinking and build a stronger support network for how new opportunities might be approached in a sustainable and high-value way that enriches these communities. Support may need to be provided to facilitate this connection.

In turn, it may be that market proponents with interests in large-scale catalytic investments in these fields could consider possible networks of investments which would create scaled-up infrastructure around such cultural tourism. This may benefit from being linked with resort-style hot springs tourism investments and design (*below*).

Hot springs and spa tourism potential

Hot springs tourism is a popular worldwide phenomenon and a driver of higher-value tourism; many parts of Asia have extensive hot springs resorts. Victoria's colonial and pre-War era also boasted quite extensive hot springs and spa tourism. In the period since the Second World War, these forms of mass tourism have largely disappeared from Victoria. But the example of Iceland's success in hot springs tourism combined with the similarities in geological conditions shared between Iceland and Great South Coast suggest that this sector is a very prospective source of high-value tourism for the Great South Coast today - a region with an existing tourism base of several million people, thanks to the Great Ocean Road.

CASE STUDY:

Hot springs tourism: Iceland's Blue Lagoon has lessons for Great South Coast



The scale and value creation of hot springs tourism is best understood by examining perhaps the world's leading modern hot springs tourism destination, Iceland - a nation with a population only three times larger than that of the Great South Coast. Its most famous hot spring is the Blue Lagoon on the Rejkyanes Peninsula, less than an hour from the capital Rejkjavik. As a result of the springs, the region has built increasingly high-value tourism offerings, including resorts, spas, hotels and restaurants - some of the latest developments are luxury offerings employing cutting-edge architectural design.

Largely due to the springs and the surrounding environmental and cultural tourism on offer, between 2010 and 2018, the number of hotel rooms in the Rejkyanes Peninsula increased by 260 *per cent*, with 2019 average seasonal room occupancy across all rooms in the region ranging from low season 50 *per cent* to high season 90 *per cent* occupancy, even after the aforementioned near tripling of accommodation capacity[13].

As an active volcanic environment, Iceland has hot springs dotted across the country. These springs form a major part of a booming tourism sector which is attracting vast foreign currency flows: for almost a decade, foreign visitor currency inflows have outstripped all other parts of the modest Icelandic economy, such as manufacturing and fishing - foreign currency revenues of travellers represented 42 *per cent* of all Icelandic exports in 2018.

The scale of contemporary Icelandic hot springs tourism can appear so daunting as to be of dismissed as a possible high-value tourism pathway for the Great South Coast, but it is worth appreciating that these iconic high-value destinations had humbler beginnings: many hot springs across Iceland remain very basic, while the Blue Lagoon itself is a relatively recent, man-made creation - it reputedly began life simply as the outfall of a nearby geothermal power station in the 1960s and was only formally opened as a major spa resort in the 1990s, when it first attracted only around 50,000 people annually. This has since grown to over 1.3 million paying visitors each year[14].



Opportunity for Great South Coast

In geological terms, the Great South Coast area is known as the New Volcanics Province and shares a remarkably similar volcanic geological profile to Iceland. Between Geelong and the South Australian border, some 400 volcanoes have been identified. In geological terms they are relatively recent. This volcanic activity creates conditions for geothermal water in the deep Dilwyn aquifer which sits under most of the Great South Coast. Water tapped from this aquifer will often be rich in minerals and requires cooling, coming out of the ground hot.

The scale of water required for hot springs tourism is negligible compared to town or agricultural uses. By contrast, the value creation on offer from such water in settings such as luxury spa resorts would make this the most productive of all water uses by far.

In principle, the benefits of perhaps a network of major market investments in such a sector hold strong growth implications for the wider offerings of the region, such as gourmet food and wine, specialty accommodation, ecotourism, adventure tourism and Indigenous cultural tourism.

Merging solutions

It may be that the high-value tourism developments which could arise from hot springs and spa tourism at scale across the Great South Coast could, with smart design, be partnered with accompanying Indigenous cultural tourism offerings in a network across the region. In any event, the first step requires the region and the market for such investments reaching out to understand the possibilities.

Investment pathway

Consistent with the abovementioned market perceptions of barriers to scaled investment, it is recommended that the region consider exploring large-scale offerings from the market for a network of hot springs tourism infrastructure, which might extend also to Indigenous infrastructure concepts for further discussion with the region's traditional owners.

As a first step, as outlined below, as with other high-value pathways identified in this report, Great South Coast local governments would share the broad contours of these high-value tourism objectives with their own communities for consultation.

If these communities can broadly support such objectives, a pilot program could involve the Great South Coast seeking expressions of interest from large-scale experienced developers and designers in these fields worldwide. This would involve interaction with the region's water authorities and Indigenous communities in the first instance. State or Federal agencies with jurisdiction in any matters associated with the development could be brought into the expression of interest process to ensure optimal co-regulatory design and minimise delays but the process should be led by the region itself, to the extent possible.

This would represent a much more targeted result with a commercial objective than a State-based process to commission extensive studies about the potential of regional hot springs. If government-led research is to be provided, it should be targeted, in that it is serving the interests of willing investors and local communities and authorities rather than risk being generated as 'pure research' for investments which may never eventuate.

To overcome the challenges of fragmented approaches, a bolder approach to the scale of market solutions sought is also recommended: based on the advice of the aforementioned international investor interviews, to deliver genuinely transformative solutions, conforming responses to the regional expression of interest process should be sought at $100 million or over and for preference involve a network of investments to bind the region's wider tourism economy into new higher-value opportunities.

Closer tertiary institution support for these high-value sectors: an emphasis on the valorisation process

Linking more curriculum and research effort to these sectors and partnering where possible in applied development solutions with market projects.

First steps

Tertiary institutes can underpin the success of these high-value sectors by making commitments to turn tertiary knowledge and research effort into valuable supportive products for the regional economy - in doing so they are following global best practice. Tertiary institutions based the region today (**Deakin University Warrnambool, South-West TAFE**) and other institutions should all consider the potential for assisting new regional programs.

Valorisation: tertiary institutions will drive higher-value solutions

Valorisation refers to the process of creating value out of knowledge. In technology this is sometimes referred to as 'technology transfer'.

In higher education and research circles the debate is ongoing around what emphasis to give to valorisation of research and what pathways are best to achieve it.

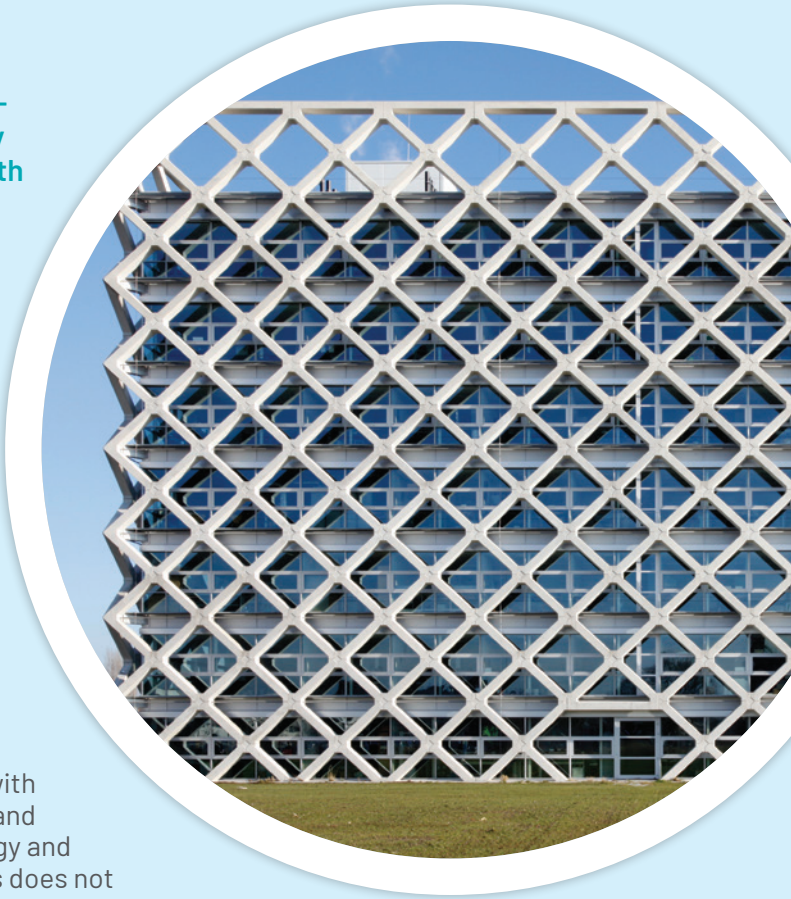
Leaving aside the finer arguments in this debate, it is evident that in regional Australian settings, not enough valorisation of leading research and development efforts is flowing through to regional investment and prosperity. Earlier in 2019, the Commonwealth's *National Regional, Rural and Remote Tertiary Education Strategy (2019)*[15] pointed out that much of the benefits of such research and development are locked up in city-based campuses, with little employment or wider dividends from these efforts benefitting regional Australia.

This comes in the context of the Great South Coast having significantly poorer school completion rates than the State average (ABS) - a matter examined in the *Interim Report*.

All of the high-value sectors raised in this report will benefit from applied tertiary research and development. Leading-edge technology, concepts and skills can do much to transform the value of agriculture, horticulture and aquaculture. In questions of green energy and hydrogen, in particular, having access to the best scientific minds to drive a path to commercialised green energy solutions is essential to success.

CASE STUDY:

Wageningen University and Research - the world's best agricultural university emphasises practical partnerships with industry to great effect



Wageningen University has its main campus in regional Holland near Arnhem. It is the world's number 1-ranked agricultural and forestry university (QS Top Agricultural and Forestry Universities 2019[16]). For context, no Australian university ranks in the top 10 of the 2019 poll and only two Australian Universities poll in the top 40. Wageningen has been the top-ranked Dutch University for the past fourteen years.

Wageningen is a hybrid of several research institutions and the university, with a very strong focus on valorisation, through start-up pathways and applied research cooperation: it often partners with major commercial and government food and health programs to drive better technology and science into these economies. This focus does not impede the publication output of Wageningen, which is classed as very high. It is arguably this commitment to valorisation of knowledge and insight into communities and businesses that helps to drive the strength and citation relevance of its publications.

Wageningen's conscious emphasis on translating knowledge to value plays an important role in the fact that the Netherlands agri-complex manages to produce $AUD 150 billion in agricultural and food exports in 2018 - using almost exactly the same area of farmed land as the Great South Coast.



Deakin Warrnambool campus - an academic partner *in situ*

One important opportunity for the Great South Coast lies in Deakin University's Warrnambool campus and its commitment to new areas of high regional value, potential research and partnership.

Deakin University has a charter obligation to support regional communities. It maintains a large campus at Warrnambool. At the present time, it is examining how it can orient more of its curriculum and regional involvement to address at least some of the high-value opportunities raised in this report. A first major step in this respect is its commitment to Australia's first industrial-scale hydrogen fuel cell manufacturing, testing and industry pilot facility at the campus, in collaboration with key community and industry partners[17].

South-West TAFE is the main TAFE organisation in the region. It also shares campus facilities at Deakin Warrnambool. This offers an opportunity for certificate training and curriculum development opportunities to be borne out of the high-value sectors identified in this report, as they develop.

Given the scale and promise of the sectors discussed, the region would welcome wider collaboration on specific projects and programs from capital city-based or cross-border universities which may wish to branch into high-value regional collaborations. In the field of green hydrogen, in particular, the need for scientific excellence across several commercialised research collaborations is clear: if the region is to make the most of its latent comparative advantages in this field, universities must grasp the benefits of targeted regional scientific development programs with industry and community partners.

Cross-border collaboration with south-east South Australian communities

Recognising that these neighbouring regional economies share common high-value opportunities which will benefit from collaborative investment and planning effort.

First steps

The Great South Coast and Limestone Coast regional bodies should meet and discuss the potential and appetite for cross border collaboration in the high-value pathways considered in this report, as a means of bringing scale efficiencies and influence to these efforts.

Common strengths, common purpose in new pathways

The Limestone Coast of far south-east South Australia - the region immediately across the South Australian border from the Great South Coast - incorporates the administrative centre of Mount Gambier and townships like Millicent, Robe, Coonawarra and Penola. The Limestone and Great South Coasts share a very similar Mediterranean climate and a similar industry profile, with agriculture fisheries and forestry dominant in an almost $4 billion annual economic output for the Limestone Coast (ABS).

Taken together, the economies of the Limestone Coast and Great South Coast represent a $10 billion dollar annual economy which is increasingly open to diversification.

All of the high-value pathways identified in this report have relevance to the Limestone Coast in varying degrees:

- the region's wind and solar energy investments are significant, but need pathways to storage and supply and would benefit from commercialised research pathways in green hydrogen;
- the aquifers of the Great South Coast extend somewhat across the border and the region's temperate climate presents high value agricultural prospects;
- the Limestone Coast has a strong fishing and aquaculture heritage and skill base and space for land based aquaculture;
- the Bungandidj people - the traditional owners of the Limestone Coast region - have their own cultural sites of significance to bring into the cultural narrative which has gained new global prominence with World Heritage Listing of Budj Bim to the east, in neighbouring Gunditjmara country;
- this and hot springs tourism along with the famed food and wine of the region offer new collaborations in tourism with Great South Coast, if scaled investments are pursued;
- Mount Gambier is home to campuses for both Finders University and the University of South Australia as well as TAFE assets.

Perhaps most importantly, these two regions have a long history of willing collaboration and cooperation at community level, which is an excellent starting point to consider more formalised collaboration in common high-value investment sectors.

A mandate to pursue higher-value

Most of the concepts discussed above are not entirely new. What was of most interest to the authors is why they failed in the past, or which areas need new approaches to progress.

In the course of report development, it became apparent that layers of bureaucracy and complex, uncertain and sometimes fragmented planning, development and investment processes posed the major barriers to large-scale investments in the region's potential high-value sectors.

New end-to-end approaches led by the region itself may unlock the potential. This final report has recommended trial structures and pilot programs aimed at doing so.

Aligning the local community in support for broad objectives is essential

But before pilots are considered, the community needs to be consulted and broadly supportive.

Maximising local awareness of the proposed paths forward is a key to success across all pathways - gaining as much 'social licence' as possible from communities themselves and then giving local governments, local industry and locally-based State and Federal authorities agency in leading and developing the solutions.

This approach conforms to well-understood public policy principles around subsidiarity.

The report authors heard many stories of major investment and development efforts which foundered after much effort at a final critical local government approval stage, where complaints were made. This suggests a stronger awareness and agreement to core objectives across communities is needed first, to shape a more reliable investment environment for better projects.

As a first step, it is recommended that the five local governments of the Great South Coast consider summarising the challenges and opportunities and present the broad contours of these high-value development paths to their own communities. It is hoped this step might build awareness and bestow a stronger mandate on these local governments to then drive subsequent pathways to investment with the market and governments with greater certainty.

Post-script: a local approach to unlocking potential

Over the course of a year, the authors of this report were exposed to a very special region of Australia, whose temperate climate, abundant resources, deep and active indigenous cultural life and spirit of community collaboration across local government and parochial lines all suggest a bright future. The many innate advantages of this region suggest the high-value pathways identified in this report all stand good chances of being successful.

However, it is also clear that traditional systems of higher government settlement planning have broken down significantly, to the point where Commonwealth and State government development efforts, if pursued without local leadership and insight, can too easily risk becoming bureaucratic processes for their own sake, which do not reliably result in new jobs, new industries and maximum market and community creativity.

While it may prove a challenge to these traditional approaches, a genuinely region-led path to high-value economic development - one that brings the community and the market into a common understanding of the broad objectives - is likely to be the best path forward for the Great South Coast to pursue.

Increasingly, markets are voicing the challenges they face in making large, stable, long-term investments - especially in regional Australia. Where are the investments at scale? Who has done the work to de-risk these investments and offer markets a safe path and supportive community partners?

These are the challenges ahead for the Great South Coast - to establish projects and sectors with genuine scale and merits, to protect them from becoming bureaucratic processes unto themselves and to ensure the community welcomes sustainable and solid new investment partners. Most of all, the challenge is for the Great South Coast to take leadership and ownership of these processes to ensure investments are in fact made, jobs do flow and the needs of the remarkable Indigenous communities of the region are respected in doing so.

In this setting, State and Commonwealth governments are facilitators and, in some cases, early financiers of effort but they should not be viewed as the solution. The solution mostly lies with the collaborative actions and resolve of these communities themselves.

References

1 See the 'Enabling Industry Growth' chapter in the Council of Australian Governments' *Australia's National Hydrogen Strategy* (2019) https://www.industry.gov.au/sites/default/files/2019-11/australias-national-hydrogen-strategy.pdf

2 https://ministers.education.gov.au/tehan/pilot-take-hydrogen-energy-forward-warrnambool

3 https://www.deakin.edu.au/about-deakin/media-releases/articles/warrnambool-research-centre-tests-trucks-running-on-water

4 Figures based on DEWLP published figures https://www.energy.vic.gov.au/renewable-energy/wind-energy/wind-projects updated with latest information from Great South Coast local government executives December 19.

5 Australian Energy Market Commission Discussion Paper*: Coordination of Generation and Transmission Infrastructure Proposed Access Model* (October 2019): https://www.aemc.gov.au/sites/default/files/2019-10/EPR0073%20-%20COGATI%20Proposed%20Access%20Model%20-%20Discussion%20paper.pdf

6 https://www.hvccc.com.au/AboutUs/Pages/History.aspx

7 See Southern Rural Water and the Australian National Water Commission *South-West Victoria Ground Water Atlas* (2011) http://www.srw.com.au/wp-content/uploads/2016/03/South-West-Victoria-Groundwater-Atlas-PDF-17.6MB.pdf

8 General Administration of Customs People's Republic of China 2019

9 See the company website http://www.mainstreamaquaculture.com/

10 Productivity Commission *Assessing Environmental Regulatory Arrangements for Aquaculture* (2004)

11 Productivity Commission *Inquiry into Marine Fisheries and Aquaculture Final Report* (2016)

12 https://hpaied.org/about

13 Icelandic National Tourism annual report for 2018 is at https://www.ferdamalastofa.is/static/files/ferdamalastofa/talnaefni/tourism-in-iceland-2018_2.pdf and quoted 2019 figures can be found at: https://www.ferdamalastofa.is/static/files/ferdamalastofa/talnaefni/ferdatjonusta-i-tolum/2019/november/november-2019-en.pdf

14 https://www.stuff.co.nz/travel/news/100447704/icelands-tourism-dilemma

15 Commonwealth Government Department of Education *National Regional Rural and Remote Tertiary Education Strategy* final report (2019) https://docs.education.gov.au/documents/national-regional-rural-and-remote-tertiary-education-strategy-final-report

16 https://www.topuniversities.com/universities/wageningen-university-research#sub

17 https://www.standard.net.au/story/6095547/hydrogen-energy-on-the-agenda-as-city-eyes-clean-green-future/

18 Key statistics drawn from *Food Economic Report of the Netherlands* Wageningen University (2018)




Great South Coast
GROUP


CORANGAMITE
SHIRE


GLENELG SHIRE


MOYNE
SHIRE


Southern Grampians
SHIRE COUNCIL


WARRNAMBOOL
CITY COUNCIL


wannonWATER


REGIONAL
PARTNERSHIPS
GREAT SOUTH COAST


VICTORIA
State
Government
Jobs,
Precincts
and Regions



CERRF
CENTRE FOR REGIONAL AND RURAL FUTURES

DEAKIN UNIVERSITY

JUTURNA