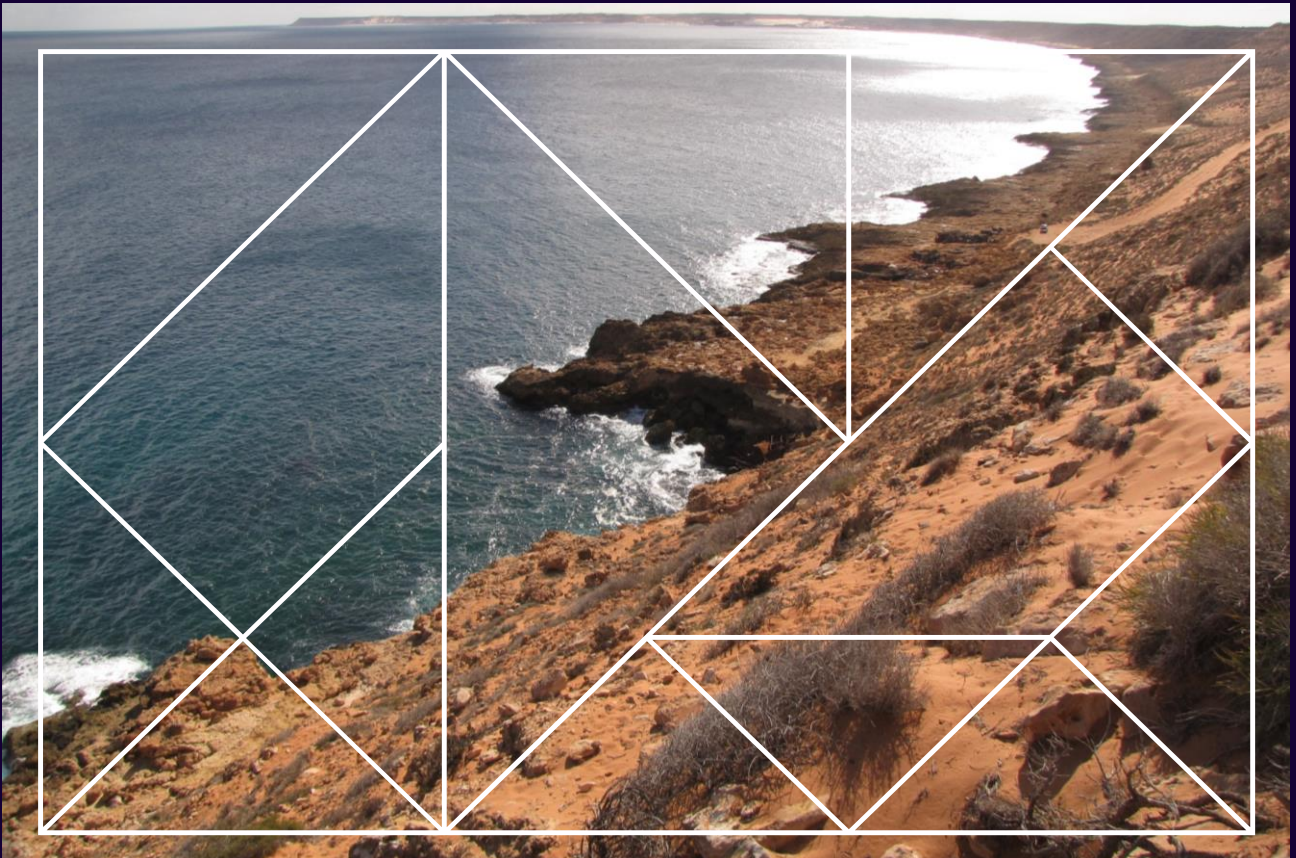


March 2024

Report to Gascoyne Development Commission

Application for Concept Approval

Gascoyne Multi-user Marine Facility



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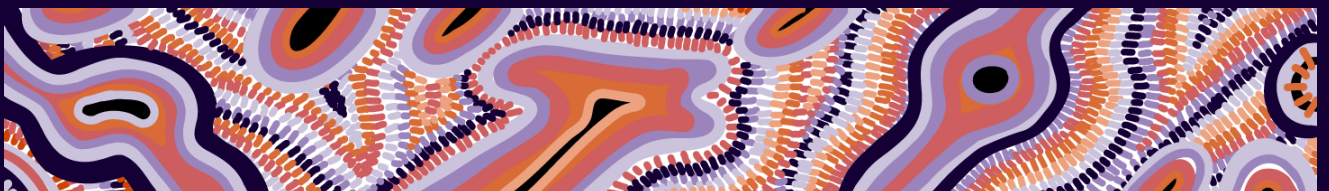
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Goomup, by Jarni McGuire

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Proposal Summary

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Terms and abbreviations

The following terms and abbreviations are used throughout this report.

Table 1 Glossary of terms and acronyms

Term / acronym	Description
\$m	Millions of Australian dollars
\$/t	Dollars per tonne (typically of trade)
BLF	Barge Loading Facility
BMT	BMT Group (technical study partner)
CAPX	Capital expenditure
GDC	Gascoyne Development Commission
MCA	Multicriteria Assessment
MT	Million tonnes
mtpa	Million tonnes per annum
OGV	Ocean Going Vessel
PV / NPV	Present Value / Net Present Value
REE	Rare earth elements
Renewable hydrogen	Molecular hydrogen produced through electrolysis of water utilising renewable energy resources
UKC	Under Keel Clearance

Summary of Proposal

Identification and development of fit for purpose marine infrastructure has been a strategic priority for the Gascoyne Development Commission ('GDC') for some time,¹ reflecting the importance of the creation of a pathway to market for major projects. The Gascoyne is Western Australia's smallest and most geographically isolated region from the perspective of access to ports infrastructure.

A range of renewable energy, renewable hydrogen and critical minerals major projects are developing major projects in the Gascoyne. The region is seen by industry as of great potential, but a lack of infrastructure and access to markets is hindering progress.

The Gascoyne Multi-user Marine Facility ('GMUMF') Application for Concept Approval is the culmination of work undertaken by the Gascoyne Development Commission ('GDC') and a cross-governmental steering group centred on finding a lasting, scalable marine infrastructure solution to meet the needs of current and emerging industry in the Gascoyne region. The concept is based common user principles, providing a comprehensive, staged development which can meet the needs of a broad range of current and emerging industries in the region.

Gascoyne Multi-user Marine Facility

The Gascoyne Multi-user Marine Facility is a proposed common user marine facility for the Gascoyne region, with the potential to become a piece of State-significant infrastructure. The project is designed to be developed in stages as the needs of existing industries and major industry development opportunities – including renewable energy, renewable hydrogen, and related industries – change over time.

The area of focus for the location of the infrastructure is an area to the north of Carnarvon, between the Carnarvon Town Site and Point Quobba. This places the area within the **declared Port of Carnarvon area**, which is currently under management of the Department of Transport but which is in the process of being transferred to the stewardship of the Mid West Port Authority. The location was selected through a two stage Multicriteria Assessment ('MCA') and is consistent with private sector studies examining the region's potential. Further studies are required to define the most appropriate, specific site balancing the needs of the infrastructure with environmental, seabed and met-ocean conditions.

The first stage of the GMUMF is a "pioneer wharf" which would provide early offload capabilities to support the construction of new infrastructure. This would allow project owners to bring large vessels directly to shore for cargo operations, and provide some capacity for the export of bulk materials and containerised goods.

¹ Gascoyne Development Commission. 2022. *Gascoyne Strategic Plan 2022-2026*. Accessed online at <http://www.gdc.wa.gov.au/>

The second stage of the GMUMF adds additional berthing capacity, dredge depth and protection from what can be challenging met-ocean conditions in the region. This would be targeted at expanding the capacity to facilitate simultaneous operations or very large project modules (such as wind turbine towers and blades).

The third and final stage of the GMUMF results in the development of a “typical” Western Australian trading port, with multiple berths, extensive marine services including tug pens and a harbour, and the capacity to tie-in various product export process stacks (including bulk liquids). This would allow the GMUMF to evolve to become a genuine in-bound and out-bound freight and logistics solution for the emerging renewable hydrogen industry in the region.

On an order of magnitude basis, BMT Group has costed the complete infrastructure solution at \$265 million across the three stages. This estimate is not for construction and should be further interrogated in subsequent phases of work. A schematic of the ultimate development concept is provided on the following page.

Stakeholder Support and Alignment to Government Policy

The proposal has the broad support of local stakeholders, industry and Government, which has been confirmed through targeted engagement and the involvement of a cross-Government Project Steering Group. The Project Steering Group comprises representatives from:

- Gascoyne Development Commission
- Mid West Ports Authority
- Department of Transport
- Department of Planning, Lands and Heritage
- Shire of Carnarvon

Throughout the work undertaken to date, the project team has met with close to 20 stakeholders to discuss the provision of marine infrastructure on the western Gascoyne coast. Feedback was universal with respect to the identified need for a lasting solution to the challenges associated with moving cargo into and out of the Gascoyne region. Earlier concepts for the infrastructure such as a barge loading facility were considered to be partial solutions, with stakeholders firmly focussed on infrastructure which can provide a fuller array of functions and services. Further stakeholder feedback can be found in Appendix B.

Finding a lasting solution to marine infrastructure access, and so catalysing the range of economic development opportunities present in the Gascoyne region, will aid in the delivery of a range of State Government policy priorities. This includes **DiversifyWA**, the **Western Australian Renewable Hydrogen Strategy**, the **WA Ports and Hydrogen Strategy** (which is currently in development), and the **Future Battery and Critical Minerals Strategy**.

The GDC’s own strategic planning framework, Plan 26, identified five areas of focus for the Gascoyne. Two of these are directly relevant to the ACA proposal (the growth of non-renewable resources (minerals) and related industries. And growing new alternative industries).

The vast majority of trading ports in Western Australia are owned by Government Trading Enterprises, established by the *Port Authorities Act 1999*. Even where a facility is privately owned and operated, Port Authorities play a role in marine management, vessel navigation and strategic planning. Following amalgamation, Western Australia has five State-owned port authorities, Fremantle, Kimberley, Mid West, Pilbara and Southern Ports. The *Ports Legislation Amendment Act 2019* provides for ports administered by the Department of Transport under the *Shipping and Pilotage Act 1967* to progressively transfer to Port Authority control, with ports in the Gascoyne Region to be governed by the Mid West Ports Authority (as suggested by the organisation’s involvement in this process).

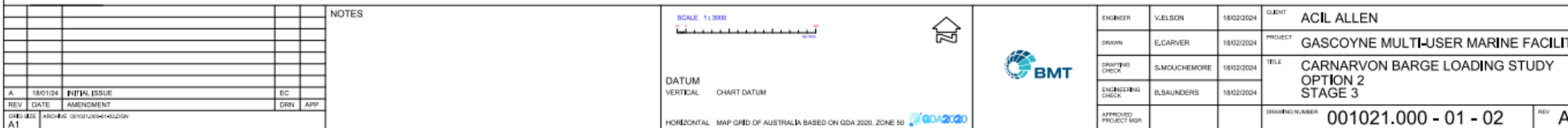


Figure 1 Location of trading ports relative to the Gascoyne region vs Area of Investigation



Source: ACIL Allen

Facilitating trade, providing infrastructure, and acting for the benefit of the State of Western Australia through economic development are core to the purpose of Western Australia's port authorities under the *Port Authorities Act 1999*. It is therefore incumbent on the relevant port authority to respond to market demand in an economically efficient and commercial manner, giving regard to options for trade facilitation that take in both investment and non-investment options.

Creating a common user pathway

The vast majority of ports infrastructure in Western Australia is owned by the State of Western Australia. Ownership of these assets provides the State with control over a critical economic development lever, and provides a capacity to generate a return on investment on economic development initiatives for taxpayers. This "common user" pathway is seen by all participants of the Project Steering Group as critical to successful delivery of the project.

There are currently two privately owned and operated ports in the Gascoyne, at Useless Loop and Cape Cuvier; both facilities serve a single trade, being salt. There is also private sector interest in the development of ports in the region. One such proponent investigating the region of focus of the GMUMF is Province Resources.

Province Resources was an early mover in the emerging renewable hydrogen industry in Western Australia, establishing its proposed HyEnergy Project in the Gascoyne in 2021 following the acquisition of another ASX-listed company which held mineral exploration licences in prospective renewable energy generation regions.

The company holds Section 91 licences under the *Land Administration Act 1997* over a number of Crown land parcels throughout the Gascoyne, a Memorandum of Understanding with the Shire of Carnarvon to access an area owned by the Shire immediately north of the Carnarvon town site (also known as the 'Town Common'), and an Access Licence with the Department of Transport on the seabed near Carnarvon.

Province is also nearing completion, or has completed, pre-feasibility studies for upstream (ie electricity generation), downstream (hydrogen production and related facilities) and port infrastructure for its project, across an initial "megawatt" scale development within the Town Common site and a staged "gigawatt" scale development across a broader area. As part of the studies Province Resources has suggested it will require a marine infrastructure solution for both its inbound infrastructure and logistics and its outbound product export vectors. Province is yet to fully disclose its plans publicly, though has provided input into this study on background to assist BMT in preparation of technical components of the work.

Province is also nearing completion, or has completed, pre-feasibility studies for upstream (ie electricity generation), downstream (hydrogen production and related facilities) and port infrastructure for its project, across an initial "megawatt" scale development within the Town Common site and a staged "gigawatt" scale development across a broader area.

Holding the first mover advantage is likely to be critical to renewable hydrogen project proponents on a number of fronts. Establishing greenfield marine infrastructure is not one of these. While the Province has expressed confidence in its ability to deliver a standalone marine infrastructure solution for its project, in reality development of a port is a complex, multifaceted and costly exercise, and is outside of the core business of Province as a renewable energy project developer.

From a State Government perspective, it is also not an ideal solution for individual projects to develop marine infrastructure on an isolated or standalone basis. This would result in less efficient outcomes for all parties, and could even stunt the development of the industry in its totality.

Figure 2 Province Resources tenure, as of November 2023

Source: Province Resources

The emergence of renewable hydrogen opportunities in the region, and the clear need for marine infrastructure to facilitate projects, provides the State with a pathway to progressing an infrastructure solution which can meet the needs of individual companies like Province, as well as the broader industry development opportunities in the region.

Requested actions

The GDC is committed to investigating and securing infrastructure solutions for the Gascoyne region. To this end, the GDC wishes to progress this Application for Concept Approval through the Department of Treasury's *Strategic Asset Management Framework* and Infrastructure Western Australia's *Major Infrastructure Proposal Assessment* process, with a view to commencing and continuing dialogue with Government and industry on the Gascoyne Multi-user Marine Facility.

Working with the GDC, ACIL Allen has suggested the following course of action.

Engaging with Government

ACIL Allen recommends:

- The GDC engages with Infrastructure WA to commence the Major Infrastructure Proposal Assessment ('MIPA') process. This is because the likely capital cost of just the second stage

of the proposal is greater than \$100 million. At this stage the proposal would be considered a draft, with Infrastructure WA seeking to review and make suggestions on the structure, content and directions provided. The intent of engaging with Infrastructure WA at this stage is to gain support to add the project to the State's Infrastructure Priority List (as an early concept).

- Concurrent to this, the GDC will submit the final version of the current ACA to Government in some form, as the base for a Cabinet submission to receive funding for a Strategic Business Case commencing in the 2024-25 financial year. This will allow the GDC to continue the momentum of the project, and advance the development of study concepts and options to a level where a proposal can be more fulsomely considered in a subsequent State Budget.
- Finally, the GDC will seek to engage with the Department of Transport / Department of Jobs, Tourism, Science and Innovation on the Hydrogen Ports Strategy. The Hydrogen Ports Strategy is intended to identify projects and priorities to facilitate the import of renewable energy and renewable hydrogen infrastructure, and export of associated products.

Formalising the Project Steering Group

ACIL Allen recommends:

- The Gascoyne Development Commission should remain the coordinating agency, convening a Project Steering Group and providing ex-officio support.
- The Steering Group is comprised of:
 - The Gascoyne Development Commission
 - Department of Primary Industries and Regional Development (new member)
 - Shire of Carnarvon
 - Mid West Ports Authority
 - Department of Transport, including a change to a representative from the Freight, Ports and Aviation Strategy Directorate instead of from the Operations Directorate.
 - Department of Planning, Lands and Heritage
 - Department of Jobs, Tourism, Science and Innovation (new member)
- Once the ACA is delivered to Government and accepted, control of the process should shift to the most appropriate delivery agency for the stage of the project. ACIL Allen expects this would be Mid West Ports Authority.

In addition to the above structural changes, ACIL Allen recommends a single representative from each organisation should be nominated as the accountable member and attendee.

Application for Concept Approval



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Project Purpose

1

1.1 Introduction

The Gascoyne region is Western Australia's smallest (by population and economy) region, located in the north western most parts of the State. The region has been identified as prospective for a range of new economic development opportunities by the Western Australian Government, including large-scale renewable energy and renewable hydrogen projects.²

This document presents an Application for Concept Approval ('ACA') for consideration by Government to provide support and funding for further investigations and business case planning for a **Multuser Marine Facility** in the Gascoyne region. The ACA has been prepared by ACIL Allen in its role as advisor to the GDC and a Project Steering Group which has been established to provide guidance on the matter. The Steering Group is comprised of representatives from:

- Gascoyne Development Commission
- Mid West Ports Authority
- Department of Transport
- Department of Planning, Lands and Heritage
- Shire of Carnarvon

Together, these five entities are the most engaged in ports, economic development and planning / lands matters within the Gascoyne region and beyond.

It is intended the ACA will be submitted and considered by Government by one of the agencies participating in the Project Steering Group as a means to seek support and funding from the State Government to progress further investigations and studies. This would be complementary to other work underway across Government in relation to the renewable hydrogen industry, and specifically in the Gascoyne region with respect to land allocation, licencing for investigations, and emerging requests for options to lease certain lands by the private sector.

1.2 Proposal background

Identification and development of fit for purpose marine infrastructure has been a strategic priority for the Gascoyne Development Commission ('GDC') for some time,³ reflecting the importance of the creation of a pathway to market for major projects. In this environment, the GDC engaged ACIL Allen and its engineering partner BMT Group to undertake a pre-feasibility study centred on the

² Infrastructure WA. 2022. *State Infrastructure Strategy: Regional Strategy*. Accessed online at <http://www.infrastructure.wa.gov.au/>

³ Gascoyne Development Commission. 2022. *Gascoyne Strategic Plan 2022-2026*. Accessed online at <http://www.gdc.wa.gov.au/>

development of a **barge loading facility** ('BLF') on the western coast of the Gascoyne region. The project is overseen by a Project Steering Group.

The scope of that study was centred on an investigation into the specific infrastructure associated with a BLF, reflecting the views of a number of proponents in the region that a barge facility would be beneficial to some prospective trades. Development of a barge loading facility has been associated with the Gascoyne region's potential to host the mining and export of renewable river sands. During this study, it emerged that a BLF may not be the most appropriate infrastructure solution for the region given the evolving outlook for major projects. The findings of the study are presented below.

However, the overarching finding of the study was the demand for marine infrastructure in the Gascoyne region was clear, and a solution was likely to be in the State's best interests.

Table 1.1 Findings of Gascoyne Barge Loading Facility Study

Finding	Detail
Finding 1: Region-wide constraints on marine infrastructure	The existence of a number of marine constraints – principally marine parks and challenging met-ocean conditions – means there is a relatively limited area of the Gascoyne coastline which is suitable to investigate the provision of marine infrastructure.
Finding 2: Diversity of opportunity	The opportunities scan has identified a number of diverse trade facilitation opportunities for the Gascoyne, linked the region's current and emerging competitive advantages. The diversity of this demand for trades is a positive for the provision of infrastructure as it provides diversification. However, this also presents risks for the provision of a barge loading facility as not all trades are likely to be best served by this kind of infrastructure.
Finding 3: Broad stakeholder support	The stakeholders engaged during the first phase of the study were universally supportive of an investment in the provision of marine infrastructure on the western Gascoyne coast. Many stakeholders suggested without this infrastructure their projects would be unlikely to proceed. A number of stakeholders were unclear as to the merits of a barge loading facility for their needs, although some believed this was an appropriate solution given their own needs.
Finding 4: Demand drivers	The initial feasibility assessment has identified river sand exports as the primary short term trade opportunity for the region, though in the medium to long term there are significant additional industries and opportunities in the form of renewable energy, renewable hydrogen, minerals and agriculture.
Finding 5: Future growth of marine infrastructure seen as a priority	In discussing the multicriteria assessment criteria and their weightings, the Project Steering Group identified the need to find an appropriate site for the infrastructure, with the capacity to grow and develop in line with the needs of industry. The Project Steering Group also expressed a strong preference to find a location with minimal environmental impact.
Finding 6: A clear leading site emerges from site selection	The multicriteria analysis clearly identified a site in or around Boolathana Station as the most appropriate location to consider an investment in marine infrastructure, due to its capacity to host a larger facility in the future, its location relative to the most important demand nodes, and its relatively limited impact on the marine environment (given the options available).
Finding 7: Significant demand for the movement of materials	ACIL Allen and BMT Group have identified demand for up to 4.2 million revenue tonnes per annum of trade facilitation in the study area when constrained by the services provided over a barge. Based on BMT's analysis of operability and other constraints, the barge loading facility could not meet this need, with a maximum facilitation capacity of 3.5 million tonnes per annum in the heavy infrastructure option.
Finding 8: A marine infrastructure solution in the Gascoyne would be costly	BMT Group estimates the total cost of service provision for a barge loading facility is in the order of \$600 million to \$650 million depending on the option. However, the costing is highly sensitive to future trade volumes, meaning the gross cost of the infrastructure is also a significant consideration.
Finding 9: High cost of services likely to render facility uncompetitive for potential users	A comparison of the cost of services per tonne of trade facilitated by the barge loading facility versus rates at existing Western Australian ports suggests the proposed infrastructure is between \$2.77 / tonne and \$6.72 / tonne more expensive. Applying the comparative rates to the shortlisted options would result in a cost recovery rate of between 53% and 70%, deeming the facility financially unviable.

Source: ACIL Allen GBLF Study

The full Gascoyne Barge Loading Facility Study is presented as an appendix to this Application for Concept Approval. This is a detailed document, containing a range of technical investigations and materials which are relevant to the directions of the multiuser facility proposal.

Following the presentation of preliminary findings, the Project Steering Group requested ACIL Allen pause the works and reconsider its approach.

This culminated in the suggested approach – presented in this report – of beginning the development of a **business case for a staged, multi-user marine facility on the western coast of the Gascoyne region**. This Application for Concept Approval is the first step in this process, as defined in the Department of Treasury's *Strategic Asset Management Framework*.

1.3 Project context

This section of the ACA introduces the economic and development context for the proposal.

1.3.1 Gascoyne region economic context

The Gascoyne region is situated between the Mid West and Pilbara regions of Western Australia and comprises four Local Government Areas ('LGAs') including shires of Carnarvon, Exmouth, Shark Bay and Upper Gascoyne. The region is located around 1,100km north of Perth, and extends 600km along the Indian Ocean coastline, and 500km in land which reflects a total coverage of 135,000km².

Major industries in the Gascoyne region include mining, agriculture, forestry and fishing and tourism, and together play a crucial role in the support of the Gascoyne region's economy. The Gascoyne region's economy is small compared to other regions in WA with a total Gross Regional Product (GRP) of \$1.2 billion.⁴ The mining sector is the largest contributor to the region's total economic output, totalling \$445 million or 21%,⁵ while only making up about six per cent of the region's total employment.

The agricultural, forestry and fishing industry contributed \$260 million or about 12% of the region's total economic output⁶ while supporting around 12% of the region's total employment. The industry's output is dominated by livestock, grains and other agriculture at \$183 million or about 70% of the industries total output. Other large contributors to the industries output include forestry, fishing and hunting, fishing support services and aquaculture.

The tourism industry plays a key factor in economy, and cultural identity of the region. The total economic output of the tourism industry is around \$180 million or 8.5% of the regions total economic output.⁷ Tourism in the Gascoyne region is largely fuelled by the World Heritage Sites Ningaloo Reef and Shark Bay, making up around 15% of the total Gascoyne employment levels, with the value of the Ningaloo Coast projected to be \$110 million per year.⁸

The Gascoyne region operates small scale ports and airports, with the largest airport located in the Shire of Exmouth. Ports in the region are small scale suitable for recreational fishing and small business activities, and the only highway in the region being the Northwest Coastal Highway. Current infrastructure levels have been designed to support the State's smallest regional population of around 10,100 people.⁹

⁴ Gascoyne Development Commission. Annual Report 2022-23.

⁵ Ibid

⁶ Gascoyne Development Commission. Annual Report 2022-23.

⁷ Ibid

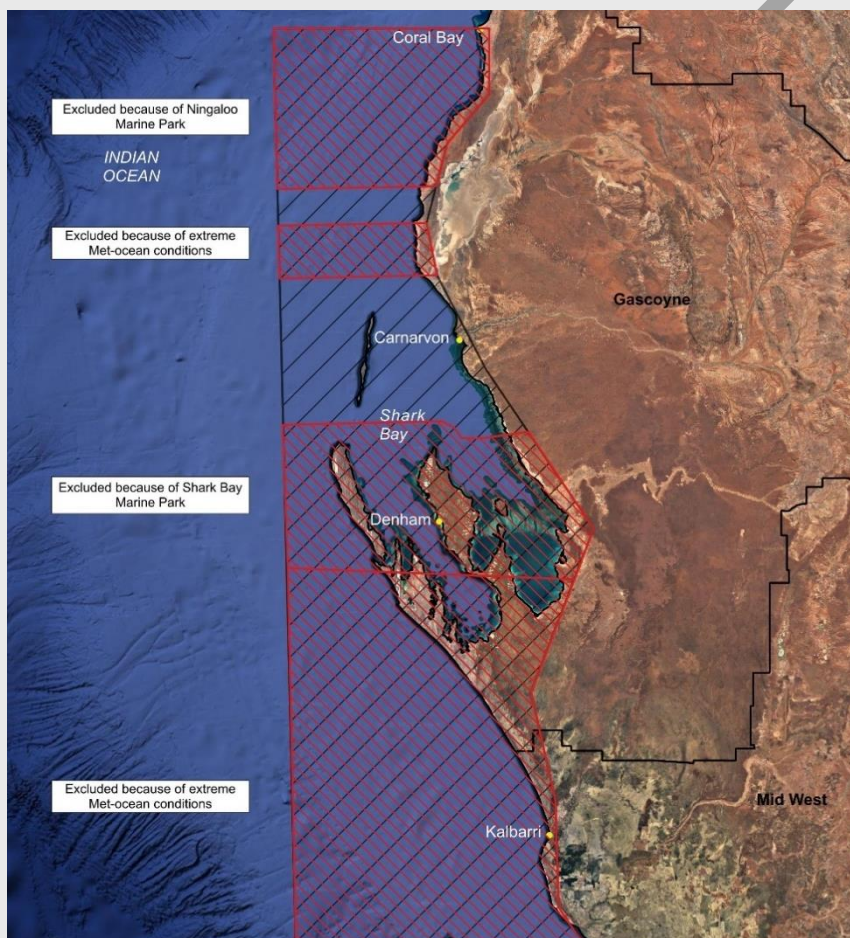
⁸ GDC. Our Region: Tourism. Available online from: [://www.gdc.wa.gov.au/our-region/industry/tourism.aspx](https://www.gdc.wa.gov.au/our-region/industry/tourism.aspx)

⁹ ABS. Regional population – Population estimates by LGA 2001-2022.

Site selection: A clear region of preference

The build options contained within this ACA are centred on a single part of the Gascoyne coastline from just north of the Carnarvon Town Centre through to the northern boundary of the Boolathana pastoral lease.

This is an outcome of a site selection and fatal flaws analysis. While the study started with a broad study area which stretched as south as Kalbarri and north as the Exmouth cape, it was rapidly narrowed down to the area below to avoid environmentally sensitive and highly valued / valuable areas in Shark Bay, and the Ningaloo Reef and surrounds.



From here, the site selection process rapidly identified a critical trade off which exists across much of the Western Australian coastline: metocean conditions and natural depth. There are a range of areas of the coastline within the narrowed study area where there is substantial natural depth, but harsh metocean conditions. Similarly, there are areas of more benign metocean conditions which face significant depth constraints. Both combinations result in the need for an infrastructure solution: a large sheltered berth area with breakwater in the case of depth / harsh conditions, and dredging in the case of limited depth / benign conditions.

The preferred location, following desktop review and the MCA, balances this trade off in the least cost way, while also being proximate to the Carnarvon town centre as well as close to many of the most advanced renewable energy and renewable hydrogen project proponents.

Further details are provided in the Appendices.

Source: ACIL Allen

1.3.2 Opportunities for growth

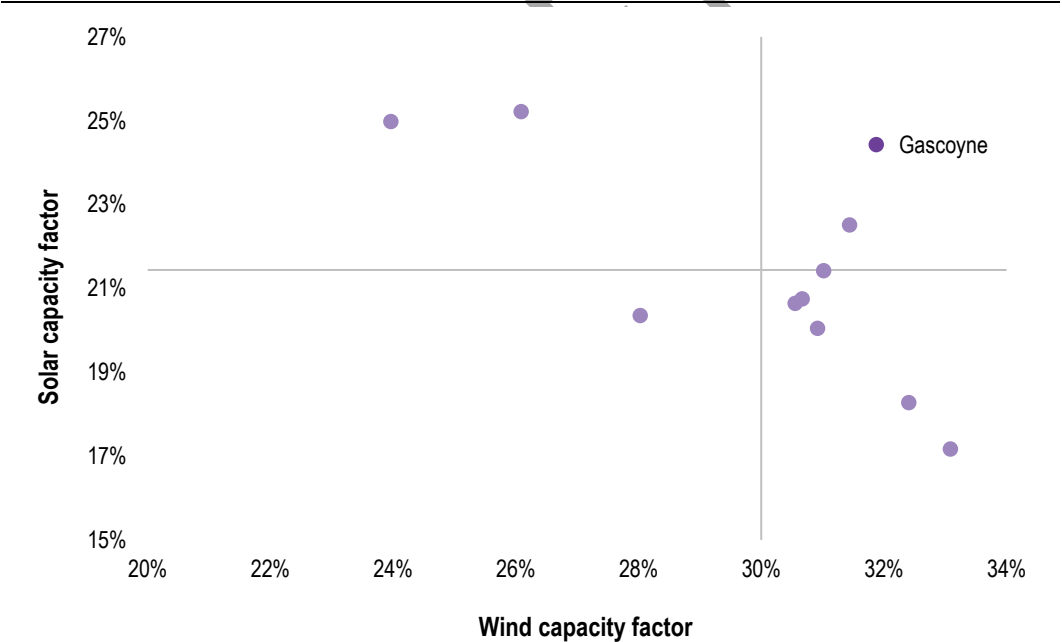
There are a range of clear and present economic growth and development opportunities in the Gascoyne region. These are outlined below.

Renewable energy production

The development of renewable energy production capacity is an identified State, national and global priority. The Gascoyne region is well suited to the development of renewable energy with expansive available lands and some of the highest average wind speeds and solar radiance factors in Western Australia.

Due to the size of Western Australia, environmental conditions differ greatly across regions. This difference can be identified in regional capacity factors, defined as the total energy output relative to the unit's potential total maximum output. The capacity factor in each region differs greatly dependent on the level of solar or wind exposure, therefore impacting the total renewable energy unit utilisation potential of each region.

Figure 1.1 Renewable Energy Capacity Factors



Source: National Map, Solar and Wind Capacity Factor.

Achieving a balance of solar and wind generation allows regions to capitalise on the total daily potential energy output. Solar energy generation peaks around mid-day, when the sun is at its peak while wind generation peaks in the early morning and late hours of the night, when wind speed averages are at their highest.¹⁰

The Gascoyne region scored third across both solar and wind energy generation potential, meaning the region has the potential to generate consistent renewable energy inputs across all hours of the day relative to other region's inputs.

The development of renewable energy is a land intensive industry, and with the requirement of both solar and wind in order to capitalise on the peak and troughs of energy output across all hours of the day, a great deal of land will be required. The Gascoyne region has the potential to be a strong

¹⁰ Ellis, Abraham. Lave, Matthew. Comparison of Solar and Wind Power Generation Impact on Net Load across a Utility Balancing Area. [https://www.osti.gov/servlets/purl/1368867#:~:text=Summertime%2C%20especially%20midday%20hours%20\(9,00%2D2%3A00\).](https://www.osti.gov/servlets/purl/1368867#:~:text=Summertime%2C%20especially%20midday%20hours%20(9,00%2D2%3A00).)

location to develop renewable energy due to the amount of available, undeveloped land and the low regional population.

In addition, the Gascoyne region's land holdings are typically centred on very large pastoral stations which are held on long term pastoral leases. This differs from other regions in Western Australia where they may be a blend of pastoral leases and freehold title, active mining projects and associated infrastructure, or pressures for urban development pushing outside of major towns and settlements.

The development of offshore wind farming as a renewable energy source offers an attractive alternative to the more intrusive onshore wind farming. Offshore wind farming provides more efficient energy generation due to higher wind speeds, greater consistency of wind and a lack of natural and man-made obstacles interfering with the wind. Offshore wind turbines produce, on average, 8-12MW compared to onshore wind turbines 3-4MW.¹¹ The Gascoyne serves as a potential offshore wind generation hotspot due to low land use in the region, providing the necessary space to create a staging port. A staging port provides the necessary space to store large offshore wind turbine equipment while the lengthy construction process is underway.

Renewable Hydrogen

The development of renewable hydrogen has the support of the Western Australian government through the Western Australian Renewable Hydrogen Strategy and Roadmap.¹² The WA roadmap outlines the desire to be an exporter of renewable hydrogen to fuel global demand as well as the utilisation of hydrogen as an energy source within our own systems.

Renewable hydrogen refers to the production of molecular hydrogen through the electrolysis of water, using renewable energy to undertake the electrolysis process. The primary requirement in developing a renewable hydrogen plant is the presence of large, high quality renewable energy options such as solar or wind energy. The Gascoyne presents high-quality renewable energy options, as mentioned previously, leading to the region potentially producing molecular hydrogen and related products for consumption and exportation. It follows, according to a number of aspiring producers, that the Gascoyne can also become a region of significance for hydrogen production.

Renewable hydrogen has been highlighted as a key tool in the decarbonisation of global industries due to it providing the ability to transport renewable energy globally and the wide variety of use of hydrogen. Renewable hydrogen is seen as a potential major contributor to industries with hard to mitigate carbon footprints, namely the heavy industry, long distance transport, shipping and aviation.¹³

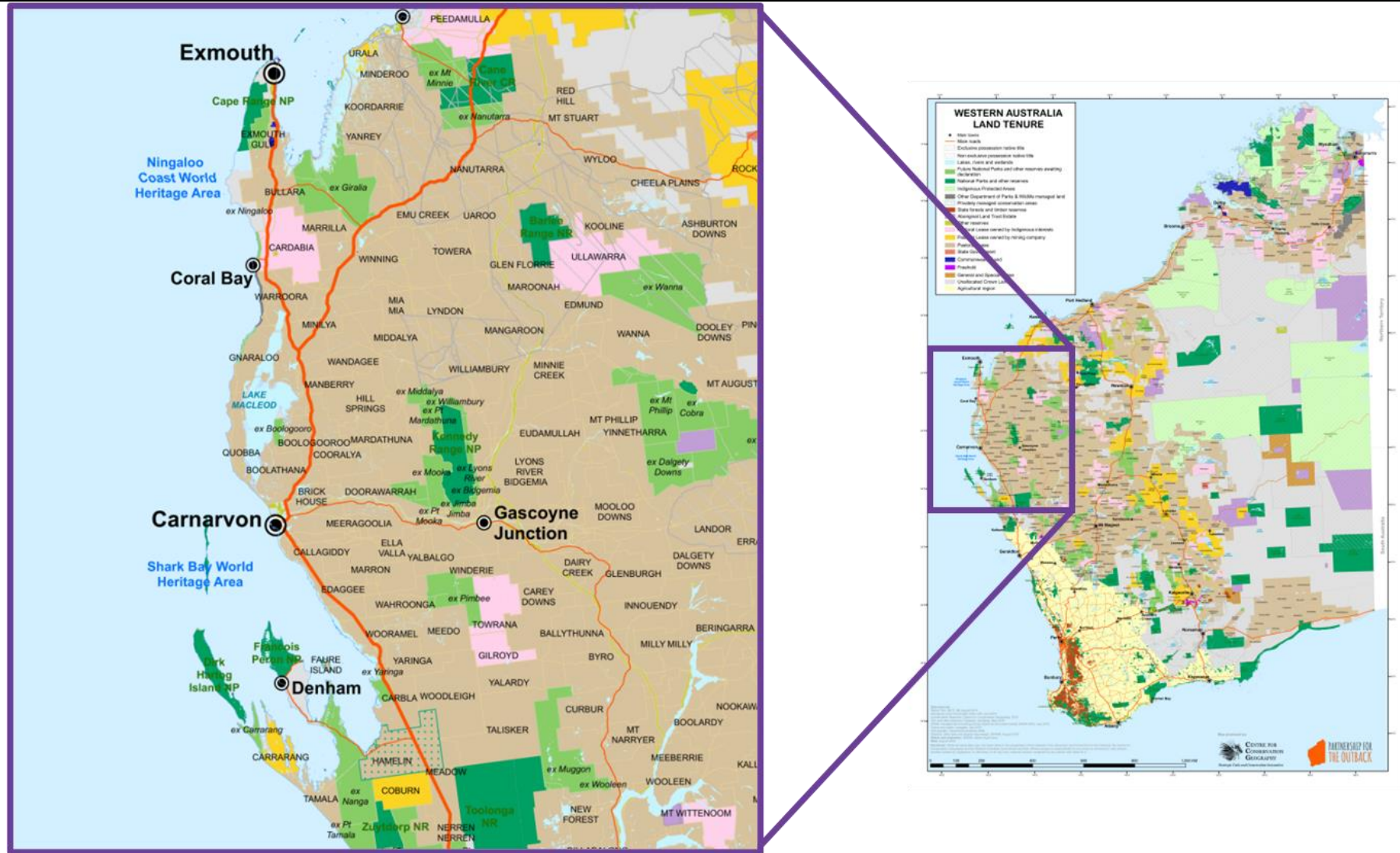
There are a number of proponents investigating renewable hydrogen projects in and around the Gascoyne region. Many of these hold one or more unique characteristics against the other proponents, such as having a land owner as part of the ownership structure, or having locked up provisional access to the most attractive locations for process infrastructure.

¹¹ IRENA. Wind Energy. <https://www.irena.org/Energy-Transition/Technology/Wind-energy#:~:text=Today's%20new%20wind%20power%20projects,cube%20of%20the%20wind%20speed.>

¹² Western Australian Government. Western Australian Renewable Hydrogen Strategy and Roadmap. Available online from: <https://www.wa.gov.au/government/publications/western-australian-renewable-hydrogen-strategy-and-roadmap>

¹³ IEA. Hydrogen. <https://www.iea.org/energy-system/low-emission-fuels/hydrogen>

Figure 1.2 Indicative land tenure map, Gascoyne and surrounding regions



Source: Department of Planning, Lands and Heritage

Table 1.2 Emerging Gascoyne Renewable Hydrogen Projects

Stakeholders	Description
Capricorn Clean Energy Investments Carnarvon Energy Project	<p>Capricorn Clean Energy Investments is a relatively new entrant to the renewable energy sector, however, has the primary goal of the development and manufacturing of 100% renewable hydrogen fuels.</p> <p>The primary market for Capricorn Clean Energy Investments is Green Ammonia, with the secondary markets being green jet fuel and green diesel, and green methanol and Di-Methyl-Ether (DME). Green methanol and DME have been identified as attractive future green fuels produced from renewable hydrogen.</p>
Fortescue Limited Uaroo Renewables Hub (deferred)	<p>The development of Uaroo Renewable Hub, proposed by ASX-listed Fortescue, is situated entirely within the Shire of Ashburton approximately 120km south of Onslow in the Pilbara on the Uaroo pastoral stations. The development will include wind and solar renewable energy arrays with a combined maximum capacity of 5.4GW. The project has been deferred for the time being.</p>
Murchison Green Hydrogen Project Murchison Green Hydrogen	<p>Copenhagen Infrastructure Partners (CIP) through the Murchison Green Hydrogen company is supporting the development of the Murchison Green Hydrogen Project in the Mid West region of Western Australia. The development will combine wind and solar energy to produce green hydrogen for primarily exportation.</p> <p>The project has been granted Lead Agency status by the Western Australian Government, labelling it as a project with state significance expected to bring economic and technological benefits to the region.</p> <p>The primary export partners of the project are expected to be based in East Asia, namely heavy manufacturing nations such as Japan and Korea.</p>
Boolathana Renewable Hydrogen Project Gascoyne Green Energy	<p>Gascoyne Green Energy is investigating the development of a renewable energy / renewable hydrogen project centred on the Boolathana Station. The project's ownership group includes the owner of the Station's pastoral lease, a point of differentiation versus others in the region.</p>
Unnamed Project GreenEdge Australia	<p>GreenEdge Australia is a recently-formed consortium investigating options for the development of a green ammonia project in the Gascoyne region. The company's point of difference is a number of consortium members have chemical engineering backgrounds including design and construction of ammonia production facilities.</p>
HyEnergy Hydrogen Project Province Resources	<p>The HyEnergy Hydrogen Project is a proposed 8 GW renewable wind and solar green hydrogen project in the Gascoyne region near Carnarvon. The project is the most advanced in the region, with Province expected to imminently release the outcomes of a pre-feasibility study on a large scale development as well as a smaller, initial development.</p> <p>Province Resources has also been engaging with the Western Australian Government regarding land tenure, and are negotiating an option to lease for downstream processing facilities in the Town Common area.</p> <p>The option to lease area contemplates potential import and export facilities including marine infrastructure.</p>
Vestas Wind turbine manufacturer	<p>Vestas is a global leader in sustainable energy and wind turbine design, manufacturing, installing and servicing across the globe with over 169 GW of wind turbines across 88 countries. Through its development arm, Vestas is investigating the Gascoyne region for its potential to produce wind and solar energy for use in renewable hydrogen-based projects, with engagement centred on Quobba Station. Vestas has other interests throughout Western Australia including in the regions around the project area.</p>

Source: Capricorn Clean Energy Investments; Fortescue Future Industries; Hydrogen Renewables Australia; Pilot Energy; Provaris; Province Resources; Vestas

Mining and resources

The total value of minerals and petroleum contributed by the Gascoyne region in 2022 was around \$143 million, less than one per cent of the State mining value in 2022 with the vast majority of value being generated in the Pilbara region.¹⁴ Roughly 95% of the mining value provided by the Gascoyne region comes from salt, gypsum and spongolite, however significant development are being made into the presence of lithium, copper, nickel and Rare Earth Elements (REEs).

There has been an influx of exploration and development into the Gascoyne region following the successes of the Hastings Yangibanda REE project.¹⁵ The Gascoyne at large is broadly unexplored, with a number of companies undertaking effectively “frontier” exploration for green and critical minerals through the central and eastern parts of the region.

In addition, the production of salt for the global chemicals industry is a longstanding minerals industry in the Gascoyne.¹⁶ Primary salt locations are Shark Bay Salt and Salt Lake Macleod with the produced salt being used as a primary agent in PVC and polyurethane, glass, detergents and soaps, textiles, industrial chemicals and road de-icing.¹⁷ Salt Lake Macleod and its exports are managed by Rio Tinto and their private port operations out of Port Cuvier. The Lake MacLeod operations is currently being sold to Leichhardt, a global chemicals company, with the assumption of the sale of Port Cuvier in tandem.¹⁸ Both operators make use of their own marine infrastructure (at Useless Loop and Cape Cuvier respectively).

River sand

Current sand shortages are supporting demand for river sand throughout South East Asia and neighbouring regions.¹⁹ Sand is the second most used resource globally, with an estimated 50 billion tonnes of sand moved annually.²⁰ Demand for high grade sand – like the sand available from sand mining operations in the Gascoyne – is currently high as it is used in the manufacturing of concrete and asphalt, glass and computer parts as well as for the extension of land in countries such as Singapore. The demand for river sand is high due to the structural integrity it provides compared to desert or dune sand. River sand is angular in shape with a higher silica content formed via water corrosion compared to the more circular shape of desert sand formed via wind corrosion.²¹

River sand is hard to come by compared to the incredible abundance of desert sand, marking the significance of the Gascoyne River and the river sand it produces. River sand is a renewable resource if managed properly and serves as an excellent export product to neighbouring regions such as Singapore. The Gascoyne River feeds through the Shire of Carnarvon and into the Indian Ocean, providing easier access to this resource.

Agriculture

The agricultural industry in the Gascoyne is multifaceted with horticulture and pastoralism activities taking place across the region, on account of the availability of land and water resources. Horticultural production includes fruits and vegetables producing bananas, table grapes and a

¹⁴ DMIRS - Value of Regional Commodities (2021-2022)

¹⁵ Hastings Technology Metals Limited. Yangibana Rare Earths Project. <https://hastingstechmetals.com/rare-earths/yangibana/>

¹⁶ DMIRS - Value of Regional Commodities (2021-2022)

¹⁷ Rio Tinto. Salt.

<https://www.riotinto.com/en/products/salt#:~:text=The%20majority%20of%20the%20salt,foods%20and%20de%20dice%20roads.>

¹⁸ ABC News. Rio Tinto-back Carnarvon salt mine at Lake Macleod enters sale talks. <https://www.abc.net.au/news/2023-09-14/rio-tinto-carnarvon-salt-mine-at-lake-macleod-up-for-sale/102853198>

¹⁹ East Asia Forum. Mekong river sand mining is a crumbling castle. <https://www.eastasiaforum.org/2023/03/02/mekong-river-sand-mining-is-a-crumbling-castle/#:~:text=River%20sand%20mining%20is%20present,Asia%20forecast%20to%20rapidly%20rise.>

²⁰ Cauldron Energy. River Sand Projects. Available online from: <https://www.cauldronenergy.com.au/river-sand-project/>

²¹ BBC. Why the world is Running out of Sand. Available online from: <https://www.bbc.com/future/article/20191108-why-the-world-is-running-out-of-sand>

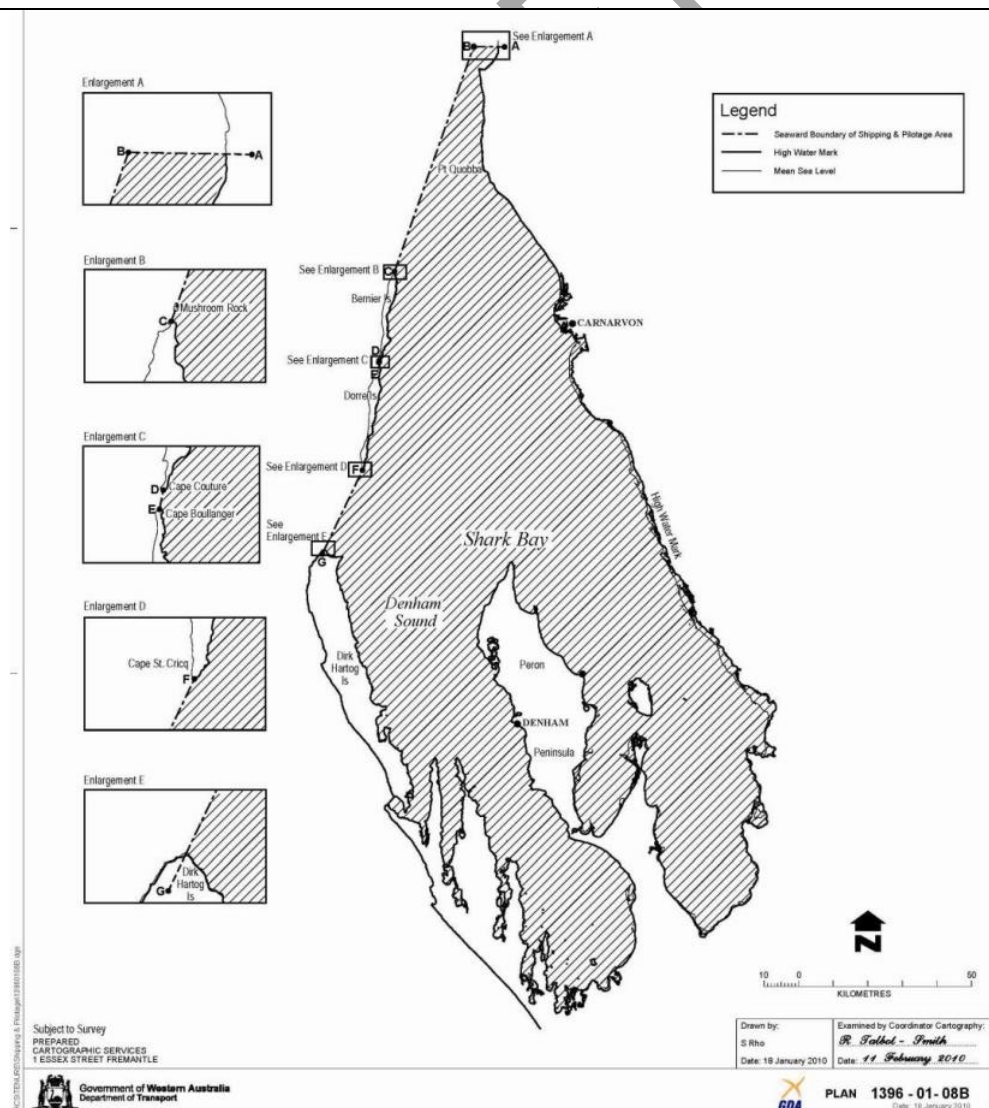
range of tropical fruits and vegetables. The Gascoyne 'Food Bowl' initiative involved the signing of a Native Title agreement with the Yinggarda Aboriginal Corporation to release land for horticultural development. Multiple stages of land along the Gascoyne River have been released, initially in 2018 and again in January 2021 releasing 300ha of prime horticultural land and 400GL of irrigation water, prompting an increase in total production possibility.²²

Due to Carnarvon's semi-arid, semi-tropical climate and typical warm conditions the region has the capability to produce fruits and vegetables on a counter-seasonal basis. This counter seasonal basis and increased production provides potential expansion in exports both nationally and internationally to regions such as Asia and Europe.

1.3.3 Existing industrial marine infrastructure

The Port of Carnarvon is a declared port under the *Shipping and Pilotage (Ports and Harbours) Regulations 1966*, and is one of the largest declared ports in Western Australia. As indicated by **Figure 1.3**, the Port of Carnarvon spans the entirety of Shark Bay, taking in Carnarvon itself, the Peron Peninsula, Dirk Hartog Island and the range of islands off the western coast.

Figure 1.3 Declared Port of Carnarvon



Source: *Shipping and Pilotage (Ports and Harbours) Regulations 1966*

²² Gascoyne Development Commission. Gascoyne Good Bowl. <https://www.gdc.wa.gov.au/our-focus/achievements/gascoyne-food-bowl.aspx>

The existence of a declared port area permits and obligates the State to undertake certain strategic and operational decisions and actions with respect to marine navigation and infrastructure within the area. In the case of the Port of Carnarvon, the port area is the responsibility of the Department of Transport under the *Shipping and Pilotage Act 1967*, although this is in the process of being changed (see Section 1.5.2). The Department is responsible for ensuring safe navigation and passage of marine vessels through the Port.

Today, there are no trading ports in the Gascoyne region. There are boat harbours located at Carnarvon and Exmouth, but these are depth and / or tidally constrained, being able to facilitate small to medium sized personal vessels and some offshore support vessels such as tugs only.

The closest trading ports to the Gascoyne region are located at the Port of Geraldton and Port of Ashburton, some 500 kilometres by road due south and north respectively from Carnarvon. There are two prospective ports developments which are closer to or within the Gascoyne, being the Port of Oakajee at the Oakajee Strategic Industrial Area, and the Gascoyne Gateway Project on the Exmouth cape.

These ports are described in the remainder of this section.

Port of Geraldton

The Port of Geraldton, managed by Mid West Ports Authority ('MWPA'), is located in the Mid West roughly 500km south of Carnarvon. Spanning over 83 hectares the Port of Geraldton operates seven commercial berths and one fishing boat harbour. Primary trade facilitated through the berths include naval vessels and fuel bunkering, grain, cruise ship visits, exportation of iron ore, industrial minerals, mineral concentrates, mineral sands and the import of break-bulk cargo, fertiliser, minerals, and fuel.²³

The infrastructure within the Port of Geraldton is comprised of train terminals, sealed roads, efficient electrical, water and waste services and conveyor lines all assisting in the transport of bulk cargo. Port of Geraldton consists of three rail terminals, one managed by the MWPA and the others managed by Co-Operative Bulk Handling (CBH) and Karara Mining Ltd (KML). Roads in the region are managed by Main Roads WA providing roads suitable for heavy haulage and large combination vehicles providing access to storage sheds, truck unloaders and berths. Berths one to six are managed by MWPA, however berth seven is privately managed by Karara Mining Ltd in conjunction with their private rail terminal for the export of iron ore, with MWPA maintaining control and responsibility for harbor, channel and vessel movements.²⁴

Trade throughput grew by about six per cent over 2022-23 to 17.4 million tonnes. These trade levels occurred over 400 vessels, up from 387 vessels in 2021-22. The largest contributors to exports through the Port of Geraldton are iron ore, grain, mineral sands, concentrates and crude oil. The primary contributors to import throughput was bulk imports, petroleum and general cargo. These strong trade levels were supported by strong commodity prices in the minerals and agricultural sectors.²⁵

²³ Mid West Ports. Annual Report 2022-23.

<https://www.midwestports.com.au/Profiles/midwestports/Assets/ClientData/Documents/AnnualReport/mwpa-annual-report-2022-2023.pdf>

²⁴ Mid West Ports. Facilities. <https://www.midwestports.com.au/operations/facilities.aspx>

²⁵ Mid West Ports. Annual Report 2022/23.

Figure 1.4 Location of trading ports relative to the Gascoyne region



Source: ACIL Allen

Mid West Ports is progressing its **Geraldton Port Maximisation Project** (dubbed 'PMaxP'). The development of the Port of Geraldton is expected to provide an additional 10MT per annum of capacity, providing space for new customers and new trade in mineral sands, metal concentrates and silica sand. Investments include berth upgrades, increased storage facilities and materials handlings, road transport and infrastructure and additional marine assets.²⁶

Mid West Ports is also considering further options to develop additional breakbulk capacity, and deliver an operational environment which would allow Geraldton to obtain First Point of Entry ('FPOE') status as a means to support a broader range of project cargo import requirements. FPOE refers to the capacity for the port to act as the "first call" for a particular class of trade, meaning it is able to directly facilitate international trade in that cargo.

Port of Ashburton

The Port of Ashburton is situated in the Shire of Ashburton, roughly 500km north of Carnarvon in the Pilbara. This port was initially established to handle the development of the Wheatstone LNG and domestic gas project, commencing LNG exports in 2017 and condensate exports a year later. The Port of Ashburton is limited in the commodities it handles, managing condensate, LNG and project cargo, break bulk and general cargo.²⁷

The development outcome goal for the Port of Ashburton is that it will be a multi-user port with an export capacity of around 50 million tonnes per annum of LNG, and capacity for hydrocarbon based products, general cargo and to supply base activities for operations in the Carnarvon Basin. These developments come on the back of the identified competitive advantages of the port being its proximity to vacant land, available developable land within the port, spare capacity of common use infrastructure and proximity to offshore oil and gas fields.²⁸

Developments for the Port of Ashburton include the development of a maintenance facility shed, the eastern port precinct and upgrades to the Port of Ashburton biosecurity. The eastern port precinct involves the development of land approximately 30ha in size providing additional road infrastructure and to address the need for additional laydown areas. Laydown areas are portions of land designed for the storage of large vehicles and construction equipment when not in immediate use. The development of the Port of Ashburton's biosecurity will enable the port to be approved as a non-restricted First Point of Entry (FPOE) enabling direct shipping into the Port of Ashburton, increasing general cargo capacity at the port.²⁹

In 2023, Mineral Resources Limited announced plans to develop a new iron ore province in the western Pilbara, utilising facilities at the Port of Ashburton to create a 50 million tonne per annum export operation. These plans are progressing.

The port facilities are co-located with the Ashburton North Strategic Industrial Area ('ANSIA').

Additional Marine Facilities at Onslow

A second marine facility is located within Onslow, the Onslow Beadon Creek Marine Facility. This infrastructure provides mixed used recreational and industrial services, including the Onslow Marine Support Base. The facility is within the jurisdiction of the Port of Ashburton.

²⁶ Mid West Ports. Geraldton Port Maximisation Project (PMaxP). <https://www.midwestports.com.au/development/projects/geraldton-port-maximisation-project-pmaxp.aspx>

²⁷ Pilbara Ports Authority. Port of Ashburton. <https://www.pilbaraports.com.au/ports/port-of-ashburton/about-port-of-ashburton/port-profile>

²⁸ Pilbara Ports Authority. Port of Ashburton Master Plan 2050.

²⁹ Pilbara Ports Authority. Annual Report 2022-23.

Potential new port developments

The **Gascoyne Gateway**, managed by privately owned company Gascoyne Gateway Limited (GGL), is a proposed port development in the Shire of Exmouth, located roughly 10km south of the town of Exmouth. The proposed development is a 'green port' designed to provide a net sustainability benefit to the environment and community servicing three primary components, these being; operating as a marine facility, renewable energy and desalination and bulk liquids and fuel storage.³⁰ If developed, Mid West Ports would become the Port Authority responsible for the facility.

The **Port of Oakajee**, located in the Mid West, is a proposed deep-water port roughly 25km north of Geraldton. The development of the port will be completed under the management of the Mid West Port Authority providing a deep-water port to support the development of the new Oakajee strategic green industrial area.³¹ Significant interest in the development of renewable energy and hydrogen in the region came with the identification of strong sun and wind energy potentials. The development of Oakajee will provide access to international export markets for produced renewable hydrogen as well as the development of emerging iron ore industries in the region. Oakajee will also facilitate larger scale mineral exports than can be accommodated at the Port of Geraldton. The project is currently in the proposal stage, therefore the future development of infrastructure is not guaranteed.

1.4 Definition of Problem / Opportunity

ACIL Allen worked with the Project Steering Group to conduct a Problems and Opportunities definition workshop. At this workshop, the following matters were discussed:

- the findings and directions of the initial BLF study,
- stakeholder feedback, and
- known economic development opportunities and challenges in the region, based on the experiences and conversation with project proponents.

The Project Steering Group settled on the below series of Problem and Opportunities Statements to provide guidance and direction for the ACA process. In all, the problems and opportunities were distilled down to two problem statements and three opportunities.

The statements form the starting position for the Investment Logic Map ('ILM') for the proposal, which is presented in Section 3.1.

These problems and opportunities are not themselves sufficient to justify Government intervention. Further exploration of the rationale for Government playing a role in the further development of the proposal, and in finding a lasting solution to marine infrastructure needs in the region, is presented in the next section.

³⁰ Investments Western Australia. Gascoyne Gateway Deep Water Port Terminal and Renewables Hub.

³¹ Development WA. Oakajee SIA – Overview. <https://developmentwa.com.au/projects/industrial-and-commercial/oakajee-sia/overview>

Figure 1.5 Problem and Opportunities Statements

Problem 1	Geographic isolation	The Gascoyne region is geographically isolated from major industrial and population hubs in Western Australia. The region is linked via road (Great Northern Highway) and air (Carnarvon Airport, Learmonth Airport). Geographic isolation increases the cost of doing business and makes projects
Problem 2	Lack of commercial marine facilities	The western Gascoyne coastal region is currently underserved by marine infrastructure compared to other regions in Western Australia, with limited common user capacity to facilitate the operation of marine vessels which move cargo.
Opportunity 1	Renewable energy potential	The Gascoyne region hosts significant renewable wind and solar energy resources. These could provide State-significant benefits in terms of capacity to generate renewable electricity, if the generation infrastructure can be moved into the region.
Opportunity 2	Economic development opportunities	There are a diverse range of economic development opportunities in the Gascoyne region, ranging from expanding existing agriculture and extractive industries through to battery minerals and renewable hydrogen.
Opportunity 3	Major project interest	Major projects investigating the Gascoyne and western Pilbara regions are actively considering the development of marine infrastructure to service their project needs, and the needs of others. Proponents have spoken of higher cost and / or project complexity in lieu of a marine infrastructure option being available.

Source: ACIL Allen, via GMUMF Project Steering Group

Ultimately, these five statements form the basis of an overarching definition statement. This is presented below.

A lasting solution to marine infrastructure access on the western Gascoyne coast will unlock the economic development potential of the north western regions of Western Australia.

1.5 Rationale for intervention

Why should Government be involved? There are three core reasons the ACA advocates for the State Government to take a position on solving the problems and realising the opportunities presented in this document. These are outlined below.

1.5.1 Alignment to Government policy

Finding a lasting solution to marine infrastructure access, and so catalysing the range of economic development opportunities present in the Gascoyne region, will aid in the delivery of a range of State Government policy priorities. This includes:

- **DiversifyWA**, Western Australia's statewide economic development framework. The framework includes eight external-facing sectors including energy; tourism, events and creative industries; international education; defence industries; mining and mining equipment, technology and services (METS); space industries; health and medical life sciences; and primary industries.
- **Western Australian Renewable Hydrogen Strategy**, which is currently undergoing a refresh after its inaugural release in 2021. The previous Renewable Hydrogen Strategy WA's competitive strengths as being:
 - Renewable energy sources
 - Existing projects, which can act as a source of domestic demand
 - Existing infrastructure, including corridors and easements to transport molecules and electrons to support hydrogen production and consumption

It is expected the refreshed strategy will give strong regard to the role of Government infrastructure provision, particularly centred on ports.
- **The WA Ports and Hydrogen Strategy**, a new framework document which is expected to articulate the need for additional ports infrastructure to support the capacity for import and export of renewable energy and renewable hydrogen products and infrastructure.
- **Future Battery and Critical Minerals Strategy**, which is also undergoing a refresh following its initial publish some years ago. This strategy supports further exploration and project development targeting under-explored and greenfield regions – the Gascoyne meets both of these criteria.

The GDC's own strategic planning framework, Plan 26, identified five areas of focus for the Gascoyne. Two of these are directly relevant to the proposal:

1. The growth of non-renewable resources (minerals) and related industries.
2. Growing new alternative industries.

The development of critical minerals, as identified previously, plays a critical factor in the growth of the Gascoyne region. The GDC identified the importance of collaborating and supporting existing projects such as the Hastings Mineral Technologies Yangibana Rare Earths Project as well as the value of supporting the understanding and development of identifying mineral resources in the region. One way to support this, as outlined by Plan 26, is to advocate and plan for the supporting infrastructure. The strategy also highlights the development of renewable energy and hydrogen as new target industries for development.

1.5.2 The Port Authorities Act 1999

The vast majority of trading ports in Western Australia are owned by Government Trading Enterprises ('GTEs'), established by the *Port Authorities Act 1999*. Even where a facility is privately owned and operated, Port Authorities play a role in marine management, vessel navigation and strategic planning. Following amalgamation, Western Australia has five State-owned port

authorities, Fremantle, Kimberley, Mid West, Pilbara and Southern Ports. The *Ports Legislation Amendment Act 2019* provides for ports administered by the Department of Transport under the *Shipping and Pilotage Act 1967* to progressively transfer to Port Authority control, with ports in the Gascoyne Region to be governed by the Mid West Ports Authority (as suggested by the organisation's involvement in this process).

Under the *Port Authorities Act 1999*, Mid West Ports is required by legislation to abide by a series of objectives, defined in Part 4. These are presented below (**Figure 1.6**).

Figure 1.6 Objectives of WA Port Authorities

Part 4 — Functions and powers

[Division 1 heading deleted: No. 13 of 2023 s. 228.]

30. Functions

- (1) The functions of a port authority are —
 - (a) to facilitate trade within and through the port and plan for future growth and development of the port; and
 - (b) to undertake or arrange for activities that will encourage and facilitate the development of trade and commerce generally for the economic benefit of the State through the use of the port and related facilities; and
 - (c) to control business and other activities in the port or in connection with the operation of the port; and
 - (d) to be responsible for the safe and efficient operation of the port; and
 - (e) to be responsible for maintaining port property; and
 - (fa) to be responsible for port security; and
 - (f) to protect the environment of the port and minimise the impact of port operations on that environment.

Source: Port Authorities Act 1999

Facilitating trade and providing infrastructure are core to the purpose of Western Australia's port authorities. It is therefore incumbent on the relevant port authority to respond to market demand in an economically efficient and commercial manner, giving regard to options for trade facilitation that take in both investment and non-investment options.

1.5.3 Creating a common user pathway

The vast majority of ports infrastructure in Western Australia is owned by the State of Western Australia. Ownership of these assets provides the State with control over a critical economic development lever, and provides a capacity to generate a return on investment on economic development initiatives for taxpayers. This "common user" pathway is seen by all participants of the Project Steering Group as critical to successful delivery of the project.

There are currently two privately owned and operated ports in the Gascoyne, at Useless Loop and Cape Cuvier; both facilities serve a single trade, being salt. There is also private sector interest in the development of ports in the region. One such proponent investigating the region of focus of the GMUMF is Province Resources.

Province Resources was an early mover in the emerging renewable hydrogen industry in Western Australia, establishing its proposed HyEnergy Project in the Gascoyne in 2021 following the

acquisition of another ASX-listed company which held mineral exploration licences in prospective renewable energy generation regions.

The company holds Section 91 licences under the *Land Administration Act 1997* over a number of Crown land parcels throughout the Gascoyne, a Memorandum of Understanding with the Shire of Carnarvon to access an area owned by the Shire immediately north of the Carnarvon town site (also known as the 'Town Common'), and an Access Licence with the Department of Transport on the seabed near Carnarvon (**Figure 1.7**). Broadly speaking, this area aligns strongly with the area identified in the BLF study as the most prospective for marine infrastructure in the region (with the BLF area extending further north).

Figure 1.7 Province Resources tenure, as of November 2023



Source: Province Resources

Province is also nearing completion, or has completed, pre-feasibility studies for upstream (ie electricity generation), downstream (hydrogen production and related facilities) and port infrastructure for its project, across an initial "megawatt" scale development within the Town Common site and a staged "gigawatt" scale development across a broader area.

As part of the studies Province Resources has suggested it will require a marine infrastructure solution for both its inbound infrastructure and logistics and its outbound product export vectors. Province is yet to fully disclose its plans publicly, though has provided input into this study on background to assist BMT in preparation of technical components of the work.

Holding the first mover advantage is likely to be critical to renewable hydrogen project proponents on a number of fronts. Establishing greenfield marine infrastructure is not one of these. While the Province has expressed confidence in its ability to deliver a standalone marine infrastructure solution for its project, in reality development of a port is a complex, multifaceted and costly exercise, and is outside of the core business of Province as a renewable energy project developer.

From a State Government perspective, it is also not an ideal solution for individual projects to develop marine infrastructure on an isolated or standalone basis. This would result in less efficient outcomes for all parties, and could even stunt the development of the industry in its totality.

The emergence of renewable hydrogen opportunities in the region, and the clear need for marine infrastructure to facilitate projects, provides the State with a pathway to progressing an infrastructure solution which can meet the needs of individual companies like Province, as well as the broader industry development opportunities in the region.

1.6 Timing considerations

Stakeholder engagement has suggested the need for marine infrastructure is simultaneously pressing and not pressing. Industry stakeholders have confirmed to ACIL Allen that if a port was available in the region today that they would likely use it, but simultaneously they are not yet in a position to fund or make use of a facility for projects which do not exist.

The development of a greenfield port facility is a chicken-and-egg proposition. Demand for use of marine facilities exists, but cannot be fulfilled without a port development. Simultaneously, it is not prudent for Government or industry to build a marine facility without a level of certainty regarding its use.

This is considered to be a classic role for Government, to assist in removing some risk and improving the prospect of success for major projects by breaking the circularity of the infrastructure challenge – in partnership, rather than in isolation, from potential industry proponents. This is considered to be more important for new and emerging industries such as renewable hydrogen (versus iron ore or LNG, for example) where there are limited established markets and the gap between the cost of production and market value is low, or negative in the short term.

At a more practical level, stakeholders have informed ACIL Allen, BMT and the Project Steering Group that the kind of infrastructure required to serve major projects – particularly renewable energy and related renewable hydrogen projects – is likely to occur in phases or stages.

1. Access via an **Early Offload Facility** solution, allowing for small modular cargoes, bulk materials such as concrete, and some containerised trade, to prepare a site or sites for further development.
2. Access via a sheltered **Wharf and Hardstand** solution, allowing for heavy lift capabilities from Ocean Going Vessels to import large modular cargoes, large infrastructure, vehicles and other heavy equipment.
3. Access to **Export** solutions, which depend heavily on the kind of product being exported and the vessel required to service this. This could include jetties, wharves with crane assistance, pipelines, conveyor belts, and others.

This feedback has been nearly universal from renewable energy and renewable hydrogen producers. Broadly speaking, it is the approach Province Resources is proposing to adopt for the HyEnergy project. It is also why a BLF was not considered an appropriate infrastructure solution for the need, as it would only allow for the first step.

Other trades do not necessarily need to go to the third step. For instance, REE or battery minerals would be expected to be predominately exported via containers, which could be served relatively efficiently by the second level of infrastructure intensity. Similarly, export of river sand and salt can

notionally occur via barging solutions, where something in between the first and second level of intensity would be appropriate.

Why now: The long lead times for renewable energy developments

There are no gigawatt-scale renewable energy projects operating in Western Australia. Many are planned, but none have been delivered. Stakeholder engagement suggests industry expects these developments to be multi-year in nature, requiring constant movement of goods and people to construct and commission renewable electricity generation infrastructure.

For example, the application for Environmental Approval for the Uaroo Renewables Hub³², submitted by Fortescue in May 2022, suggested a construction phase of seven years to deliver an up to five gigawatt upstream project. **That means if this project started construction today it would not be complete until 2030.**

The Murchison Hydrogen Renewables project³³, also targeting 5GW, planned a 5.5 year construction period in 2022.³⁴ The smaller scale Arrowsmith AHP1 Project, targeting just 100MW (ie 50x smaller than Uaroo / Murchison Hydrogen Renewables) of upstream capacity, was earmarked for a 30 month construction window in an approval document submitted in 2022.³⁵

Ultimately these are just estimates: gigawatt scale renewable energy developments remain purely conceptual. Even smaller projects, such as the AHP1 project, have only been delivered a handful of times in Western Australia. It is more likely construction timing estimates are understated than overstated.

This underscores the need to commence work on a port solution in the region, so as the renewable energy transition gathers pace and renewable hydrogen industry develops globally, projects in this region will be able to progress with confidence their marine infrastructure needs can be met. However, it also suggests there is adequate time for the State to progress this initiative in a considered, holistic manner, to deliver an outcome which fosters benefits for all parties.

³² EPA. 2022. *Uaroo Renewable Energy Hub EPA Application*. Accessed online at <http://www.epwa.wa.gov.au/>

³³ This project has been renamed the Murchison Green Hydrogen Project.

³⁴ EPA. 2022. *Murchison Hydrogen Renewables EPA Application*. Accessed online at <http://www.epwa.wa.gov.au/>

³⁵ EPA. 2022. *Arrowsmith AHP1 EPA Application*. Accessed online at <http://www.epwa.wa.gov.au/>

Investment Proposal

2

2.1 Proposal objectives

At this time, the ACA proposes there is adequate evidence of a demand for a marine infrastructure solution in the Gascoyne region that Government should consider starting the work required to enable a development in the coming years. The work completed by ACIL Allen and BMT with the GDC complements the actions of companies like Province Resources, past investigations into marine infrastructure options for the region, and the range of Government policies and strategies.

Should the business case process run its course, the ideal ultimate objective is for a **State-owned and operated, multi-user marine facility to be established in the Gascoyne region, which allows the diverse array of economic development opportunities present to be unlocked.**

This would close the gap in the provision of ports infrastructure on the north western coast, and be in keeping with the State's history of playing a role in economic and regional development through the provision of State-owned maritime infrastructure. These benefits are explored further in the Investment Logic Map (see Section 3.1).

2.2 Benefits to be delivered

A range of benefits can be expected to be delivered should a business case progress and a fit for purpose marine infrastructure solution developed in the region. These are outlined below.

- **Improving regional economic development prospects.** Improving supply chains and access to market directly improves the prospects of major projects investigating the Gascoyne region. More major projects assists in building and diversifying the economic base of the Gascoyne, which provides a platform for regional development outcomes around population growth, liveability and social disadvantage.
- **Creating efficient supply chains into and out of the Gascoyne.** Geographic isolation means supply chains are a critical part of the region's economy. Measures to improve supply chain resilience, capacity and flexibility into and out of the Gascoyne region can benefit the region – and the State more broadly.
- **De-risking State-wide regional development supply chains.** The Gascoyne region sits between the Mid West and Pilbara, where there are significant existing and planned major projects. Deepening the economic base of the Gascoyne expands the whole region's capacity to respond to economic shocks and capitalise on new opportunities.
- **Delivery of State Government and industry climate change objectives.** The Gascoyne region hosts some of Western Australia, and Australia's, highest quality renewable energy resources. Tapping into these through the development of major projects will help public and private sectors meet decarbonisation objectives.

There may be costs and risks associated with the proposal, including impacts on the terrestrial and marine environments within the region. However these can be assessed and mitigation strategies developed as the proposal evolves. In addition, the work undertaken for the BLF Study identified a range of areas from an environmental impacts perspective – where a desktop review indicated risks and impacts would be too high – which has been taken into account in the narrowing of the study area of the proposal.

2.3 Stakeholders

Throughout the BLF study and the preparation of this ACA, the Project Steering Group with the direction and input of ACIL Allen have compiled a comprehensive list of stakeholders who would be expected to have an interest in the project as it progresses. This is outlined in the table below.

Table 2.1 Stakeholder list for ACA progress

Stakeholder	Interest/s
Construction / river sand	
Onslow Resources	Construction sand project
Cauldron Energy	River Sand for export
Tremor	Construction contractor / construction sand project owner
Gascoyne Industrial Sands	Construction sand producer
Emerging minerals industry	
Summit Minerals	Lithium / RRE Project
White Cliff Minerals	Yinnetharra Project (LiO ₂ , RRE) and Wabli Creek (LiO ₂) Project
Krakatoa Resources	Mt Clere Project (RRE)
Dalaroo Metals	Lyons River LiO ₂ / RRE project)
Dreadnought Resources	Mangaroon Project (RRE)
Renewable energy / renewable hydrogen	
Province Resources	HyEnergy Hydrogen Project
Murchison Green Hydrogen	Murchison Green Hydrogen Project
Gascoyne Green Energy	Project at Boolathana Station
Fortescue	Uaroo Renewables Hub
Capricorn Clean Energy Investments	Carnarvon Energy Project
Provaris	Technology provider
Pilot Energy / Energise Renewables	Offshore Wind Project developer
Vestas	Wind turbine manufacturer
Gascoyne Hydrogen Technology Cluster	Representative body for hydrogen projects in the Gascoyne.
Established minerals industry	
Capricorn	Gold producer / Explorer
Hastings Technology	Yangibana Rare Earths project
Rio Tinto	Lake McLeod Salt Project
Verbrec / AGIG	Yilgarn Iron Ore Projects
Leichhardt Industrials Group	Future owner of Lake McLeod Salt Project
Miscellaneous industry / interest groups	
Westug	Provider of tug services to Rio Tinto Lake McLeod

Stakeholder	Interest/s
Transshipment Australia	Transshipment vessel services provider
Harvest Road	Agriculture business (cattle)
Gascoyne Catchments Group	Pastoralists
Gascoyne Food Council	Growers / horticulture
Carnarvon Chamber of Commerce	Local business representative organisation
State Government agencies (direct role)	
Department of Transport	Policy role in ports planning
Department of Jobs, Tourism, Science and Innovation	Lead agency for hydrogen
Mid West Ports	Operations of maritime ports in region
Shire of Carnarvon	Local Government Authority
Department of Planning, Lands and Heritage	Lands and tenure matters, land use planning and Aboriginal heritage matters
Gascoyne Development Commission	Local representative for regional development
Traditional Owner groups	
Baiyungu Aboriginal Corporation	Traditional Owner group within the region
Nganhurra Thanardi Garbu Aboriginal Corporation	Traditional Owner group within the region
Yinggarda Aboriginal Corporation	Traditional Owner group within the region
<i>Source: ACIL Allen</i>	

A summary of stakeholder feedback obtained through the process of structured stakeholder engagement completed as part of the BLF study is contained within that report (see Appendix B).

2.4 Interdependencies

At this time, the critical interdependency is in relation to renewable energy and renewable hydrogen project developers who may be progressing studies and engaging with Government to access land.

As outlined in Section 1.5, Province Resources is advancing its project faster than other proponents due in part to its first mover advantage but also due to its strong land tenure position. This includes agreements to access State-owned land for site investigations and studies.

Should the State wish to progress this proposal, maintaining optionality will be a critical success factor. This means ensuring individual proponents are not able to advance so far as to restrict or remove options from Government with respect to establishing a common user marine infrastructure facility.

It is also likely the development of a marine infrastructure facility will need to be accompanied by some form of landside development. This would include capacity for project owners to handle goods and infrastructure (ie laydown area), and potentially land for downstream production facilities close to the marine infrastructure (such as an industrial area). Many other ports in the north of the State are co-located with Strategic Industrial Areas ('SIAs'), that provide appropriately sized, cleared and (generally) development-ready land to support industrial activities. Land would also be required for the operations of a port authority. This aspect of a future development is not considered as part of the ACA but should be considered as part of a business case.

Strategic Options

3

3.1 Investment Logic Map

ACIL Allen worked with the Project Steering Group to develop an Investment Logic Map for the proposal, to assess the approaches which could be taken to addressing the problems and capitalising on the opportunities identified as part of the study.

An ILM is a way of methodically working through the process of developing and assessing options in business cases. The process is typically required for business cases, as a means to test the logic surrounding recommendations to build new infrastructure compared to other, non-build options which are available to address a Problems and Opportunities Statement.

Overall, ACIL Allen, BMT, and the Project Steering Group identified ten Initiatives or Actions within the ILM framework, ranging from doing nothing through to a staged, multi-user port development. It is important to note at this stage the initiatives are developed at a relatively high level, except for the selected staged development. It would be expected a business case process would more fulsomely interrogate and examine a suite of options, including re-validating the selected site, infrastructure concept, and staging option.

A description of the initiatives is provided below.

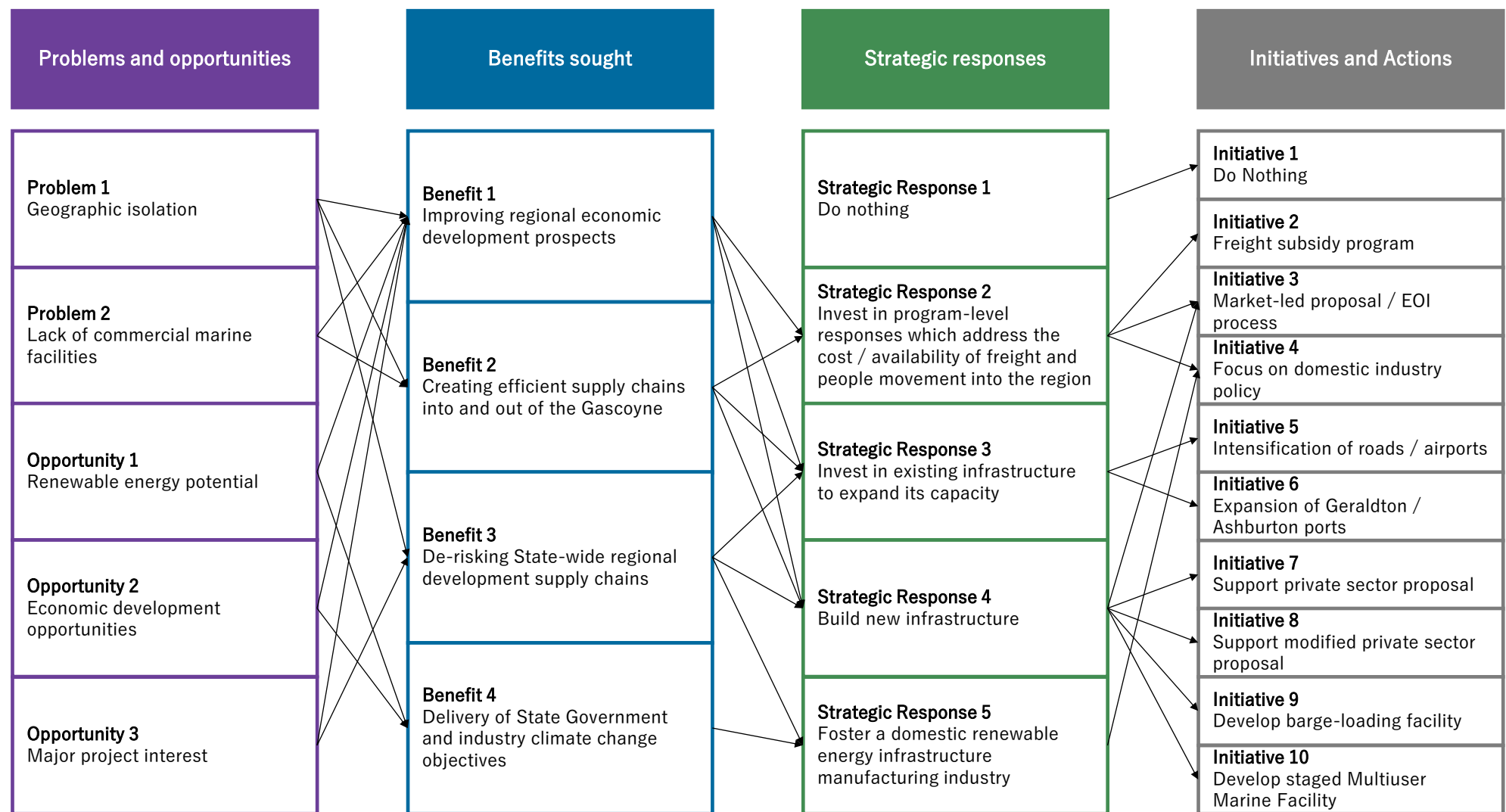
Table 3.1 Strategic Initiatives Overview

Type	Initiative	Description
Do Nothing	1 Do nothing	The State takes no action.
Non-build solutions	2 Freight subsidy program	The State establishes a program to directly reduce the cost of freight into and out of the Gascoyne.
	3 Market-led proposal / EOI for private sector marine facilities	The State commences a process to seek private sector-led solutions in the target region. This could include the establishment of a port boundary with the creation of long term leases to private sector proponents.
	4 Focus on domestic industry development policy	The State brings further focus to the need for domestic renewable energy infrastructure manufacturing, reducing the need to import infrastructure to meet its decarbonisation objectives.
Build / asset solutions	5 Intensification of road / aviation infrastructure in region	The State invests in roads and airports to improve the capacity of existing freight and logistics routes into and out of the region.
	6 Expansion of Geraldton and Ashburton Ports to facilitate trade task	The State invests in additional capacity and services at existing ports to serve the trade task anticipated by this study.
	7 Support existing private sector proposal	The State provides explicit support for Province Resources' port proposal as currently envisaged, which is as a single user facility.

Type	Initiative	Description
8	Support modified private sector proposal to make it an explicit common user facility	The State provides explicit support for Province Resources' port proposal, conditional on its being available for all potential users (and potentially transfer to State ownership in the future).
9	Develop barge-loading facility with a view to future multiuser functionality	The State proceeds with the previously-assessed barge-loading facility concept as a precursor to a potential intensification of the facility in the future.
10	Develop a staged Multiuser Marine Facility	The State developed a staged Multiuser Marine Facility in the region, State-owned and operated.

Source: ACIL Allen

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Figure 3.1 Investment Logic Map for Gascoyne Multi-user Marine Facility Application for Concept Approval

Source:

3.2 Identification of solution

ACIL Allen sought the advice of technical advisor BMT Group with respect to what a staged infrastructure development concept could look like in this location with this specific set of trades. Further details and underpinning technical advice used to inform this section is available in the Appendices.

3.2.1 Stage 1: “Pioneer Wharf”

This wharf will facilitate early offloading of construction materials for identified major project proponents, likely in the energy sector. This wharf is designed to facilitate a number of users in conjunction with the requirements of the major projects

Conditions at the site are relatively benign due to the protection provided the various peninsulas and islands of Shark Bay. The predominant southerly winds and occasional south-westerly swell diffracted from offshore north of Bernier Island have been the key considerations in establishing the optimal layout for the early facility. This results in a bimodal wave climate north of Carnarvon in the area of consideration with predominantly W-WNW low height swell and in winds that are strongest in the summer months and predominantly from the south leading to persistent wind seas from the S-SW during this time.

The significant wave height generally remains below 0.8 meters in height and is dominated by wind-sea. The largest heights were recorded between the months of November and December. Sea wave periods are generally between 2 to 4 seconds, occasionally exceeding 4 seconds. Cyclonic activity can cause more extreme wave heights at the preferred location.

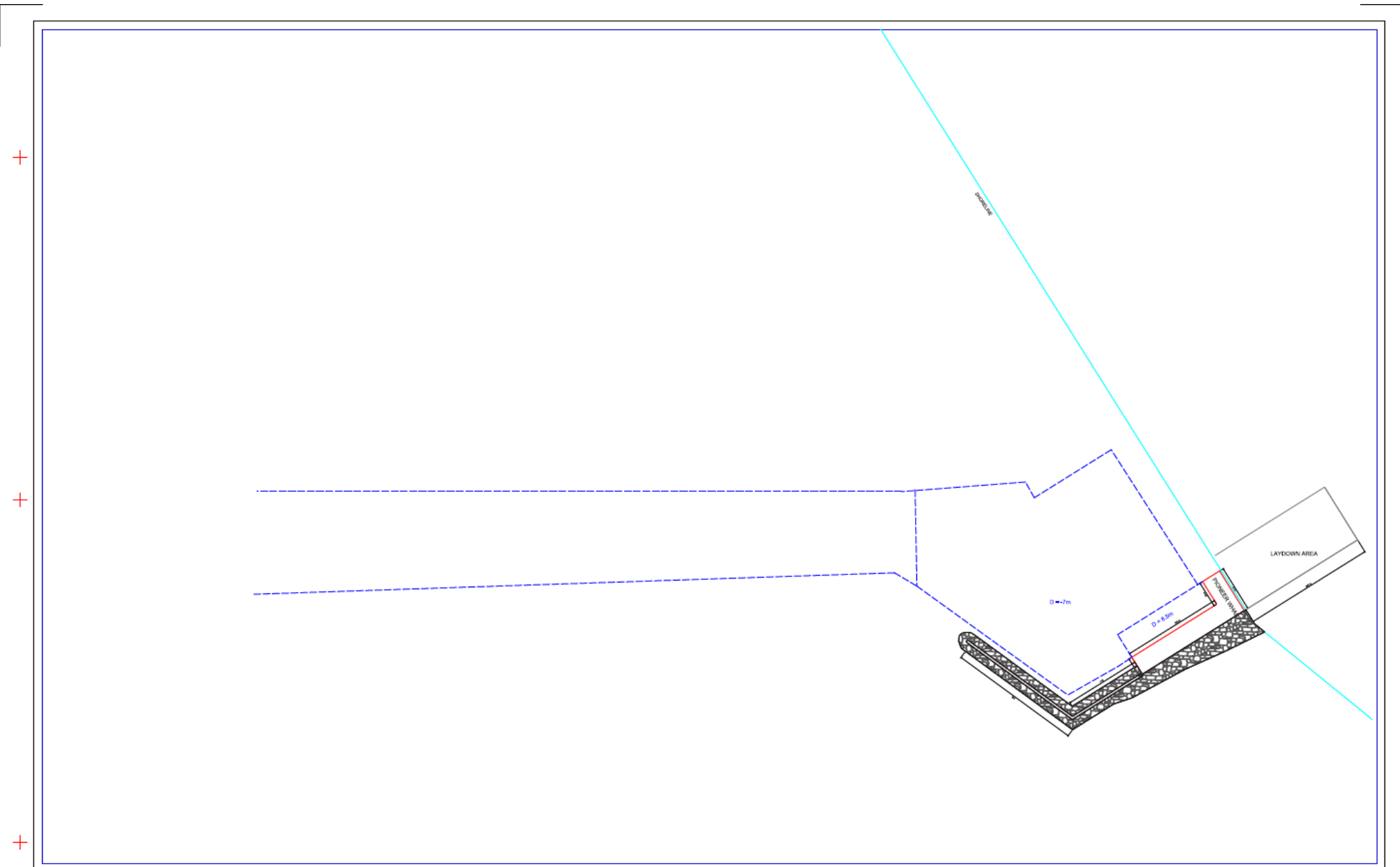
Indicative infrastructure proposed

The port structure comprises of an L-shaped wharf, which is orientated perpendicular to the coast, aligned with depth contours and the resulting swell direction. A protective break wall is included along the southern side of the wharf, which is extended by wrapping around slightly west to assist with attenuation of any incoming swell along with the persistent southerly winds. The L-shaped wharf sits with the protective structure to allow either side loading via craneage or RORO loading depending on vessel type and loading mechanism. Shoreside crane assistance can be utilised should vessels not be geared.

A berth pocket, turning basin and approach channel would be dredged to allow safe navigation into the facility. The depths are established based upon a tug and barge or self propelled small bulk carrier (small Handysize) or a small RORO vessel. It is not anticipated larger bulk carriers or RORO vessels that would require large tug assistance would be berthed in this early stage facility. This is primarily to the partially exposed nature of the facility and resulting difficulties with navigation, lifting and general management of larger loads. The wharf itself could be constructed with heavy sheet pile or combi wall for heavy loading. Internally, the pad will be back filled with dredge material, before being topped with a concrete slab. To facilitate later uses, it is recommended that the wharf is constructed to handle a 10 tonne per square meter bearing capacity. Fenders and bollards are placed at suitable spacing to allow for a number of vessels types and future uses.

Facilitated trades

Due to the partially exposed nature of the pioneer wharf, it is envisaged that this would primarily be utilised for bulk or smaller break bulk material loading. Concrete aggregates, sand and other construction materials could all be imported, as well as accommodation modules. Combined use with some export trades would also be possible, such as the export of bulk materials through a mobilised ‘grasshopper’ ship loader, or containerised rare earths, for example.



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DRAWN		PROJECT
DRAFTING CHECK		TITLE
ENGINEERING CHECK		CARNARVON DESIGN CONCEPT OPTION 2 STAGE 1
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3.2.2 Stage 2: Enclosed Multi-user Offload Facility and Tug Harbour

The second stage of construction provides a completely protected facility, allowing a high volume trade of heavy trade to be facilitated. A cyclone protected tug harbour is also included to ensure tugs can be stationed at the facility throughout the year. This will enable the construction of large-scale energy projects by providing multiple berths with heavy loading functionality.

Indicative infrastructure proposed

To mitigate the dynamics of the winter westerly swell, a breakwater is constructed surrounding the facility, providing a protected turning basin, as well as protection for a tug harbour, to allow survivability in a cyclonic design condition.

Additional wharfs would be constructed to establish an additional two berths for increased simultaneous trades. The pioneer wharf is extended along the coast as a heavy lift berth alongside. With an additional small RoRo berth to facilitate smaller vessels on the norther side of the heavy lift wharf. These would be constructed in somewhat of a similar nature to previous, using sheet pile walls and infilling with dredge material. The northern RoRo berth would be supported by berthing dolphins, allowing loading from the front only. This also allows for longer vessels to berth at the heavy lift wharf, should the northern RoRo not be in use at the time.

For example, at any one time the Stage 2 port could facilitate:

- 1 x Handysize bulk carrier, supported by a mobilised grass-hopper style ship loader, loading construction sands for export
- 1 x Geared heavy lift vessel, lifting modules from deck on to the heavy lift wharf
- 1 x RoRo barge at the northern berth, rolling off lighter wind farm components, construction equipment or processing facility components
- 4 to 6 tugs, in support of operations

Dredging for the additional berth pockets would be required, along with a turning basin and an adjustment to the entrance channel to allow for the increased depth and break wall configuration. A turning basing would likely be required outside the facility as well, to allow for safe navigation into the protected area.

Facilitated trades

The enclosed facility allows access for various types of heavy lifting and transport vessels. Vessels can require large tug assistance and potentially have the need for a crane to be mobilised to the quayside. Modules used to construct a processing or energy production facility could be efficiently unloaded through such a facility. Heavy wind farm components such as nacelles, blades and turrets can be lifted ashore via a shore crane or, rolled onto the quayside on a Self-Propelled Modular Transports.

Export trades could continue to be supported through berths when not in use for high import volumes.

3.2.3 Stage 3: Multi-purpose Export Facility

The end result of the GMUMF is to create a facility that supports a large volume of export trade for multiple users. This could be achieved as an incremental addition to the Stage 2 infrastructure, acted on by the asset owner once firm offtake is established and proponents are willing and able to enter into take or pay capacity contracts to underwrite the considerable cost.

Indicative infrastructure proposed

The enclosed offload facility and tug harbour provide the basis for multiple proponents to add export terminals. These can be added with the construction of trestle jetties, with a conveyor or pipeline out to an exposed terminal for export.

With a deeper draft, the export vessels require an extensive dredging campaign to establish a suitable approach channel, turning basin and berth pocket. The terminal itself would likely require a platform, berthing and mooring dolphins and some form of a ship loader.

Once the approach channel is established for the primary trade, additional export terminals could be added with lesser cost, to re-use the same channel asset. Two conceptual approaches to delivering this ultimate development are outlined on the following pages.

Facilitated trades

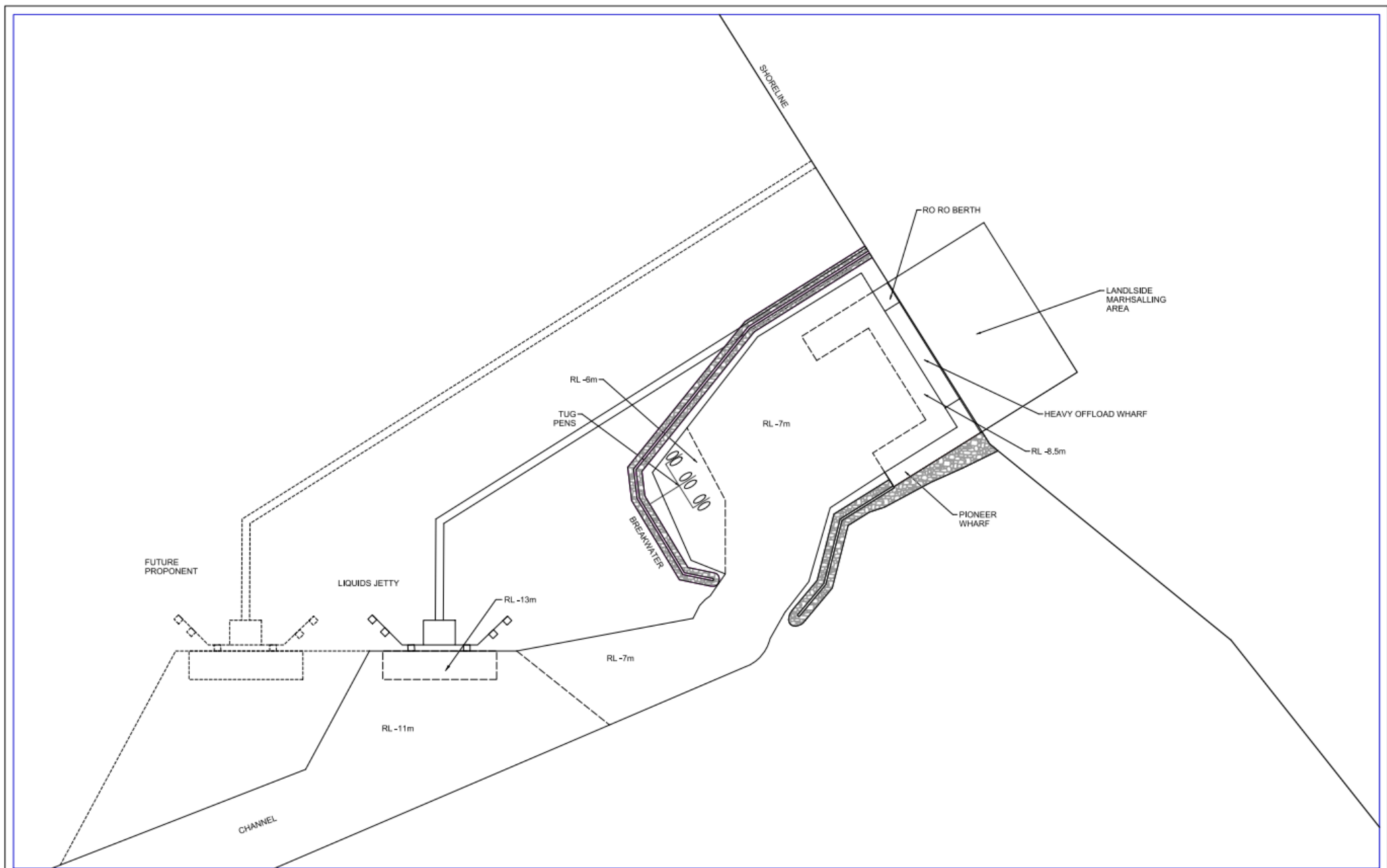
It is envisaged that the primary export trade would be hydrogen or ammonia. However, significant opportunities exist to combine this with a mined ore or mined salt product.

Again, export of other break-bulk products, or bulk products into Handysize vessels, could continue to be supported through the enclosed facility in conjunction with higher volume export trades from the exposed terminals.

3.3 Indicative capital cost

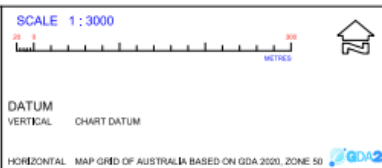
Reflecting the above staged approach, capital expenditure for the establishment of the onshore and marine side infrastructure have been approximated. Each stage requires investment in order to facilitate the required function. Investment is limited in the early stages in order not to burden the project unnecessarily. It is anticipated that structures for the various stages may differ, depending on the interested and beneficial parties. The channel dredging costs noted for Stage 3 are highly sensitive to the selected facility location. Areas in the northern portion of the identified study area typically see an increase in natural depth closer to the coast. This reduces channel dredging costs as a shorter channel is required, with less difference between the channel depth and the natural depth.

- Stage 1: ~\$50m
- Stage 2: ~\$110m (+\$60m)
- Stage 3: ~\$265m (+\$155m)



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ENGINEER	V.ELSON	18/01/2024	CLIENT	ACIL ALLEN
DRAWN	E.CARVER	18/01/2024	PROJECT	GASCOYNE MULTI-USER MARINE FACILITY
DRAFTING CHECK	S.MOUCHEMORE	18/01/2024	TITLE	CARNARVON BARGE LOADING STUDY OPTION 1 STAGE 3
ENGINEERING CHECK	B.SAUNDERS	18/01/2024	DRAWING NUMBER	001021.000 - 01 - 01
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Proposal Implementation

4

4.1 Governance arrangements

It is proposed the Project Steering Group which has overseen the work on the BLF study and the development of this ACA document continues through to the consideration of the ACA by Government. In the event the ACA is successful in unlocking funding and a commitment to investigate the port, the Project Steering Group could become a Project Control Group to assist the lead agency who will be responsible for preparing the business case.

In ACIL Allen's view, if a Strategic Business Case process commences, the work should be led by the Mid West Ports Authority. Port planning and development is a core responsibility of Western Australia's port authorities. The GDC should still remain involved as part of the Project Steering Group, due to its critical liaison role with – and between – industry and Government.

4.2 Stakeholder engagement

Engaging broadly with stakeholders should be a central task in the development of the Strategic Business Case. The long list of stakeholders identified in Section 2.3 is a strong starting position for future engagement.

Stakeholder engagement during the BLF study and the development of this ACA was challenging with certain stakeholder cohorts, including industries and project proponents outside of the renewable energy / renewable hydrogen and river sand industries. This is interpreted as a sign of the level of maturity of projects in these industries compared to the likes of minerals and agriculture. It is recommended a specialised stakeholder engagement contractor or expert is engaged in the development of the Strategic Business Case to ensure appropriate levels of consultation and engagement occur.

4.3 Project timeline

It is recommended a Strategic Business Case process proceeds on a strict 12 month timeline, from commencement of the business case development through to submission to Government for its consideration. This would in turn necessitate a period of time for procurement and contracting of any specialist advisor (if required) by the agency or authority which would oversee the preparation of the business case.

By way of example, the Westport Program Office commenced development of the Stage 3 Business Case for the Westport Project commenced in November 2022 and is due to report to Government in June 2024 – a 17 month process.

The suggested timing of the business case gives regard to the likely work required following a decision by Government to proceed with a proposal prior to construction activity. This must in turn be balanced against the requirements of industry for the initial stage of the development.

From an approvals perspective, BMT has advised any investment proposal would be required to comply with the following legislation and processes.

Under the Section 38 of the EP Act, a Referral Supporting Document will be required to provide sufficient information for the EPA to assess the Proposal at the referral stage (EPA 2021). The Boolathana Large Facility is located near no existing infrastructure and there is minimal disturbance related to human activities in the receiving terrestrial and marine environment (BMT 2023). Baseline surveys and technical studies would be required before the commencement of a Section 38 Referral Supporting Document (EPA 2021).

Other relevant legislation that will be considered to assess the key environmental factors and potential sensitive receptors and MNES (DCCEEW 2023) are:

- Commonwealth EPBC Act 1999
- Western Australian BC Act 2016.

The time required to progress through design and construction of a marine infrastructure solution for the region is uncertain at this level of project definition.

4.4 Resourcing

It would be expected the entity responsible for preparation of the Strategic Business Case would seek external support in delivery of the project. This is the typical practice of Western Australian Government agencies for very large capital works projects, noting the advice provided above with respect to the Westport business case.

This would also require the commitment of an internal project manager within the responsible entity, and the coordination and effort of other member agencies of the Project Steering Group.

As a high level estimate it could be expected a Strategic Business Case of this nature, built to comply with the Western Australian Government's *Strategic Asset Management Framework*, would cost in the order of \$500,000 to \$750,000 for a corporate advisory firm. It is likely a multi-disciplinary consortium would be required to deliver the works given the interrelationship between economic development, commercial, technical, engineering and cost definition services.

Next Steps and Requested Outcome

5

5.1 Requested outcome

The GDC is committed to investigating and securing infrastructure solutions for the Gascoyne region. To this end, the GDC wishes to progress this Application for Concept Approval through the Department of Treasury's *Strategic Asset Management Framework* and Infrastructure Western Australia's *Major Infrastructure Proposal Assessment* process, with a view to commencing and continuing dialogue with Government and industry on the Gascoyne Multi-user Marine Facility.

Working with the GDC, ACIL Allen has suggested the following course of action.

Engaging with Government

ACIL Allen recommends:

- The GDC engages with Infrastructure WA to commence the Major Infrastructure Proposal Assessment ('MIPA') process. This is because the likely capital cost of just the second stage of the proposal is greater than \$100 million. At this stage the proposal would be considered a draft, with Infrastructure WA seeking to review and make suggestions on the structure, content and directions provided. The intent of engaging with Infrastructure WA at this stage is to gain support to add the project to the State's Infrastructure Priority List (as an early concept).
- Concurrent to this, the GDC will submit the final version of the current ACA to Government in some form, as the base for a Cabinet submission to receive funding for a Strategic Business Case commencing in the 2024-25 financial year. This will allow the GDC to continue the momentum of the project, and advance the development of study concepts and options to a level where a proposal can be more fulsomely considered in a subsequent State Budget.
- Finally, the GDC will seek to engage with the Department of Transport / Department of Jobs, Tourism, Science and Innovation on the Hydrogen Ports Strategy. The Hydrogen Ports Strategy is intended to identify projects and priorities to facilitate the import of renewable energy and renewable hydrogen infrastructure, and export of associated products.

Formalising the Project Steering Group

ACIL Allen recommends:

- The Gascoyne Development Commission should remain the coordinating agency, convening a Project Steering Group and providing ex-officio support.
- The Steering Group is comprised of:
 - The Gascoyne Development Commission
 - Department of Primary Industries and Regional Development (new member)
 - Shire of Carnarvon

- Mid West Ports Authority
- Department of Transport, including a change to a representative from the Freight, Ports and Aviation Strategy Directorate instead of from the Operations Directorate.
- Department of Planning, Lands and Heritage
- Department of Jobs, Tourism, Science and Innovation (new member)
- Once the ACA is delivered to Government and accepted, control of the process should shift to the most appropriate delivery agency for the stage of the project. ACIL Allen expects this would be Mid West Ports Authority.

In addition to the above structural changes, ACIL Allen recommends a single representative from each organisation should be nominated as the accountable member and attendee.

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Appendices

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Technical Input on Study Area and Conceptual Option

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Gascoyne Barge Loading Facility Study

B

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