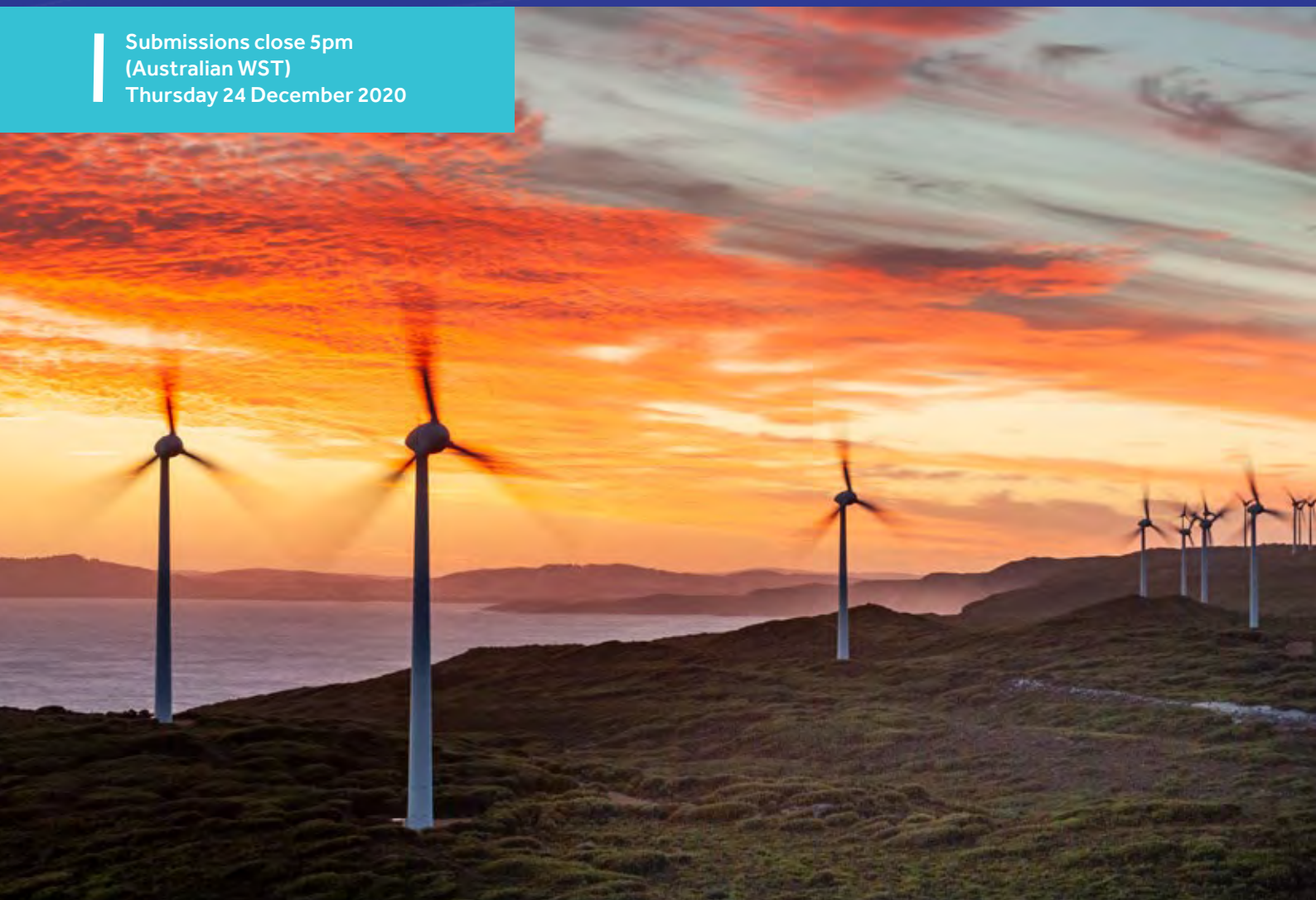




Oakajee Strategic Industrial Area – Renewable Hydrogen

EXPRESSIONS OF INTEREST

Submissions close 5pm
(Australian WST)
Thursday 24 December 2020



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Above: Onslow Power Station
Cover: Albany Wind Farm

Expression of Interest process and contacts

The Western Australian Government will work collaboratively with industry to understand what is required to transform the Oakajee SIA into a globally competitive, sustainable industrial area, with a focus on the production of renewable hydrogen.

This Expression of Interest is the first step towards that goal. We are seeking your input to establish the infrastructure requirements, operational frameworks and interested parties to activate Oakajee as a premium location to establish a hydrogen project.

This EOI is focused on the domestic production and use of renewable hydrogen, including for industrial processes or products derived from renewable hydrogen, however it does not preclude the possible future export of hydrogen.

Responses are invited from:

- Established and prospective industrial proponents looking to produce commercial quantities of hydrogen.
- Established and prospective hydrogen off-takers, for example for transport, metals refining, ammonia production, etc.
- Infrastructure providers, including both power and associated utility services.
- Commercial entities associated with the development and delivery of major projects.
- Hydrogen industry technology providers, intellectual property holders and component manufacturers.

EOI SUBMISSION PROCESS AND CONTACTS

Go to jtsi.wa.gov.au/hydrogen for more information and to submit your EOI.

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Questions and requests for further information can be submitted by email oakajee@jtsi.wa.gov.au

Respondents should describe the following in their EOI:

- Key information about their organisation and capability, particularly as it relates to renewable hydrogen.
- Which part or parts of the supply chain they have an interest in.
- The scale, staging and timing of your proposed development.
- The supporting infrastructure, frameworks or other support that would be required to facilitate the proposed development.
- Any additional opportunities and limitations related to the Oakajee site, including, where relevant, advice on how the government may best address those limitations.
- Contact information for relevant staff.

In developing their Expressions of Interest, respondents should ensure they include how their interests and proposals are aligned with the Western Australian Government's objectives for the Oakajee SIA:

1. Adhere to the principles of the Oakajee Structure Plan.¹
2. Delivers reliable, renewable power that is available to all users of Oakajee at an internationally competitive price.
3. Leverages private sector investment.
4. Creates common user infrastructure.
5. Ensures maximum flexibility for all future industries and export opportunities.
6. Provides innovative, low cost solutions.
7. Uses best practice environmental principles.
8. Land remains in WA Government ownership.

¹ development.wa.com.au/oakajeesia

Western Australia's commitment to renewable hydrogen

Western Australia is moving to be a globally significant player in the world's emerging hydrogen market.



We are already one of the world's largest, most efficient and stable mining and downstream processing regions.

International mining, oil and gas, engineering, advanced manufacturing and technology companies have chosen to invest in Western Australia due to our abundant mineral deposits, ease of doing business, experience in supporting major projects and proven, reliable supply chains.

37%

Western Australia is the largest supplier of iron ore in the world, accounting for 37% of global supply in 2019.

44.1m

Western Australia exported 44.1 million tonnes of LNG in 2019, mainly to Japan, China and South Korea.

52%

Western Australia accounted for 52% of global lithium production in 2019.

50+

More than 50 different minerals are mined in Western Australia.



Port of Dampier. Photo Courtesy Pilbara Ports Authority

Recognising the significant opportunity that arises from this environment, the Western Australian Government is actively supporting the development of the industry through its Renewable Hydrogen Strategy.

This includes bringing forward the strategy's goals from 2040 to 2030 and investing \$22 million to develop a renewable hydrogen industry in Western Australia, including:

- \$15 million for grants to support industry development
- \$3 million to progress regulatory reform to support a local hydrogen industry
- \$1 million to investigate geological opportunities for hydrogen storage, and
- \$1 million to develop a hydrogen supply chain model.

Our natural capability in hydrogen production

Western Australia presents a unique set of competitive advantages in the emerging renewable hydrogen industry:

50%

—
With average wind speeds of 7.50 to 8.75 m/s (capacity factor of 50%) and annual Global Horizontal Irradiation of 2100 kWh/m², the west coast of Australia has among the best combined wind and solar resources in the world.

2.5m

—
An abundance of land – 2.5 million km².

\$2.2b

—
Engineering and industrial processing capability – \$2.2 billion of goods and services exported from the technology and advanced manufacturing sector in 2019.

13,000km

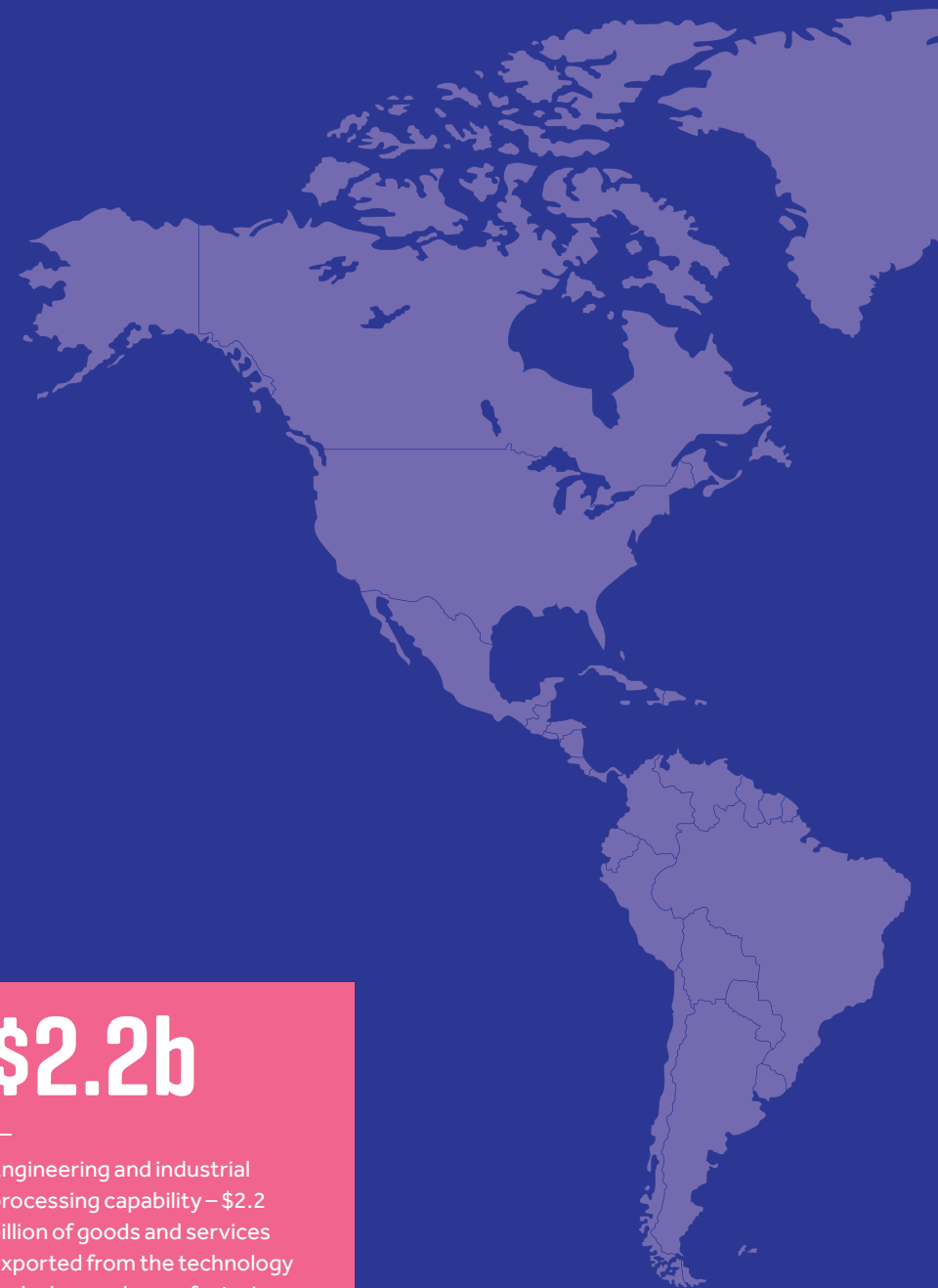
—
Almost 13,000km of coastline.

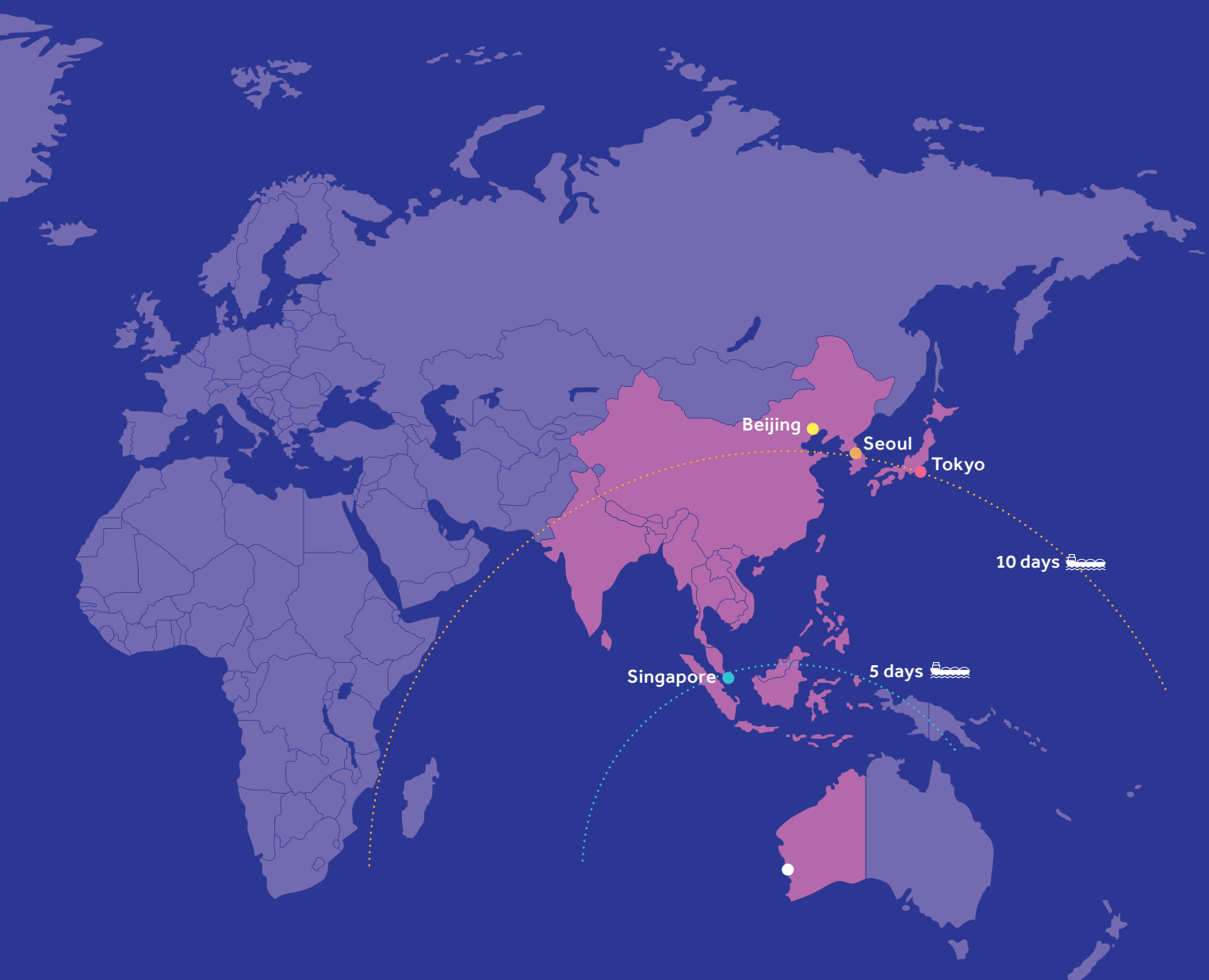
48%

—
Proven export success – Western Australia accounted for almost half (48%) of Australia's merchandise exports in 2019-20.

Asia

—
Western Australia is located in close proximity to Asia's growing economies - see map.





In addition to these advantages, the clean energy industry is growing rapidly in Western Australia, which is increasing the state's skilled workforce and expanding infrastructure.

- Electricity generation from renewables increased 27% between 2015 and 2018, to 3374 gigawatt hours, representing around 20% of total electricity generation in the state's South West Interconnected System.
- Western Australia currently has 12 large-scale renewable energy projects under construction or committed, with capital expenditure totalling \$2.9 billion.

STRATEGICALLY LOCATED FOR BUSINESS ACROSS ASIA

- Short shipping times to major Asian ports (estimates based on 19kn ex-Geraldton Port):
 - Singapore 5 days
 - Tokyo 10 days
 - Seoul 10 days
 - Beijing 11 days
- In the same or similar time zone to most Asian countries, Western Australia is the right place to do business with 4.5 billion people.

The Oakajee SIA opportunity

A significant opportunity within Western Australia's unique renewable hydrogen landscape is the Oakajee Strategic Industrial Area (Oakajee SIA).

The Western Australian Government intends to transform this greenfields site into a globally competitive, multi-product renewable hydrogen industrial precinct.

It is proposed for the precinct to have a particular focus on innovative technologies and future value chains such as:

- the production of renewable hydrogen for domestic use.
- downstream processing industries, and
- export and advanced manufacturing industries servicing the renewable hydrogen market.

To initiate this process, the Western Australian Government is inviting Expressions of Interest from corporations and businesses across the world with the capacity, experience and vision to be part of this leading project.

ABOUT OAKAJEE

The Oakajee SIA is a designated, greenfields strategic industrial area, located 435km north of Western Australia's capital city of Perth, and 23km north of the Mid West regional city, Geraldton.

The Oakajee SIA has 4 key land uses:

- Strategic industry core – 1134ha
- Buffer area – 4070ha - with potential for wind and solar power generation
- Future port/coastal area – 1000ha
- Industry support areas – 196ha

Completely owned and managed by the Western Australian Government, the vision for the Oakajee SIA is to be a sustainable, internationally competitive downstream processing industrial hub for major domestic and international markets.²

WIND AND SOLAR POTENTIAL

The Oakajee SIA's renewable hydrogen potential is centred on its world-class and diurnally complementary wind and solar potential, which provides a consistently high renewable contribution to energy production capacity.

Global data sets³ indicate the renewable resources at the Oakajee SIA are internationally competitive:

- Wind speed: 7.50 to 8.75 m/s with a capacity factor up to 50%, among the highest in the world.
- Global Horizontal Irradiation: 2000 – 2200 kWh/m².

Initial order of magnitude assessments indicate the Oakajee SIA buffer has the potential to provide up to 270MW of wind generation or 1250MW of solar photovoltaic renewable energy.

Supported by gas firming, it is estimated this generation capacity could provide a levelised cost of electricity below 10c/kWh.

²For more detailed information on the Oakajee SIA, visit: developmentwa.com.au/oakajeesia

³The World Bank Group, Global Solar/Wind Atlas visit: olc.worldbank.org/content/global-solar-atlas

Scale
0km 1km 2km



North West Coastal Highway

Buffer area – 4070ha potential location wind and solar

Port/coastal area – 1000ha

Strategic industry core area – 1134ha

Industry support area

OAKAJEE

Industry support area



Perth

Geraldton CBD 13km



Indicative plan only

Critical infrastructure

The Oakajee SIA is a prime greenfields site that is largely undeveloped.

It is connected to Western Australia's major road network and Geraldton Port via the North West Coastal Highway. It has planned service connections to the existing South West Interconnected System and the Dampier to Bunbury Natural Gas Pipeline. It has also been subject to previous detailed plans for an iron ore export port.

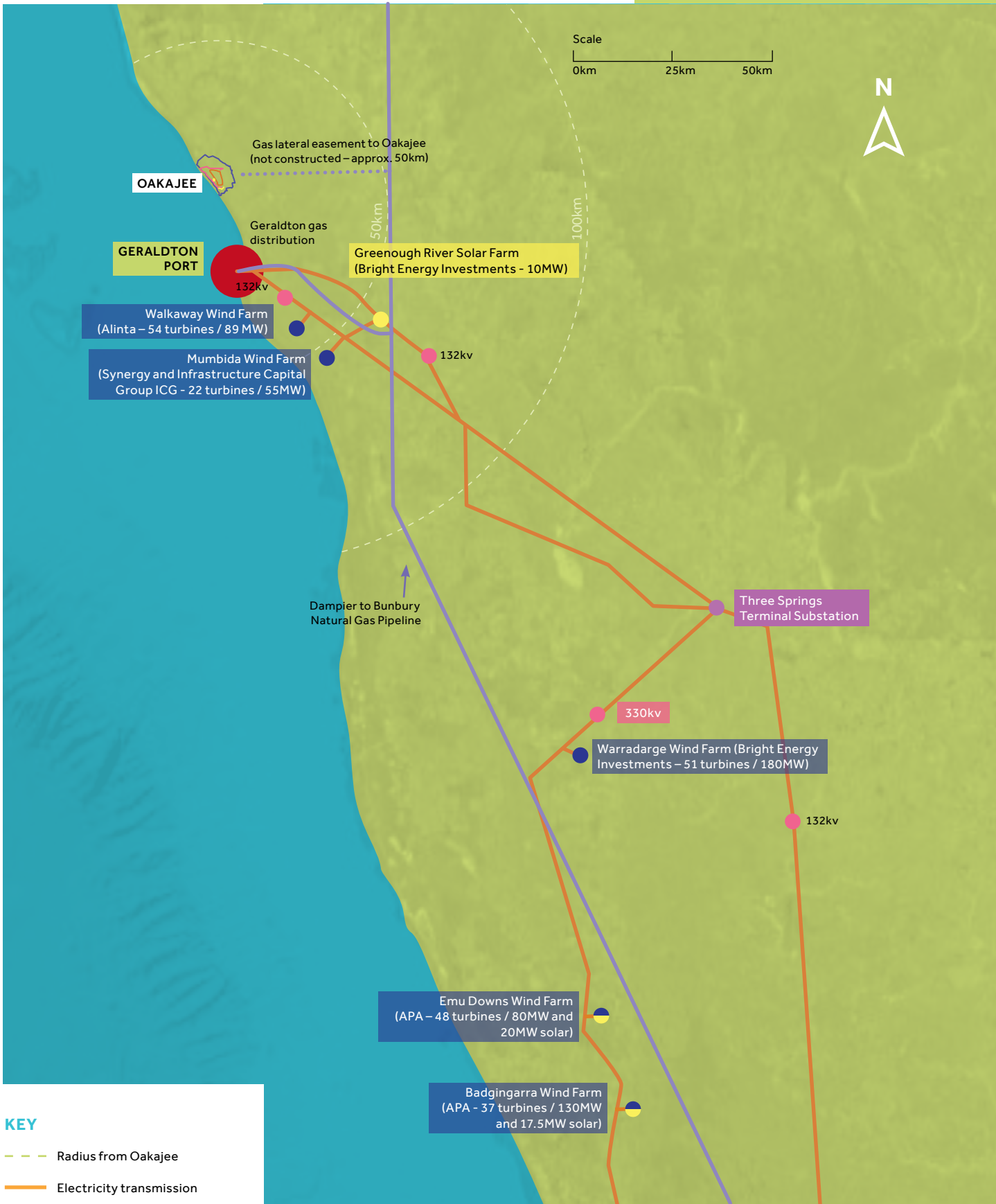
The world-class wind and solar resource extends well beyond the Oakajee SIA to the majority of the Mid West region.

There are millions of hectares of land suitable for wind and solar infrastructure, which could feed into future major renewable hydrogen developments in the Oakajee SIA.

The constructed and operating Walkaway, Warradarge and Emu Downs wind and solar farms are evidence of the renewable generation potential of this region.

Emu Downs Solar Farm. Photo courtesy APA Group





KEY

- - - Radius from Oakajee
- Electricity transmission
- Natural gas pipeline
- Substation
- Wind farm
- Solar farm
- Transmission capacity



Geraldton and the Mid West region

The Oakajee SIA is well supported by the City of Geraldton, only a 20-minute drive away.



City of Geraldton
Above: Photo courtesy of City of Greater Geraldton

This vibrant regional city features a strong local labour force, modern accommodation, schools and training facilities, social services, and cultural and recreational infrastructure.

The Oakajee SIA is also well connected to the capital city of Perth, both by road and a 1-hour flight from Geraldton airport.⁴

THE GERALDTON PORT

In addition to catering for exports of grains, minerals and livestock, and imports of fertiliser, mineral sands, project/general cargo and fuel, Geraldton Port also welcomes cruise ships, oil rig tenders and many different expedition craft.

The port also supports Geraldton's lucrative fishing industry, providing berthing facilities, maintenance, waste disposal and security services to Fishing Boat Harbour.

LIFESTYLE

The City of Geraldton and the Mid West region of Western Australia have an enviable Mediterranean climate and access to world-class beaches and marine facilities. The area provides industries an attractive lifestyle for operational workforces with a short commute and modern living conditions and facilities.

The Western Australian Government continues to support Geraldton and the Mid West as a major commercial and industrial activity centre with significant renewable energy potential. Recent investment announcements into the region include the \$73.3 million Geraldton Health Campus redevelopment to ensure the facility meets the health needs of the growing population.

⁴For more information see: City of Geraldton: www.cgg.wa.gov.au/ and Mid West Development Commission: www.mwdc.wa.gov.au/

Previous studies

There have been numerous previous studies into the Oakajee SIA.

The following reports are available from the website of DevelopmentWA⁵, the Western Australian Government agency that owns and manages SIAs on the government's behalf:

Oakajee SIA Renewable Energy Review – Advisian September 2020

Oakajee SIA Structure Plan – RPS 2012, including the following technical reports:

- Sustainability Report -Parsons Brinckerhoff, March 2012
- Industrial Ecology Strategy - Parsons Brinckerhoff, March 2012
- Environmental Review Report -Parsons Brinckerhoff, March 2012
- District Water Management Strategy - GHD, March 2012
- Integrated Transport Study - GHD, March 2012
- Engineering Services Report - GHD, March 2012
- Landscape Report - Hassell and Strategen, April 2012
- European Heritage Reports - Laura Gray, June 2010
- Aboriginal Heritage Management Plan - R & E. O'Connor, November 2011
- Unexploded Ordnance Contamination Assessment - Mil Search, September 2009

Respondents should also be aware of:

- The Western Australian Renewable Hydrogen Strategy: www.jtsi.wa.gov.au/hydrogen
- The Western Australian Government's Energy Transformation Strategy: www.wa.gov.au/government/announcements/energy-transformation-strategy-proposed-changes-the-access-code-open-public-comment
- The Distributed Energy Resources Roadmap: www.wa.gov.au/government/distributed-energy-resources-roadmap
- Oakajee Port Master Plan: www.midwestports.com.au/profiles/midwestports/assets/clientdata/documents/general/oakajee-master-plan.pdf

⁵developmentwa.com.au/oakajeesia



For further information and enquiries, contact the Western Australian Government's Department of Jobs, Tourism, Science and Innovation on oakajee@jtsi.wa.gov.au

