Australian Government | Infrastructure Australia

December 2022

Regional Strengths and Infrastructure Gaps

Regional Analysis: Western Australia

Ningaloo Lighthouse near Exmouth, Western Australia

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Boab near Cockburn Ranges in the Kimberleys region Western Australia.

6.8.1 Goldfields-Esperance

The Goldfields-Esperance region has significant natural assets ranging from woodlands and national parks to deserts, lakes and coastline. The region is known for its thriving mining industry with abundant gold, silver, nickel, copper, cobalt, lithium, uranium, rare earth oxides and iron ore deposits.

Over the years, the region has seen significant expansion of its mining industry however, a focus on industry diversification has also been a priority. In addition to an increased focus on the region's agriculture and tourism sectors, and active development of the strong mining equipment and technical services (METS) sectors, there are emerging opportunities in health and services. With a tight labour market and strong demand the region is reliant on a transient population with fly-in-fly-out workers dominating employment in the mining industry, and with implications across sectors.

The region hopes to further grow its industries with a focus on building strong local business, tourism, METS, health, lifestyle services, and agriculture. This growth will be enabled by better road infrastructure to ensure road capacity can handle projected growth and economic productivity is not inhibited. Energy and waste industries present new opportunities for growth alongside new housing and accommodation to attract and accommodate a growing workforce. Supporting new housing is a priority for the region with current challenges existing around a lack of available land for development. Visitor accommodation is also required especially in more remote areas. The region is working to expand education and training opportunities to both retain youth and upskill mature age workers. Improved high quality digital connectivity is a region wide priority.

It is noted that the Goldfields-Esperance Regional Development Area (RDA) is made up of nine local government authorities of Coolgardie, Dundas, Esperance, Kalgoorlie-Boulder, Laverton, Leonora, Menzies, Ngaanyatjarraku and Ravensthorpe. The Shire of Wiluna has moved into the West Australian Government's Goldfields-Esperance Development Commission (GEDC) however remains included within the Mid West Gascoyne RDA region at time of writing.

Kalgoorlie City, Western Australia

Strengths

Key existing assets

Economic	**Gateway ports**	The Port of Esperance as well as regional airports, such as Kalgoorlie-Boulder and Esperance, connect the region.
	Strategic location	The region occupies a large geographic area, shares a border with South Australia and acts as a connector for Perth and Western Australia to much of the nation.
	Transport infrastructure	The Eastern Goldfields Railway, Eyre Highway, Outback Highway, South Coast Highway and Great Eastern Highway support significant freight movement.
Natural	**Natural resources**	The region has deposits of gold, silver, nickel, copper, cobalt, lithium, uranium, rare earth oxides and iron ore deposits which support the mining industry.
	Natural environments	The Southern Ocean, national parks and significant natural landscapes support biodiversity and liveability.
Social	**Education and research institutions**	Institutions such as the Curtin University's WA School of Mines, ,the Rural Clinical School of Western Australia, Kalgoorlie-Boulder campus of Central Regional TAFE and Esperance campus of South Regional TAFE offer a variety of training and education options.
	Health infrastructure	Primary healthcare facilities in the region include the Kalgoorlie Health Campus, Esperance Health Campus and smaller regional hospitals.

Key regional growth industries

Mining	Tourism	Agriculture, forestry and fishing
Goldfields-Esperance is rich in natural resources, with significant mining expertise, experience and history. In addition to resource extraction and processing, the region has an established METS sector.[1] Sustained high average gold prices is driving increased gold production from the region, resulting in new mines, expansions, activation of satellite deposits and increased frequency of third-party toll treating arrangements.[2] Growth in global demand for technological equipment has seen regional lithium mining exports increase substantially to almost four times the value since 2018.[3] This also presents many opportunities to establish downstream, value-adding processes locally.[4]	Tourism development is a local focus for diversification contributing over $360 million to Goldfields-Esperance's regional economy[5] with visitors enjoying nature-based, mining, and heritage experiences.[6] There are opportunities to diversify tourism offerings into markets such as adventure and outback experiences, to support further industry growth.[7]	Agriculture is the primary driver of economic growth in the Esperance region, with 26% of the region covered by agricultural and livestock production.[8] Considerable potential lies in diversifying the agriculture base and engaging in value-adding processes.[9] The region's coastline also allows for expansion into high quality seafood production and aquaculture opportunities.[10]

Infrastructure gaps

Sector:	Social infrastructure
Sub-sector:	Housing
Infrastructure gap:	Availability, diversity and affordability of housing

The housing market in Goldfields-Esperance is inherently linked to the mining sector and to a lesser extent, agriculture.[11] When considering local income and purchasing power, housing affordability is regarded as very poor, particularly in Esperance. Renters are in a similar position with the affordability and availability of private rentals presenting significant issues for major centres.[12] Across the rest of the region, meeting demand for public housing can be challenging due to limited local employment opportunities in remote and small communities.[13]

While access to suitable, serviceable and affordable land for housing is important for sustaining or growing the regional population, so too is accessing land for business development and recreation. All activities must be undertaken within land management structures, ownership, planning regulations and allocations which have been identified as often complex, conflicting and time-consuming.[14] In addition, the quality of the housing stock outside of Kalgoorlie-Boulder and Esperance makes it challenging to attract a resident workforce.[15] Retirement living is also undersupplied across the region. The provision of new housing stock to support changing needs presents an opportunity to attract new residents and workers, as well as provide better facilities for older residents.[16]

Key facts:

71

residential building approvals out of 14,295 across Western Australia in 2019–2020.[17]

15.7%

decrease in residents aged 20-29 and 19.9% increase in residents aged 60 or over (2011–2016).[18]

At least

130

public housing properties in the region have been identified as needing urgent maintenance or refurbishment.[19]

Impact:

- During periods of high population growth in major service centres, demand for accommodation and housing has led to challenges in attracting and retaining a strong workforce, especially for lower wage positions outside the mining sector.[20] It has also had implications for retaining existing residents, particularly families.
- Complex land management structures, planning regulations and land allocations are inhibiting the ability of the region's housing market to respond quickly and meet demand. Other barriers to meeting demand exist due to the inflated costs of construction and servicing new land with water and energy infrastructure.[21]
- Households are being forced to choose between living in sub-optimal and inappropriate housing or migrating away from the region to find more suitable living options.[22]
- The Goldfields Voluntary Regional Organisation of Councils (GVROC) Housing Strategy highlights that the enduring shortage of appropriate and affordable housing will lead to growing levels of financial and personal stress and significant societal costs in terms of social dysfunction and economic underachievement.[23]

Consultation feedback:

Stakeholders expressed that the region is experiencing a residential housing shortage, with the market failing to cater to fluctuating labour market demands. This lack of housing supply across the region is also significantly restricting workforce and population growth. As a result, the region is experiencing labour shortages, with growth in the tourism and services industries stagnating.

Housing availability and affordability were also identified as crucial components for supporting population growth and attracting and retaining skilled workers. Liveability through the supply of housing supported by appropriate economic and social infrastructure was identified as a priority to make the region more attractive to attract and retain workers.

Sector:	Social infrastructure
Sub-sector:	Education (tertiary)
Infrastructure gap:	Access to further education and skills training

Goldfields-Esperance has a number of further education and skills training institutions such as the Rural Clinical School, Curtin Kalgoorlie West Australian School of Mines, Central and South Regional TAFE, and Bega Garnbirringu Health Services Nindila Training Centre.[24] However, many of these institutions are centralised in Kalgoorlie-Boulder and Esperance, limiting access for communities located outside of these areas. Equity of opportunity has been identified as an impediment to growth, as access to quality education varies heavily depending on location.[25] This contributes to a high proportion of young people leaving the region to seek education, training and employment elsewhere.[26]

Improved access to education and skills training will develop the capabilities of the region's local population. This is crucial for regional competitiveness, resilience, and social and cultural wellbeing. Supporting creative industries, innovation, and fostering entrepreneurship have also been identified as key to support the development of new and diversified industries.[27] Investing in local education and training infrastructure to develop service capacity in more remote areas will also be important to support current and emerging growth industries to sustain and grow the region's economy.

Key facts:

31%

of residents hold a post-secondary qualification.[28]

In 2016,

849

people in the region were attending university, representing 1.5% of the population, compared to 4.7% in Western Australia.[29]

Average unemployment rate of

4.4%

(2020).[30]

Impact:

- The region has relatively low education participation, student retention and achievement outcomes.[31] Amongst First Nations peoples, there is a need for tailored education and training to help increase the rate of participation, which is currently under 50%.[32]
- A lack of access to appropriately skilled people can detract from investment, growth of local enterprises, and new business creation. The ability to supply a skilled and educated resident workforce will depend on providing relevant education and training opportunities locally.[33]
- The region is experiencing youth flight with many high-performing students and skilled people moving away from the region, signalling a need for more locally accessible further education, training, and employment pathways.[34]

Consultation feedback:

The region's stakeholders believe that over the next 10 to 15 years, the region will still be challenged to find a skilled workforce that can meet the demands of their industries. This was seen as especially true in the resources and energy sectors which are currently dominated by a transient workforce. Further education and skills training opportunities will be vital to keeping people upskilled to meet industry demand.

In addition, stakeholders identified that providing additional education opportunities for mature-aged students would be beneficial. Stakeholders also reported that current educational opportunities did not provide students with clear guidance or information regarding the different career pathways available.

Sector:	Transport
Sub-sector:	Road infrastructure
Infrastructure gap:	Capacity, connectivity and quality of road infrastructure

The region's geographic size requires movement of products and the connection of communities over large distances, hence the road network provides vital physical connectivity for industry and the community.[35] The current road network includes the arterial network managed by the state, and a series of non-arterial roads managed by local government.[36]

A key challenge lies in ensuring investments are made such that the region can accommodate future growth in the number of heavy vehicles using these routes whilst not compromising on safety.[37] In some cases, portions of heavily-used routes remain unsealed, presenting major safety concerns particularly during seasonal rainfall periods.[38] For non-arterial roads, the region faces a major challenge in the wide range of different road standards and cross-jurisdictional responsibilities, creating challenges for efficient network maintenance. Often, determination of responsibility for upgrades and maintenance is complicated due to the multi-jurisdictional and multi-user nature of these roads.[39]

Key facts:

Accidents resulting in a death or serious injury rate of

96 per 100,000

in 2016-2020 (compared to a rate of 60 in the Perth metropolitan area).[40]

15,642

kilometres of unsealed roads in the region.[41]

The mining industry, which is heavily reliant on efficient road connections in rural and remote areas accounts for

64%

of the region's economic output.[42]

Impact:

- The region has seen growth in road use for tourism in addition to more heavy vehicle movements due to growth in the minerals and grains industry. This has led to higher road maintenance costs, a reduction in industry productivity and safety concerns.[43]
- There are increased community concerns over the growing numbers of double, triple, and quad road trains on the region's road network, particularly those passing through smaller towns, posing safety risks and creating noise issues.[44]
- Extreme weather events are accelerating the frequency of road maintenance. However, lowering costs and improving the safety of road transport is critical for facilitating industry growth and meeting the expectations of users.[45]

Consultation feedback:

Stakeholders identified existing road infrastructure as being inadequate to service the region's biggest industries of mining and agriculture. Many of the region's roads remain unsealed limiting accessibility. Stakeholders believe that better road linkages and road quality will help open the region to more tourism opportunities and economic growth for mining and agriculture.

Stakeholders also indicated interest in improving road connectivity to create an integrated freight network that would improve linkages to ports and help increase the region's agricultural and mining productivity.

6.8.2 Great Southern

Rich in natural assets, the Great Southern region contributes significantly to the state's agricultural produce whilst also being a popular eco-tourism destination. The region also has a rich arts and cultural scene in addition to 250 kilometres of coastline which is home to significant marine biodiversity. The Great Southern region typically has a milder climate compared to the rest of Western Australia, characterised by cool winters and, warm and dry summers.

The Regional Development Area (RDA) comprises 11 local government authorities including the City of Albany and the Shires of Broomehill-Tambellup, Cranbrook, Denmark, Gnowangerup, Jerramungup, Katanning, Kent, Kojonup, Plantagenet and Woodanilling. Over half of the region's population lives in Albany, where there is an airport and port infrastructure which intersects with a network of freight road and rail infrastructure.

The region's economy is primarily supported by its primary industries which leverage productive farmland to support broadacre cropping, livestock production and winemaking. In combination with its wineries and food zones, the region also has large areas of national parks, forestry, and beaches which collectively support eco-experiences and culinary tourism in the region.

As the region looks to the future, improving water security, digital connectivity, freight and delivery of housing to enable economic growth and improve liveability are all priorities.

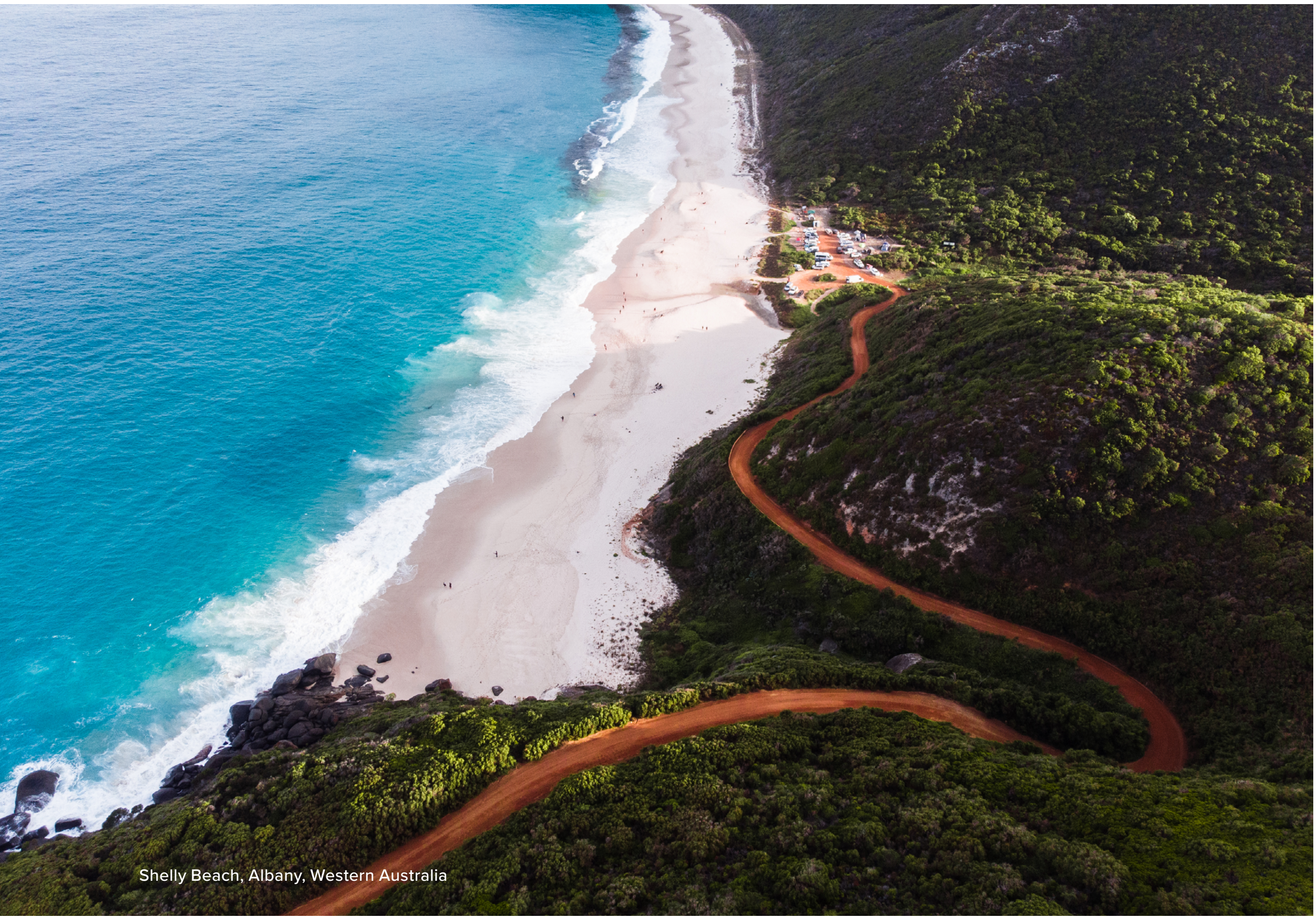
Strengths

Key existing assets

Economic	**Gateway ports**	The Port of Albany facilitates the trade of bulk items such as grain, woodchips and silica sands, and some imports of fertiliser and fuel. Albany Regional Airport is strategically positioned 11km from the Albany CBD and provides access for residents and visitors, as well as the region's non-resident worker population.
	Transport infrastructure	Albany Highway is a direct link from Perth to Albany via Kojonup and Williams. The Great Southern Highway takes in the central inland towns of Cranbrook, Broomehill, Tambellup, Katanning and Woodanilling. South Coast Highway is part of Highway 1, which circles the Australian continent. It takes in Jerramungup, Albany and Denmark. Passenger bus services for travel beyond the region follow these three main highways. Rail services transport bulk commodities through the centre of the Great Southern.
Natural	**Natural environments**	The region is a popular eco-tourism destination, recognised for its rich biodiversity across ocean, river and forest landscapes. The region also has over 250km of coastline, as well as being home to national parks including Lake Magenta, Stirling Range, Fitzgerald River, Mount Roe and Mount Lindsay.
Social	**Community infrastructure**	The Albany Entertainment Centre, National Anzac Centre and smaller-scale cultural assets allow for events in the region.
	Education and research institutions	Tertiary campuses and collaborations with university and training facilities offer economic and social value through education, research and innovation potential. Industry research collaboration also offers significant opportunity for the region.

Key regional growth industries

Agriculture, forestry and fishing	Tourism	Knowledge sector
The agriculture, forestry and fishing industry is the largest sector in the region, contributing to $1.77 billion to regional output.[46] While existing strengths lie in broadacre cropping, livestock and forestry, there are significant opportunities for diversification into high-value activities such as horticulture, fruit growing, dairy cattle farming and aquaculture.[47] Katanning's sheep saleyards span more than 4 hectares and are the largest undercover saleyard in the southern hemisphere.[48] Aquaculture has significant growth potential in the Great Southern and includes existing developments such as the Albany Multi-Species Mollusc Hatchery.[49]	Tourism development is a local focus for diversification. The Great Southern offers many tourism activities through their natural environments, national parks and cultural and historical attractions.[50] Growth will be driven by greater food and wine experiences, eco-tourism and adventure-tourism opportunities, to leverage the region's strong agricultural sector and pristine natural environments.[51,52]	Knowledge-based industries have been identified to be key areas for growth.[53] Innovation through research institutions, such as the Wave Energy Research Centre, present opportunities for regional development in high-value industries including renewable energy.[54]



Shelly Beach, Albany, Western Australia

Infrastructure gaps

Sector:	Transport
Sub-sector:	Freight infrastructure
Infrastructure gap:	Capacity, connectivity and quality of freight infrastructure

In their *Look at the Regions for 2020*, Infrastructure WA noted the importance of upgrading the quality and efficiency of the Great Southern region's road network to support its competitiveness for primary producers accessing global markets.[55] Without additional investment in maintenance and capacity development, road infrastructure is expected to deteriorate significantly, which could have considerable negative impacts for local industries such as agriculture, timber processing, regional tourism and management of conservation areas.[56] Road quality in the region needs to safely accommodate Western Australia's growing road freight task with tonne-kilometres per year expected to double from 2011 to 2041.[57]

The Albany CBH cooperative network achieved a record grain tonnage, at 4.3 million tonnes as of 25 January 2022.[58] Within the Great Southern region, safety, capacity and maintenance issues related to road networks and use for heavy haulage, as well as limited rail capabilities are increasing pressure on road infrastructure.[59]

Key facts:

Road assets in the region are ageing, with many older than

50 years.[60]

17.53%

of Gross Regional Product is derived from agriculture, forestry and fishing.[61]

Four million tonnes

in exports pass through the Port of Albany each year.[62]

Impact:

- A number of accident black spots, deteriorating road surfaces and competition between freight and commuters contributes to road safety concerns in the region.[63]
- Freight network inefficiencies could undermine productivity, reducing producers' competitiveness in domestic and international markets.[64]
- The region's freight capabilities and transport accessibility underpins its core economic drivers, including the forestry, fishing and agriculture industries.[65]

Consultation feedback:

Stakeholders noted that infrastructure planning has been reactive rather than proactive, and the COVID-19 pandemic has exacerbated this issue. The Great Southern region's roads are deteriorating rapidly due to increased traffic from heavy vehicles, which current infrastructure was not built to withstand. Great Southern stakeholders have reported that the quality of roads in the region risks reaching a tipping point, beyond which maintenance efforts will be unable to provide appropriate levels of safety.

Stakeholders suggested pressure on road freight infrastructure could be alleviated if the region's rail network was upgraded to allow for more freight by rail. Without improving rail, the region could be limited in its ability to export products effectively. Attendees were also concerned about limited connections to other major economic centres, seen as another consequence of limited rail services. The limited capacity of port facilities and the airport were also raised.

Sector:	Water
Sub-sector:	–
Infrastructure gap:	Water security

In Infrastructure WA's *Look at the Regions for 2020*, the development of strategies and solutions to maximise water supply to support businesses and communities was identified as one of the key challenges and opportunities for the region.[66]

A decline in rainfall over the winter months in the south-west regions of Western Australia, including in parts of the Great Southern region, over the past 20 years has contributed to a reduced inflow into many surface dams.[67] In some towns not connected to the Lower Great Southern Towns Water Supply Scheme, water supply is becoming critically low.[68] Below-average rainfall has also impacted on-farm storage sources and local government dams. The Department of Water and Environmental Regulation strategic community water supplies have also been affected, which are held for emergency use when low rainfall causes on-farm supplies to fail.[69] To address water deficiencies in the Great Southern region, increasing the resilience of water infrastructure is essential.[70]

Key facts:

During winter in both 2018 and 2019, rainfall levels across many parts of the Great Southern region were lower than average, resulting in poor inflow to many surface dams.[71]

Low rainfall coupled with ongoing hot and dry conditions have also impacted on-farm storages, shire dams and Department of Water and Environmental Regulation strategic community water supplies.[72]

In 2013, the total licensed and unlicensed water use in the Great Southern region was 31 GL/year. By 2043 water demand is expected to increase to 54 GL/year under a medium-growth scenario.[73]

Impact:

- Drinking water supply schemes have been affected by the same climatic conditions as those impacting farming and other businesses in the Great Southern region.[74]
- Water recycling opportunities are a focus across the region, including in Albany where 2,000 million litres of treated wastewater is used on an Albany tree farm each year, supporting over a million trees and capturing some 70,000 tonnes of carbon from the environment.[75]
- Climate change has affected Denmark's water supply, with the town previously reliant on rainfall feeding into the nearby Quickup Dam for drinking water year-round.[76] To secure the town's supply in the long term, a 43km pipeline has been built to connect Denmark to the Lower Great Southern Towns Water Supply Scheme. This system of underground pipes supplies water to Albany, Mount Barker, Kendenup, Narrikup and many other towns.[77]

Consultation feedback:

Stakeholders expressed concerns regarding the likelihood of the region's water scarcity worsening as droughts and reduced rainfall become more common. Stakeholders also raised the issue of a growing reliance amongst the region's communities on alternative methods for collecting water, such as desalination, as well as a need to lower the cost of compliance for wastewater management.

Adding to these concerns were the second-order consequences water scarcity is having on the region's agricultural needs, residential growth and the general ability of towns and communities to function and grow. It was also noted that transporting water from distant sources has been needed in the region to support farmers, with concerns also expressed for the capacity of emergency services being inhibited by limited supplies of water.

Sector:	Social infrastructure
Sub-sector:	Housing
Infrastructure gap:	Availability, diversity and affordability of housing

The Great Southern region's housing markets are characterised by larger urban areas such as Albany and Denmark, small established towns and rural properties.[78] There is a total of 1,107 public housing dwellings located in the Great Southern region, with the majority located in Albany.[79] Recent developments in public housing include the Spencer Park renewal project in Albany.[80]

Housing has been an ongoing regional challenge, with threats identified in RDA Great Southern's *Regional Plan 2013-18* such as lack of affordable housing options for some sectors of the community and the cost of development for residential land.[81] Anglicare WA notes that affordability of housing is a critical issue for communities in the Great Southern region, with poor access to affordable and suitable housing for those earning low incomes.[82]

The Great Southern Development Commission's *Housing and Land Snapshot* (December 2021) outlines the range of housing challenges present in the region, including a shortage of public housing.

Key facts:

In the first half of 2021, transactions for houses increased to the highest levels in the last ten years and the median house price for the region increased by 12% over the year to June 2021.[83]

Stakeholders indicate that there is a lack of rental stock available in the region, with rents also being the highest they have been in the last ten years (2021).[84]

35% of Albany's renters are reported in rental stress and 20% of Albany's mortgage owners are reported in mortgage stress (2021).[85]

Impact:

- There is a public housing shortage across the Great Southern region. Currently there are 589 wait turn applications for the Great Southern with 119 of these applications having priority. Over 76% of these applications are for housing in Albany with a further 12% for public housing in Katanning.[86]
- The economic development and liveability of the Great Southern region will be supported by an increase in supply and affordability of housing.[87]

Consultation feedback:

Stakeholders expressed concerns over housing shortages across the region, which is negatively affecting the ability of local businesses to retain and attract workers. This challenge has been heightened by the growing number of people looking to move to regional areas as a result of the COVID-19 pandemic.

Workshop attendees also noted that a slow release of land and high costs to service the land with power and water makes it difficult to deliver new and affordable housing. Investors experience long lead times associated with the planning of new developments and stakeholders saw this as a major barrier to improving the housing market. There were further concerns with a lack of government funding of community housing to cater to low-income individuals and families.

6.8.3 Kimberley

The Kimberley region is known for its diverse and unique environments from gorges and freshwater swimming holes to red sand deserts. Multicultural and resilient communities characterise the region which is rich with First Nations peoples' culture and connection to country.

The Regional Development Area (RDA) comprises four local government areas including Broome, Derby-West Kimberley, Halls Creek and Wyndham-East Kimberley, with most of the population living in the Broome, Derby and Kununurra.[88]

Population growth across the region has recently stagnated, with boom and bust cycles impacting workforce, housing and population stability. The region is sparsely populated and is renowned for its intact environment, wide open spaces, tourist attractions, and mining and agricultural production. A strong agricultural industry is supported by the Ord River irrigation project which has allowed for diversification into irrigated produce. Mining has remained a key industry which has experienced a shift from low-volume goods such as gold to bulk extraction of offshore oil and gas.

Challenges include welfare dependence in some segments of the community, high costs for business and limited supply chain integration. Looking to the future, the region hopes to further attract and retain skilled workers to enable growth. To achieve this, liveability and access to services are a priority. This will be supported by more reliable digital connectivity, affordable and available housing and road infrastructure. Tourism is a key area of focus, with the Kimberley gaining increasing global recognition as a destination of choice.

The Australian Government has committed to the development of Master Plans to accelerate Regions of Growth and grow the Northern Australian Economy. Master Plans within the Kimberley region include the Broome to Kununurra to Darwin Regions of Growth corridor.[89]

Red cliffs at Gantheaume Point, Broome, Western Australia

Strengths

Key existing assets

Economic	**Gateway ports**	The Port of Broome, as well as Wyndham, Derby and Yampi Sound provide freight capacity whilst Broome International Airport and Kununurra Airport enable passenger access.
	Transport infrastructure	The region's road network is its primary means of accessibility, with the Great Northern Highway acting as the main arterial road connection linking the region to the rest of the state.
	Defence assets	The RAAF Base Curtin can be used for training exercises and operations, with recent commitment to upgrade the facilities.
	Energy infrastructure	The Ord Hydro Power Plant has enabled renewable energy, providing electricity to the Argylge Diamond Mine and the nearby towns of Kununurra and Wyndham.[90]
Natural	**Natural environments**	World Heritage listed Purnululu National Park, red deserts, natural gorges, marine parks and protected wetlands.
	Climate and topography	The Kimberley's climate is sub-tropical with separate dry and wet seasons. The region's warm climate and availability of land, water and natural resources enhances the region's prospects in developing and investing in its agriculture industry, including irrigated agriculture and pastoral agriculture. The region has a very high level of solar exposure which provides the opportunity for greater solar energy generation.[91]
	Natural resources	The region contains iron ore, oil, gas, pearls, diamonds, nickel, gold, copper, silver, cobalt, and mineral sand deposits.
Social	**Cultural heritage**	The Kimberley region is rich in First Nations culture and art dating back over 40,000 years.
	Education and research institutions	The University of Notre Dame (including the Nulungu Research Institute), North Regional TAFE campuses and the Frank Wise Institute of Tropical Agriculture in Kununurra offer education and collaboration opportunities.

Key industries

Mining	Agriculture, forestry and fishing	Tourism
The mining sector is the dominant industry in the Kimberley, accounting for over 75% of the Gross Regional Product.[92] A key contributor to this figure is the Shire of Broome's oil and gas extraction.[93] Recent prosperity has been driven by global demands for certain commodities such as iron ore, with future growth derived from demands for heavy rare earth minerals needed for technological equipment.[94]	The Kimberley's agriculture, forestry and fishing industry has significant opportunities for growth, with support from the Ord River Irrigation Scheme.[95] The region's large supply of water has enabled diversification of agricultural activities to include cotton, fruit and vegetable growing.[96] The Kimberley currently has over 90 pastoral leases and there is interest for investment in the region's pastoral industry.[97] The region is a leader in aquaculture production with pearling and cage farming of barramundi dominant. With the many bays and strong tidal flows in the Kimberley, there are many suitable sites and opportunities to develop or support other key species.[98]	Tourism in the Kimberley contributes almost 11% of the region's employment.[99] The region's warm winters and natural environment, including extensive marine environments such as the Kimberley Marine Park, as well as unique biodiversity, rich cultural heritage and local festivals are major selling points which will drive growth.[100,101]

Infrastructure gaps

Sector:	Telecommunications
Sub-sector:	–
Infrastructure gap:	Broadband and mobile connectivity

Access to reliable telecommunications infrastructure is a significant issue facing the Kimberley region, with complexities in provision such as the scale of geography, remote communities, severe weather events and a transient and seasonal population.[102] The quality of connectivity also presents a significant challenge, with many locations in the Kimberley region where communities are restricted to the use of satellite connections. These connections are subject to lower bandwidth and poor reliability, factors which have been shown to inhibit access to critical health services in remote areas of the region.[103] The resilience of telecommunications infrastructure to deal with natural disasters and events is also a key challenge for the region.[104]

Poor digital and mobile connectivity not only impacts residents, but also has significant implications for industry growth and productivity.[105] Investment in improved telecommunications coverage in key tourism locations is critical to the industry's success.[106] Collaboration between government and private industry has delivered innovative solutions which enable technological advancement in key industries such as agriculture.[107]

RDA Kimberley's submission to the 2021 Regional Telecommunications Review[108] notes various challenges in digital connectivity, such as the need for telecommunications infrastructure resilience to deal with natural disasters and seasonal events. This includes events that occur in the Pilbara which also impact the Kimberley. Service network reliability during the peak tourism season was also challenged throughout the Kimberley in 2021.

Key facts:

24%

of small businesses in the region rated the quality of internet infrastructure as low.[109]

18%

of small business in the region rate the quality of mobile infrastructure as low.[110]

The region's local government areas of Broome, Wyndham-East Kimberley, Derby-West Kimberley and Halls Creek have a 2021 Australian Digital Inclusion Index score of 72, 70, 68 and 67 respectively. The Western Australian average is 72.[111]

Impact:

- Digital connectivity challenges impacts health, education, liveability, emergency services and business functions for the Kimberley region. East Kimberley Chamber of Commerce notes that telecommunication challenges severely impact the ability of many businesses to operate on a daily basis and the effectiveness and output of the economy across multiple industries.[112]
- Many residents and service agencies need more than one mobile service provider in order to maximise connectivity while moving across the Kimberley region. The associated costs for multiple contracts is particularly problematic for communities with high-socioeconomic disadvantage.[113]
- There is a 'digital divide' between First Nations peoples and the broader population, which has been shown to exacerbate underlying socioeconomic inequalities and contribute to intergenerational disadvantage. Improved digital connectivity offers the potential to assist First Nations peoples in mapping and protecting sacred sites across their country.[114]

Consultation feedback:

Stakeholders considered digital connectivity to be a priority to facilitate community wellbeing and economic growth in the region in the coming decades. With service delivery becoming increasingly digitised, stakeholders expressed concerns over socioeconomically disadvantaged members of the community with poor access to telecommunications infrastructure being excluded from access to health, education and employment services. Participants in the Kimberly region First Nations stakeholder workshop noted that remote communities were disproportionately affected by inadequate telecommunications infrastructure. This issue was raised as being a concern both for access to services and economic empowerment, as establishment and growth of First Nations businesses is inhibited by a lack of digital and mobile connectivity.

RDA Kimberley also noted that there are several private sector and government investments underway or in development in the region which are expected to stimulate the employment market and contribute to regional domestic growth. This has implications for the telecommunication requirements and pressure on existing networks by the increase in population and industry activity associated with these investments.

Sector:	Social infrastructure
Sub-sector:	Housing
Infrastructure gap:	Availability, diversity and affordability of housing

In the Kimberley region, lower income price income ratios (PIR) have risen from 8.4 in 2015 to 10.8 in 2018, meaning that even when house prices are drawn from the lower end of the market, the cost burden of owning a home remains high.[115] The poor affordability ranking extends to rentals for all households, where the Kimberley has been found to be the least affordable of Western Australia's regional centre in terms of rental affordability alongside Busselton.[116] In 2021 Shire of Broome reported a housing shortage across the private and public housing markets.[117] Tourism operators in Broome also reported they could not attract staff due to lack of housing.[118] RDA Kimberley notes that the Shire of Broome housing shortage information is a useful example of the shortages experienced throughout the region. Housing shortages also have flow-on effects for local communities and economies, as a shortage of housing pushes prices higher, marginalising those with less financial resources.[119]

Meaningful collaboration with First Nations communities and organisations in housing policy decision-making and delivery will play a key role in improving housing conditions and availability in the region – particularly in rural and remote communities.[120]

The Western Australia State Budget 2019-20 approved the building of 50 additional homes in Kununurra, Halls Creek and Wyndham, through the North-West Aboriginal Housing Fund.[121] The 50-home transitional housing project utilised a co-design approach with local stakeholders to decide housing location, density and design specifications to ensure the homes suited the needs of local First Nations people.[122] Recent projects also included the Yura Yungi Employee Accommodation and Career Development project to provide affordable housing choices and supported, professional development opportunities for Aboriginal medical staff and trainees in Halls Creek.[123]

Key facts:

In the Kimberley,

37%

of households were purchasing or fully owned their home in 2016, compared to 56% for regional Western Australia.[124]

Broome had an unmet public housing demand of

400

dwellings in 2016, with 16% growth projected to 2026.[125]

Housing shortages have detrimental impacts on the region's visitor economy as short-term accommodation is in limited supply.[126]

Impact:

- Improving remote housing outcomes is likely to require a range of actions, including addressing maintenance deficiencies, renewing housing stock which has reached its end-of-life and delivering new housing stock.[127]
- Wait lists for public housing in some remote communities are extensive, with sparsely available housing often used to house large family groups in over-crowded dwellings.[128]
- Maintenance and repair of housing stock in remote communities – and associated essential infrastructure to service these dwellings – is also a significant challenge for the region, with some residents subject to housing in poor or very poor condition without access to alternative accommodation.[129]

Consultation feedback:

Consultation with key stakeholders in the Kimberley region revealed housing to be a critical issue for many residents and businesses. Workshop participants noted that housing unaffordability and shortages have emerged throughout the region as significant issues, particularly in the case of social housing. Unavailability of housing was seen by stakeholders to have detrimental impacts on both community wellbeing and industry growth potential, with these impacts likely to worsen in coming decades if the issue is not addressed.

Stakeholders noted that the regional housing gap included a broad spectrum of challenges including government housing, worker accommodation shortages, inability to secure materials and rental markets. Broome and Kununurra were identified as being particularly susceptible to boom and bust cycles in the past, affecting worker accommodation. Housing shortages were impacting the visitor economy, as well any many other sectors who are operating understaffed for the same reasons.

Stakeholders also highlighted that many businesses are operating understaffed with lack of affordable housing cited as a contributing factor, impacting efficiency, performance and customer experience.

Participants in the First Nations stakeholder workshop for the region also raised housing availability and affordability as being critical issues for First Nations communities in the Kimberley, alongside overcrowding and ageing or poor quality housing stock. In delivery of projects there is opportunities for co-design and collaboration to match housing design and needs with the local community.

Sector:	Transport
Sub-sector:	Road infrastructure
Infrastructure gap:	Capacity, connectivity and quality of road infrastructure

The Kimberly region relies on its road network for connectivity. The Great Northern Highway is the main freight corridor which covers around 1,600 kilometres of road in the region and is the key connecting route to the south of the State and the Northern Territory.[130]

Stakeholders noted that road infrastructure resilience improvements across the Kimberley would assist not only for natural disasters but for regular seasonal climate events. Broome, Derby, Fitzroy Crossing, Halls Creek and Kununurra (and surrounding remote communities) are ‘cut off’ most wet seasons for multiple days associated with flooding on Great Northern Highway between Port Hedland and Darwin.

The rate of fatal and serious injury road crashes (from run-off-road and head-on crashes) in regional Western Australia is five times higher than the same type of crash in the metropolitan area.[131] Through the Regional Road Safety Program, jointly funded by the Commonwealth and Western Australian Governments, up to 7,000 kilometres of regional roads will be upgraded across the state by July 2022.[132]

Key facts:

The Kimberley is a large, dispersed region. Distance influences the region’s internal and external connectivity and integration. Transport infrastructure is vital for overcoming these challenges.[133]

The Great Northern Highway is the main freight corridor which covers around

1,600

kilometres of road in the region.[134]

In a 2021 Community Perceptions report conducted by Main Roads Western Australia, 17% of survey participants ranked road maintenance in the Kimberley region “terrible” or “poor”.[135]

Impact:

- Annual floods, cyclones and bushfires regularly cut-off access to infrastructure in the region, including important transport links. Infrastructure WA's *A Look at the Regions* includes improving infrastructure network resilience to withstand and recover from the impacts of extreme weather events as one of the key challenges and opportunities.[136]
- Often the only transport link available in Northern Australia, good quality sealed roads are vital for accessibility to markets, to grow the tourism industry, attract and retain workers, and invite investment.[137]
- The committed upgrade to the Great Northern Highway (Broome to Kununurra) will replace a single lane bridge with a two-lane bridge at Arthur Creek and upgrade four floodways. The Great Northern Highway is one of the main land transport links between Perth and the Kimberley Region and the only sealed road between the Port of Broome and the Port of Wyndham. The link is relied upon by mining and agricultural operations, which use the port for both export of product and the import of fuel and equipment.[138]

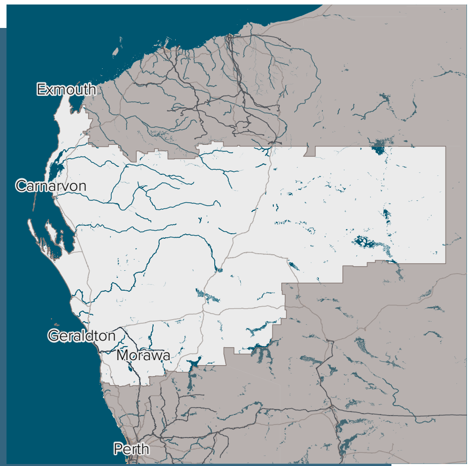
Consultation feedback:

Stakeholders noted that road infrastructure is critical to connectivity, as roads are the main transportation method for both passengers and freight. Much of the region's economic outputs are dependent on road network connectivity to function effectively. RDA Kimberley highlights that there are 12 single lane bridges and approximately four floodways along the Great Northern Highway between Broome and Kununurra, which continues to present a safety risk and economic impediment. There are also other unsealed roads that could play a role in connecting the region to the eastern states and provide significant supply chain integration, community safety, reduction in the cost of goods/services and improve resilience.

Roads to remote communities are often not owned by any entity, with no assigned responsibility for maintenance or upgrades. As a result, many of these roads get closed, which inhibits passenger and tourist access and limits freight efficiency and productivity. Significant freight routes accessing the region's ports or delivering key supplies to the region are unsealed. Stakeholders highlighted a need to resolve these challenges because when roads get washed out, residents lose access to critical products and services. Stakeholders noted that past connectivity improvements to the road infrastructure network has been fundamental in increasing tourism to the area.

Stakeholders also highlighted the high cost of repairs due to seasonal rainfall and cyclone events, which is a significant burden for a very low rate base.

6.8.4 Mid West Gascoyne



The Mid West Gascoyne has a wealth of resources and natural beauty with coastlines home to abundant marine wildlife, World Heritage areas of Ningaloo Coast and Shark Bay and stretches of outback. The region's traditional strength industries include agriculture and mining however, the region has recently seen growth in its renewable energy and tourism industries.

The Mid West Gascoyne Regional Development Area (RDA) covers 21 local government authorities, ranging in size from 90 to 39,000 residents.[139] The growing City of Greater Geraldton has the largest population in Western Australia north of Perth and provides key services and infrastructure. The RDA region encompasses the Western Australian Government's Mid West Development Commission and Gascoyne Development Commission. It is noted that the Shire of Wiluna has moved into the Goldfields-Esperance Development Commission, however remains included within the Mid West Gascoyne RDA region at time of writing. Stakeholders report various challenges in regional leadership, governance and consensus that can impede effective strategic planning, needs assessment, business case development and advocacy for the region as it supports infrastructure investment.

The region has experienced slow population decline for its rural communities which has made it difficult to attract infrastructure investment. Climate change impacts and closure of Tier 3 rail lines have affected agriculture and mining as freight is now transported on local roads. Recovery efforts to rebuild communities post Cyclone Seroja have been an ongoing challenge. A lack of place-based services for health, education, childcare and aged care have been identified as an impediment to attracting permanent residents to the region, alongside other elements of liveability such as affordable housing, connectivity and employment opportunities.

Looking ahead, the region hopes to stimulate growth and prosperity, with a focus on improving digital connectivity and accommodation and housing. Accommodation and housing will be vital to growing tourism and attracting skilled workers. Although the region has benefited from improved telecommunications and digital connectivity, further improvements offer the opportunity to enable technological adoption and new models of service delivery. Upgrading the quality of the road network and increasing its capacity to support freight efficiency and improve road safety are priorities.

Geraldton, Western Australia

Strengths

Key existing assets

Economic	**Gateway ports**	Accessibility for passengers and cargo to the region is enhanced by multiple regional airports.
Natural	**Natural environments**	Expansive coastline, limited light pollution, as well as many national parks offer liveability benefits and attract visitors. Ningaloo Coast and Shark Bay marine parks are internationally recognised as World Heritage Areas. Shark Bay is well known for its pearling history, shell beaches, stromatolites and the dolphins at Monkey Mia. The Ningaloo Reef is the world's largest fringing reef with diverse marine life including whale sharks. 122 islands make up the Houstman Abrolhos Islands, located off the Geraldton Coast. The Gascoyne River is a freshwater river system which enables the successful growth of a diverse agriculture industry, recognised as the 'food bowl' of Western Australia.
	Natural resources	The region has a wealth of mineral resources with high-value salt mining operations, as well as significant inland mining operations dominated by iron ore, mineral sands and rare earth metals. There is also growing interest in local magnetite, vanadium, critical minerals and construction sand resources.
	Climate and topography	The region has an ideal climate for a productive primary industry, pastoral leases cover 84% of the Gascoyne region.[140] High levels of solar exposure and wind resources help to position the region for opportunities in renewable energy production and green hydrogen.
Social	**Cultural heritage**	The Mid West Gascoyne region is rich with First Nations culture and history. Wilgia Mia in the Weld Ranges is the largest and deepest underground Aboriginal ochre mine in Australia.[141] The Murchison GeoRegion self-drive trail visits 21 sites of national and international, natural and cultural significance.[142] The Memorial to HMAS Sydney II is located at Mount Scott, Geraldton.[143]
	Community infrastructure	The Gascoyne Aboriginal Heritage and Culture Centre or 'Gwoonwardu Mia' and the Museum of Geraldton celebrates the rich heritage of the land, sea and people of the Mid West region. The Carnarvon Space and Technology Museum is dedicated to educating visitors about the region's role in the manned space program and in the Australian satellite communications industry.
	Education and research facilities	The region's knowledge economy is supported the Murchison Radio-astronomy Observatory, which includes the primary Australian host site for the planned Square Kilometre Array and a number of associated radio quiet zones. There are also several commercial and research satellite ground stations near the town of Mingenew.

Key regional growth industries

Tourism

The tourism sector is a well-established and rapidly growing industry in the region, with an average annual overnight visitor spend of $365 million.[144] The region has a wealth of attractions, such as Mount Augustus, Kennedy Range National Park, Ningaloo Coast, Shark Bay World Heritage sites, Abrolhos Islands, HMAS Sydney memorial and Museum of Geraldton.[145] There are plans to develop attractions in the region including visitor upgrades at Monkey Mia and restoration of the One Mile Jetty in Carnarvon.[146] Kalbarri offers activities for outdoor enthusiasts including the Murchison River for kayaking and sandstone gorges in Kalbarri National Park.[147] Several areas within the region are also considered go-to places for wildflower enthusiasts.[148, 149]

Agriculture, forestry and fishing

The agriculture, forestry and fishing sector is the largest industry in the region, contributing $1.6 billion to the local economy.[150,151] The Carnarvon Horticulture District, located on the Gascoyne River produces a wide range of temperate, tropical and subtropical produce throughout the year.[152] Although pastoral and agricultural expertise in the region is particularly strong, the fishing and aquaculture sector present significant opportunities for growth if enabling infrastructure is in place.[153]

Energy

The Mid West Gascoyne is a highly prospective location for renewable energy generation, including wind, wave, geothermal and biomass energy production.[154,155] There is considerable interest in renewable hydrogen production, with many projects at various stages of planning and development to support renewable hydrogen capabilities in the region. [156,157] This includes the proposed establishment of a major renewable hydrogen hub in the Oakajee Strategic Industrial Area.[158] Horizon Power, which provides energy to the region is currently exploring plans to grow rooftop hosting capacity in the town of Exmouth, with a target of generating up to 80 per cent of the town's power from renewable energy sources in the next three years.[159]

The Mid West Development Commission also highlights the globally competitive wind resources and diurnal complementarity which is driving interest in renewable hydrogen projects.

Mining

In 2019, there were 18 operating mines in the Mid West that produced $4.8 billion of minerals resources, of which $2.6 billion was associated with the production of gold, $1 billion of iron ore and $0.9 billion of copper, lead and zinc.[160] There is a further 15 proposed open pit resources projects that target a range of minerals including iron ore and precious metals.[161]

In the Gascoyne, there are two mines in operation that both produce salt, and three projects planned focussing on heavy mineral sands, rare earths, and gold which will assist in growing and diversifying the economy and providing opportunities for local businesses.[162]

The Mid West Development Commission notes development interest in its magnetite, vanadium, mineral sands, critical minerals, rare earths and construction sands resources. Expansion plans to lift conventional natural gas output from the North Perth Basin was also highlighted for the potential to assist in firming the region's increased renewables penetration.

Infrastructure gaps

Sector:	Social infrastructure
Sub-sector:	Housing
Infrastructure gap:	Availability, diversity and affordability of housing

The availability of long-term housing for existing and new residents has become a pressing challenge for the region. This issue has been exacerbated by increased internal migration, the rise of domestic tourism brought about by the COVID-19 pandemic as well as the increasing number of unoccupied dwellings being used to provide temporary visitor accommodation.[163] As a result, housing supply is well below demand in the region, leading to an increasing lack of affordability.[164] The implications of a housing sector increasingly driven by temporary accommodation demand threatens the ability of the region to sustain growth of a productive working population, attract investment in diverse housing typologies, and allocate adequate stock to supply of social and affordable housing.[165]

Lack of diverse and affordable housing for lower income households has increased the demand for social housing, an increase related to rental increases. High levels of rental stress and lengthy wait times reflect the strain on the region's housing assistance services.[166]

As part of its regional COVID-19 recovery plans for Gascoyne and the Mid West, the State Government has committed funding for the construction of new social housing, Aboriginal short stay accommodation, refurbished social housing and targeted maintenance for regional social, remote and government worker housing. [167,168]

Key facts:

There is a shortfall of **39,200** social and 19,300 affordable homes across Western Australia.[169]

More than **950 people** in the Mid West and Gascoyne are on the public housing waitlist.[170]

There is an average wait time of **94 weeks** for public housing in the region.[171]

Impact:

- With sectors such as tourism and primary industries experiencing strong growth, there is a greater demand from new workers for housing in the region.[172]
- Lengthy social housing waiting times due to a lack of affordable and adequate housing impacts upon the social welfare and wellbeing of applicants.[173]

Consultation feedback:

During consultation, stakeholders prioritised a need to deliver improved access to affordable housing across the Mid West Gascoyne region. Feedback pointed to critical shortages across the region for government workers, key industry and seasonal workers as well as for parts of the local First Nations community. In particular, the development of key worker accommodation was viewed as a priority for supporting quality of life locally as well as for growing the local tourism and horticultural industries.

Workshop attendees voiced concerns that the region is facing challenges in addressing this need as government infrastructure stimulus projects have revealed a shortage of residential building trades and construction workers. The impact of construction costs, housing feasibility, short stay markets and housing quality were also noted, as was competition for labour from the mining sector in the region's north and the impacts of supply chain pressures which have contributed to a shortage of construction materials. Stakeholders noted that natural disasters are expected to intensify this issue, through higher insurance costs and the need for more construction materials in cyclone affected areas.

The age and quality of housing has deteriorated in some parts of the region, as noted by stakeholders who observed that the quality of housing stock coupled with declining land values and population can have a negative effect on values and future investment.

Sector:	Transport
Sub-sector:	Road infrastructure
Infrastructure gap:	Capacity, connectivity and quality of road infrastructure

Western Australia's road network comprises around 95,000 kilometres of unsealed road, with much of this network relied upon to access rural and remote communities including those in the Mid West Gascoyne region.[174] Sealed arterial roads in the region also face significant pressure in carrying inter-regional freight traffic and large volumes of seasonal tourist traffic.[175] Seasonal tourism increases arterial road congestion due to lack of alternative sealed freight routes and road connections to tourist attractions. Road quality and accessibility can also be significantly impacted by inclement weather, with the severe flooding of Minilya-Exmouth Road being a recent example in the region.[176]

Beyond improving road asset capacity and quality through infrastructure interventions, there is an opportunity to deliver positive outcomes for road users through policy reform measures. Approaches may include limitations on freight traffic capacity on particular routes with high passenger use to alleviate conflicts of use and improve road safety.[177]

Key facts:

63 people were killed or seriously injured on the region's roads in 2019.[178]

A Killed or Serious Injury (KSI) rate of **102.4 per 100,000** people in 2019 (compared to 56.8 in Perth metropolitan area).[179]

The region is home to over **3,500 km** of state roads, requiring significant ongoing maintenance works.[180]

Impact:

- Roads across the Mid West Gascoyne region lack wayfinding signage. The absence of these signs could be a missed opportunity to capitalise on visitors and support growth in tourism.[181]
- With 77% of road improvement contracts completed on time, short of the state target of 90%, the region's maintenance backlog that currently exists on road and bridge assets is likely to continue to rise.[182]
- Increasing seasonal tourism in the region has increased local arterial road congestion. Lack of adequate road infrastructure will continue to strain regional development in the primary and tourism industries.[183,184]

Consultation feedback:

Consultation in the Mid West Gascoyne region revealed road quality is expected to decline as local governments struggle to maintain road infrastructure with limited funding and resources. This is a major concern for stakeholders as the backlog of existing asset renewals which include general road and bridge maintenance are already significant and on the rise.

Road infrastructure is a particularly pressing issue as closure of Tier 3 rail lines in the region have increased freight volumes on local roads and stakeholders are cognisant of the safety and wellbeing implications this has for those living in remote communities. Another factor impacting roads is the predicted growth of domestic tourism. Stakeholders also highlighted the need to upgrade road infrastructure along the strategic coastal freight route, particulary bypasses around the small communities from Dongara to Northampton. Overall, workshop attendees identified the importance of road improvements and upgrades to manage increased pressure on these assets and support productive elements of the regional economy. Stakeholders emphasised local governments will have to further uplift their asset maintenance strategies.

Sector:	Telecommunications
Sub-sector:	–
Infrastructure gap:	Broadband and mobile connectivity

Large parts of the Mid West Gascoyne region have limited telecommunication services due to its remote environment and reliance on other networks such as satellite connectivity. In more isolated areas in the sub-region of Gascoyne Coast, broadband services are limited to satellite connectivity.[185]

Innovations in digital connectivity to provide the vast region with the opportunity of easy access to telecommunication services could result in social benefits and business opportunities for local businesses. Affordability and accessibility of digital innovations are critical factors to improve the digital connectivity of the region.[186]

Key facts:

A survey by Bankwest Curtin Economics Centre in 2017 found that

9.4%

of small businesses in the Mid West and 7.7% in Gascoyne rated the quality of both the internet and mobile service infrastructure as low. [187]

The region's 21 local government authorities averaged a 2021 Australian Digital Inclusion Index (ADII) score of

65.9,

which ranged from 59 to 70. This is below the national average of 71.1 and the West Australian average of 72.[188]

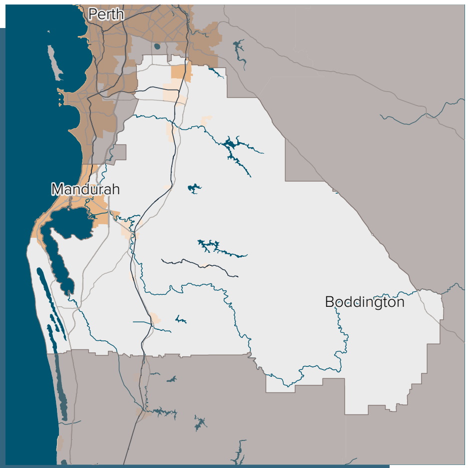
Impact:

- With businesses increasingly reliant on technology to operate, lack of internet connectivity in parts of the region has created problems for local businesses in industries such as agriculture, transport and tourism.[189]
- The region's 2021 ADII scores fall below the national and state average. A lower ADII score indicates that residents are more likely to be suffering from the impacts of a detrimental digital divide, lacking access to services and opportunities afforded to regions with better digital connectivity.

Consultation feedback:

During consultation, stakeholders identified that digital connectivity for the region is currently not affordable and its quality is inhibited by significantly limited download and upload capacities. In particular, remote areas have limited access to stable telecommunications services which has impacted access to services and business opportunities.

High-quality, reliable digital connectivity was a priority for stakeholders who emphasised there was limited access in some parts of the region. Stakeholders noted optimised digital connectivity could support industry growth in areas such as AgTech, space and advanced manufacturing. Stakeholders believe the region will require continual upgrades to its digital connectivity infrastructure to better support communities and business growth.



6.8.5 Peel

Located between Perth and South West, the Peel region offers high standards of liveability and unique biodiversity and natural assets. The Peel Regional Development Area (RDA) consists of five local government areas, including Boddington, Murray, Serpentine-Jarrahdale, Waroona and Mandurah. The regional centre of Mandurah, which is home to 65% of the region's population is connected to Perth as part of the Perth metropolitan passenger rail network.[190,191] The region's peri-urban location makes it a popular day trip destination whilst also attracting industrial and commercial occupants. Uniquely, the Peel forms a key component of the Western Australian Government's policy and structural plans for urban expansion of the Perth metropolitan region.[192]

The region has seen rapid urbanisation and population growth which has led to an increase in community diversity but also conurbation as Perth's influence expands. Major challenges the region has experienced over the past two decades include climate change and managing environmental impacts such as nutrient rich run-off from agricultural industries negatively affecting the region's water assets.

Looking forward, the region hopes to secure water for the prosperity of industry and communities, reduce a reliance on cars through the provision of public transport and uplift the region's access to further education and skills training in order to achieve a greater level of employment self-sufficiency.

Strengths

Key existing assets

Economic	**Strategic location**	The region's proximity to Perth offers access to employment and services, as well as a short-stay inbound tourism market.
Natural	**Natural environments**	The region is home to multiple wetlands and national parks that enhance local amenity and support biodiversity. There are several notable natural landscapes and scenic attractions in the region including the Peel Inlet, Peel-Harvey Estuary, Yalgorup National Park and the Serpentine Falls situated within the Serpentine National Park.
	Natural resources	Substantial deposits of gold, bauxite, and mineral sands contribute significantly to the region's output in mineral processing.
Social	**Health infrastructure**	Peel Health Campus supplies emergency care and medical, surgical, maternity and rehabilitation services.

Key regional growth industries

Agriculture, forestry and fishing	Manufacturing	Tourism
The Peel region, known for its agricultural and horticulture industries, have significant growth opportunities with the emergence of agribusiness and value-adding food processes. The recent development of the Western Australian Food Innovation Precinct is expected to increase state food and beverage output by $110 to $330 million in the first five years.[193]	One of the strongest performing industries in the region with an output of $4.6 billion, the manufacturing industry is driven by primary metal and metal product manufacturing.[194,195] There is great potential in further developing high-value manufacturing through innovation and research, especially in the food processing, wine and beverage space.[196]	Another opportunity lies in the growth of the regional tourism industry, which accounted for 5,400 jobs in 2018.[197] Peel is endowed with diverse natural environments, and benefits from its connectivity and linkages to Perth with its gateway access for overseas and interstate visitors through port and airport facilities.[198,199]

Halls Head, Mandurah, south of Perth, Western Australia

Infrastructure gaps

Sector:	Water
Sub-sector:	–
Infrastructure gap:	Water security

The Peel region receives relatively high rainfall, however with the region's population projected to triple by 2050, increased water supply and storage capacity is likely needed to provide a reliable water supply for 444,000 people, as well as meet industry needs.[200] Planning and delivery of new water infrastructure will support population growth, protect significant environmental assets in the region's waterways, while also enabling economic growth and diversification.

The region has established the Peel Integrated Water Initiative to better understand the region's current and future water system. The initiative is focused on two main objectives, water quantity and quality, with an overall aim to deliver a water system that is climate resilient, sustainable, secure and capable of bringing environmental benefits for generations.[201] It is expected that innovative supply options will be required to deliver water security for communities and enable food production for domestic and international markets in the long-term.

Key facts:

River flows to the Peel-Harvey estuary have reduced

33%

over the past 15 years.[202]

80%

of rain in the region falls between May and October.[203]

The region's population is projected to be

444,000

by 2050.[204]

Impact:

- The region's Ramsar (Convention on Wetlands of International Importance) listed Peel–Yalgorup wetlands, which includes the Peel-Harvey estuary, are a key destination for tourism and recreation. However, previous poor water allocation and planning has had detrimental impacts on water quality and caused ecological degradation.[205]
- Water security is a critical underlying issue for the region with demand for water predicted to increase significantly by 2031.[206] Improved water efficiency, recycling, sharing and alternative water source development are necessary to help the region accommodate for increased demand.[207]
- The region's Mediterranean climate with hot, dry summers and cool, wet winters presents a unique seasonal challenge as undeveloped parts of the landscape flood during winter and remain dry during summer.[208]

Consultation feedback:

Stakeholders highlighted the region's need to ensure that water supplies can support industry and population growth without compromising environmental sustainability.

Workshop participants also expressed concerns around climate change having already led to reduced rainfall and a drier climate. Climate change is also expected to contribute to rising bushfire risk in coming decades, making water security a top priority for the safety and emergency response capabilities of the region's communities.

Sector:	Transport
Sub-sector:	Public transport
Infrastructure gap:	Capacity, connectivity and quality of public transport

The region benefits from public transport infrastructure such as the Mandurah train service, Australind passenger rail service on the South West railway line, and the Transperth passenger bus services operating in Mandurah and Pinjarra.[209] However, current public transport is concentrated within Mandurah and connections to Perth. This is a challenge as intra-regional transport within Peel remains under-serviced. This is particularly important as access to quality education and training, and healthcare and social assistance is currently centralised in Mandurah.[210]

Public transport connectivity will help meet growth plans and the vison set out in *Perth and Peel @ 3.5 million:* a great, connected city that is globally competitive and technologically advanced.[211] Public transport between activity centres and station precincts for areas of growth will enhance the region's ability to support growth and employment opportunities.

Options to provide faster passenger rail services from Perth to Bunbury are currently being investigated as part of a strategic business case jointly funded by the Federal Government and the Western Australian Government.[212]

Key facts:

73.5%

of households own two or more motor vehicles.[213]

78%

rely on a personal vehicle to get to work.[214]

The region has access to the Perth and Peel off-road commuter cycle path, which will eventually cater for

half a million

bicycle trips each day.[215]

Impact:

- People living in areas with limited access to public and active transportation options experience increased travel time to work, traffic congestion, and declining community health.[216]
- The rapid population growth of the region needs to be accompanied by strategic public transport planning. Insufficient planning could contribute to socioeconomic inequality issues for communities and increase reliance on private vehicle transport.
- Limited provision of public transport which integrates with activity centres and promote intra-regional travel is contributing to high car dependency and traffic congestion.[217]

Consultation feedback:

Consultation revealed that stakeholders believe there is a pressing need to reduce the region's current dependence on private vehicles as the primary method of travel. Public transport will help alleviate this issue with flow-on benefits including reduced congestion on roads and improved freight and logistics for the region.

Stakeholders also identified public and active transport connections as vital to supporting the projected rapid future growth for the region. Participants felt that a high frequency public transport network will be necessary to accommodate the peri-urban growth of Peel.

Sector:	Social infrastructure
Sub-sector:	Education (tertiary)
Infrastructure gap:	Access to further education and skills training

The Peel Development Commission has identified ‘capable people’ as one of five themes deemed pivotal to achieving its future as a “progressive, prosperous and dynamic region with a culture of care”.[218] The region’s significant projected growth will require aligning the capacity and capability of the workforce with future industry needs. Matching the region’s skills base with its desired industry profile will enable a diverse and sustainable economy for the region that is supported by a highly skilled and high performing workforce.[219]

Currently, the Peel region has lower post-secondary educational attainment and workforce participation rates compared to the state’s average.[220] Although Mandurah has post-secondary offerings such as South Metropolitan TAFE and Murdoch University, these offerings are centralised and connectivity to campuses is poor. Delivery of specialised training infrastructure and courses that are accessible to communities outside of major centres will open up education and training offerings more widely and help address workforce gaps. Establishment of a locally-based university has also been identified as being a key enabling opportunity for the region.[221]

Key facts:

89,000 new jobs are projected for the region by 2050.[222]

Average unemployment rate of **6.7%** (2018–2020).[223]

35.5% of population with a post-secondary school qualification (compared to 40.3% across Western Australia).[224]

Impact:

- The region's limited access to further education and training facilities has contributed to an unengaged cohort with high levels of unemployment and under-employment, as well as low labour force participation rates. The region also faces challenges in attracting and retaining young people.[225]
- The region's population growth has remained consistently above 4% annually due to its peri-urban location and inherent economic development opportunities. However, the unemployment rate has remained above the state average with youth unemployment having reached levels as high as 19.3%.[226]
- Peel's future economic growth could be compromised without access to high quality training and further education. Without these opportunities, the region's ability to attract businesses and people will be limited, and the region will be less likely to achieve an employment self-sufficiency target of 78.5%.[227]

Consultation feedback:

Stakeholders expressed that Peel's economy has previously been reliant on its mining and manufacturing sectors to provide employment. However, there is recognition that diversification will be necessary to remain sustainable and resilient to broader economic trends. Industry diversity and a sustainable workforce were the top opportunities identified for the region with 65% of responses centred around these two themes. Stakeholders believe industry diversification will be needed to achieve higher levels of employment self-sufficiency, actively grow its economy, and reduce socioeconomic inequality.

Workshop attendees shared a belief that current further education and training opportunities are inadequate and restrictive due in part to limited diversity of course offerings. Expansion of the region's educational infrastructure was seen as a major opportunity in promoting youth retention and providing adequate opportunities to upskill within the region.

Sector:	Transport
Sub-sector:	Freight infrastructure
Infrastructure gap:	Capacity, connectivity and quality of freight infrastructure

The Peel region's proximity to the Perth Metropolitan Area means it is well served by port and airport infrastructure.[228] The region's closest port is the Fremantle Port which is within 200 kilometres of the regional area, and it is also proximal to the Bunbury Port.[229] The region is also within easy distance of airports including Jandakot Airport, Perth International Airport, and Busselton.[230]

There are five operating mines in the region, including the world's largest bauxite mine and Australia's largest gold mine, as well as two other bauxite mines and a mineral sands mine.[231] Mineral processing facilities include Alcoa's Pinjarra Alumina refinery.[232] The region produces 1% of WA's total mineral production and accounts for 2.3% of the State's value of proven and measured resources.[233] The agriculture industry in the Peel region is diverse with the region renowned for its equine, dairy, horticulture, and livestock industries.[234] Two thirds of the land in the region is comprised of improved agriculture, the largest allocation of any region in Western Australia.[235]

The region is included in the WA Government's *Perth and Peel@ 3.5million – Transport Network*, however the Peel Alliance notes that further detailed planning is required to consider connectivity across all transport nodes, including freight line connections, accounting for value added to the Peel region and its connectivity to its neighbouring areas and greater Perth.[236]

Key facts:

Freight infrastructure, including the South Western and Forrest highways, connect the region to the Perth Metropolitan Area and surrounding South West and Wheatbelt regions.[237]

The *Perth and Peel@ 3.5million – Transport Network* notes future road corridors that will be investigated for possible inclusion in the freight network include the Southern Link Road, Mandjoogoordap Drive (between Kwinana Freeway and Tonkin Highway) and the proposed South Western Highway Deviation.[238]

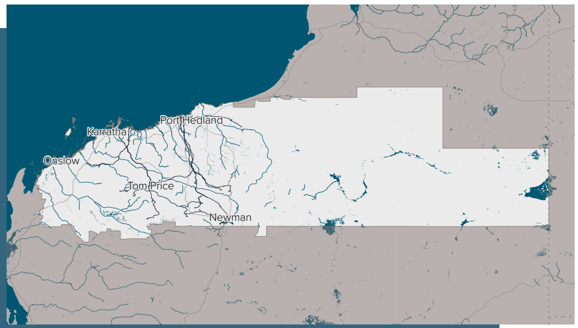
Other areas noted in the *Perth and Peel@ 3.5million – Transport Network* include an identified need for realignment of the freight railway that currently passes through Mundijong, and realignment of the freight rail in Waroona as part of the longer term realignment of South Western Highway.[239]

Impact:

- RDA Peel Strategic Plan 2021-2025 notes that connectivity and infrastructure, incorporating digital connectivity, transport links, freight and supply chain infrastructure, are key foundations for growth in the region.[240]
- Planning for metropolitan freight needs is guided by Perth and Peel@ 3.5million – Transport Network. While the State Government retains control over road network planning and investment, freight rail planning and major investment in the southern part of the State requires cooperation from the private leaseholder of the network, which retains overall control.[241]
- Economic factors tend to play a stronger role in planning for freight infrastructure needs, such as freight roads and rail, intermodal terminals, airports and seaports. Technological innovations will play an increasing role in addressing transport needs across all modes.[242]

Consultation feedback:

Stakeholders noted that the region is in need of improved east-west connectivity to ensure future key freight and logistic assets, such as Westport, are linked to the current network and industrial areas. These connections are expected to deliver access to new domestic and international markets and improve connectivity between industry sectors. Intermodal facilities, integration of current industrial and agricultural areas, the promotion of freight transport into and out of the region, access to port and conflicts with freight traffic and private vehicles were highlighted as priorities.



6.8.6 Pilbara

The Pilbara region is home to many coastal and island assets towards the west, tablelands in the central region and desert terrains towards the east.

The region is best known for its abundant natural resources, with the high value production in the resource sector a major driver of regional and national prosperity. As at June 2021, the region's Gross Regional Product was $57.3 billion.[243] The Regional Development Area (RDA) comprises four local government areas including the City of Karratha, Shires of Ashburton and East Pilbara and the Town of Port Hedland.

The growth of the resources sector, coupled with high costs and challenges in liveability have necessitated the increased presence of fly-in-fly-out workers in the region.[244] However, the region is in transition and seeks to attract new residents through increased liveability from investments in social infrastructure and a greater availability of affordable housing. Growth in the renewable energy sector, including renewable hydrogen production has been recognised as a significant opportunity for the region, and stakeholders recognise the importance of growing local capabilities in this sector through delivering further education and skills training for the community. Infrastructure investment will be important to creating the preconditions for economic diversification and a high standard of living.[245]

Strengths

Key existing assets

Economic	**Gateway ports**	Port Hedland is the world's largest bulk export port and services the region along with Port of Dampier and the Port of Ashburton, in addition to a number of privately owned and operated ports. The region is also connected by Karratha Airport, Port Hedland International Airport and several smaller regional airports.
	Transport infrastructure	An extensive privately-owned rail freight network as well as road network connections support the region's industry.
Natural	**Climate and topography**	The Pilbara has one of the highest levels of direct sunlight in the world, offering immense potential for solar PV generation.
	Natural resources	Significant deposits of iron ore, base metals, oil, gas, and the conditions to manufacture salt, contribute to a large proportion of the region's output.
	Natural environments	Multiple national parks, coastline, and offshore islands provide biodiversity and tourism value.
Social	**Cultural heritage**	The region is home to the Murujuga, the world's largest rock art gallery, and other cultural sites, including the Dampier Archipelago.

Key regional growth industries

Mining	Energy	Transport
Iron ore and liquefied natural gas (LNG) are significant contributors to Pilbara's exports.[246] In 2019-20, the region was responsible for 94% of Australia's iron ore exports.[247] There continues to be significant potential for growth as the industry diversifies into operations for other minerals and engages in downstream processing activities.[248]	Pilbara is well positioned to expand renewable energy sector activities, capitalising on the region's long daylight hours, strong solar radiation and substantial tidal movements.[249] The development of the Pilbara Hydrogen Hub will bring opportunities for green hydrogen production and increased employment opportunities.[250]	The transport, postal and warehousing industry is the third largest employer in Pilbara.[251] The Pilbara now has access to direct freight services between the region and key Asian ports, with regular services operating between Port of Dampier, Port Hedland and Singapore.[252] Growing demands for oil and gas, and the region's proximity to major export markets in Asia, provide significant opportunities for industry growth.[253] The Western Australian Government is currently analysing potential investment options for increasing capacity at Pilbara ports, due to expected growth in cargo demand, as well as forecast export growth in the beef and agribusiness industries.[254]


Karratha Back Beach, Western Australia

Infrastructure gaps

Sector:	Social infrastructure
Sub-sector:	Housing
Infrastructure gap:	Availability, diversity and affordability of housing

Economic growth in the Pilbara is being heavily constrained by a lack of available housing and rising prices in the rental and accommodation market. The cost of living and doing business in the Pilbara also remains high and as a result, efforts to transition the fly-in-fly-out (FIFO) workforce to a local workforce is seeing limited success.[255] To increase local residency numbers, appropriate and additional housing will be necessary.

Although land is available for residential development, the high cost of construction and land purchase is impeding new developments for housing in the region. The factors contributing to higher construction costs include high transportation, labour, accommodation and material costs.[256] In addition, the region's housing market has been quite volatile and the project appetite from developers is low.[257] The issue is further impacted by complexities with employer provided housing, and significantly higher insurance premiums in the region.[258,259]

In the Pilbara the prices of products and services are significantly higher than Perth, with housing, health and personal care all exceptionally high.[260] As a result, low-income households who are already under rental stress face additional challenges in obtaining goods and services, perpetuating cycles of disadvantage. The region's current public housing waitlist is at 467 applicants with an average wait time of 87 weeks.[261]

Key facts:

The Regional Price Index for the Pilbara is

115.7,

the highest across WA in 2019 (against a WA regional average of 105.5).[262]

Median rents increased

8%

in just 12 months from 2018 to 2019 (compared to 4% for Perth).[263,264]

Residential building approvals have increased from

32

in 2019/20

to 169

in 2021/21.[265]

Impact:

- Limited housing stock and inability to access affordable housing and accommodation options is making industry diversification challenging for the region.[266] Small-and-medium enterprises are struggling to compete against major resource companies who have more capital to accommodate workers.
- The need to secure construction activities is becoming urgent, as housing stock levels are very low. Increasingly, prospective employers and employees are unable to find affordable accommodation.[267]
- Limited housing availability and affordability is making it hard to attract workers and encourage the FIFO workforce to settle in the region. As a result, the population for Pilbara has been volatile and a critical factor influencing broader industry investment and activity within the region.[268]

Consultation feedback:

A lack of housing availability and affordability was identified by stakeholders as contributing to labour shortages and inhibiting industry diversification. Businesses in the region are struggling to attract and retain workers due to the limited housing supply. The volatility in the housing market and cost of living has also been a challenge in maintaining standards of liveability for residents.

Stakeholders noted that the recent increases in residential building approvals could largely be attributed to HomeBuilder and Regional Land Booster programmes. Stakeholders also expressed a need to increase the amount of land released for both industry and residential developments to meet demand, especially as the growing number of mines is placing stress on essential services and housing supply. In addition, locals identified a need to refresh and replace the current housing stock which is ageing and perceived as not meeting modern expectations.

Sector:	Social infrastructure
Sub-sector:	Education (tertiary)
Infrastructure gap:	Access to further education and skills training

The Pilbara region's access to further education and skills training is largely limited to North Regional TAFE Karratha Campus which specialises in business, beauty, trades, and skills and high-risk training, and the Pilbara Universities Centre which acts as a hub for students to engage in remote tertiary education. The *Pilbara Strategic Plan 2021/22 – 2023/24* has identified the need for further investment in education and training infrastructure and initiatives that build skilled and unskilled workforce in the region as part of its strategy for skilled workforce attraction and development.[269] Given the region's high level of industrial activity, there is also an opportunity to provide industry-specific research and development in these areas.[270]

There is also a need in the region to improve engagement rates with further education and skills development opportunities, particularly amongst the region's First Nations peoples. First Nations peoples account for 14% of the Pilbara population yet are six times more likely to be unemployed than other residents.[271] This demonstrates a need to build the capacity of First Nations communities through the collaborative delivery of an improved, industry-relevant education and training offering. Collaboration with industry in these areas to share expertise and facilities, particularly those operating within the mining or emerging renewable energy sectors, offers significant potential to deliver bespoke, job-ready training to remote communities. Greater access to quality education and training opportunities is also expected to aid the region in attracting and retaining families, as well as reducing social dislocation.[272]

Key facts:

38%

of residents hold tertiary qualifications.[273]

Approximately

45%

of jobs in the region are in the mining sector.[274]

First Nations residents are

six times

more likely to be unemployed than the balance of the population.[275]

Impact:

- The 2016 Living in the Regions report indicated working-age respondents in the region rated satisfaction with local education and training options at 4.7/10.[276]
- Skills shortages are a major impediment to the economic viability of small-to-medium enterprises in the region, which are crucial to industry diversification for the Pilbara.[277]
- The region's competitiveness, resilience, and prosperity are reliant on a flexible, responsive, and innovative education and training system. Current offerings are not engaging the student cohort with low attendance leading to lower levels of skilled labour amongst the local population.[278]

Consultation feedback:

Consultation with key regional stakeholders identified that there is a need for further education and skills training facilities in the Pilbara which are better aligned to workforce needs and jobs of the future, such as the emerging renewable energy industry. There is currently a significant demand for skills training which is not being met within the region.

Stakeholders also highlighted the importance of education and skills training in aiding industry collaboration and innovation. The importance of aiding remote education and skills training through better digital connectivity was also raised by stakeholders as being crucial to capacity building and future productivity.

Sector:	Energy
Sub-sector:	Electricity and gas
Infrastructure gap:	Distribution, transmission and generation of energy

Electricity infrastructure in the Pilbara has largely evolved in an ad-hoc manner, with multiple owners and operators of generation assets and loosely connected electricity networks.[279] Within the region, the North West Interconnected System (NWIS) is comprised of generation, distribution and transmission assets owned by many different parties, under both private and public ownership.[280] In 2021, new reforms came into operation that established a fit for purpose, light-handed regulatory scheme and an Independent System Operator to facilitate increased competition, and drive greater coordination between the Pilbara networks.[281]

The region has plentiful latent energy resources with gas deposits and natural renewable energy assets including its tidal movements, prolonged daylight hours with high levels of solar radiation and accessible geothermal deposits.[282] These resources have significant economic potential which is currently not being realised due to a lack of large-scale storage and transmission infrastructure to facilitate domestic and global export opportunities.[283,284]

Renewable energy investments for the Pilbara have the potential to assist in diversifying and decarbonising the local economy. The proposed Asian Renewable Energy Hub (AREH), will generate 26 GW of wind and solar energy and is projected to provide 20,000 construction jobs and 3,000 other jobs throughout its operation.[285] Associated new regional employment opportunities and reductions in the cost of power would create a competitive advantage for the region to attract new projects and businesses.[286] To ensure a consistent and reliable energy supply for locals, investments in small-scale, bespoke infrastructure solutions such as microgrids will also be necessary.[287]

Key facts:

Global energy demand to increase
35%
by 2035.[288]

70%
of WA's electricity network to be renewable by 2040.[289]

$50 billion
invested to build 26 GW of wind and solar energy (AREH).[290]

Impact:

- A lack of investment for energy infrastructure such as High Voltage Direct Current (HDVC) transmission infrastructure and microgrids inhibits the region's ability to diversify its economy and export to a growing international renewable energy market.
- The AREH, a proposed wind and solar hybrid renewable energy project, includes up to three GW of generation capacity which will be dedicated for energy users in the Pilbara region and up to 23 GW of generation for production of green hydrogen and green ammonia for export.[291]
- Expansion of the renewable energy industry for the region is expected to attract new residents and businesses, contributing to the economic prosperity of the region.

Consultation feedback:

Stakeholders identified industry diversification into the renewable energy sector as a key opportunity for the region. Stakeholders believe the region is capable of significantly growing its alternative energy production by making use of natural assets such as wind, hydro, solar, and geothermal energy. This could also enable the production of green or blue hydrogen.

During the Pilbara stakeholder workshop, high-voltage, high-capacity energy transmission and distribution infrastructure was also identified as being essential to realising the potential to export Pilbara's renewable energy assets. Furthermore, high-voltage transmission and distribution networks can assist in decarbonising other industries such as minerals processing for the resource sector.

6.8.7 South West

The South West is a rapidly developing region, known for its high-quality food products, agricultural outputs, unique eco-tourism assets, and rich biodiversity.
These assets have contributed to a thriving tourism industry with the region attracting the most visitors in Western Australia outside of Perth.

The Regional Development Area (RDA) comprises 12 local government areas including the City of Bunbury, Harvey Shire, Collie Shire, Dardanup Shire, Capel Shire, Donnybrook-Balingup Shire, City of Busselton, Augusta Margaret River Shire, Nannup Shire, Bridgetown-Greenbushes Shire, Boyup Brook Shire and Manjimup Shire.[292] The region has a broad, complex and diverse economic base, with the industries of manufacturing, construction, mining, agriculture, tourism and timber processing critical to local economic prosperity, and a strong SME and retail sector.[293] The region has also seen significant population growth which has had positive impacts including a skilled workforce and enhanced innovation capabilities. Climate change is emerging as a significant issue for the region highlighted with reduced rainfall impacting future water security and industry growth.

Looking to the future, the region wants to further grow its innovation and industry potential through infrastructure investments and greater industry-aligned further education and skills training. Water security is also a priority, as this is essential to accommodating population and industry growth.

Strengths

Key existing assets

Economic	**Strategic location**	The region benefits from proximity to the Perth metropolitan area and major South East Asian export markets.
	Tourism brand	The region ha1s a reputation for its premium wines and specialty foods, particularly in the Margaret River wine region.
	Gateway ports	The Port of Bunbury provides export capacity for the region's primary industries, and Busselton Margaret River Airport provides passenger connectivity.
Natural	**Natural resources**	Resources include timber as well as deposits of alumina and mineral sands, spodumene, tantalum, tin, bauxite, and lithium.
	Natural environments	Two-thirds of the region is covered by state forest, national parks, regional parks, and an extensive coastline.
Social	**Education and research facilities**	The region is host to South Regional TAFE and Edith Cowan University in addition to various Registered Training Organisations supporting apprenticeships, traineeships and the public sector.

Key regional growth industries

Agriculture, forestry and fishing	Manufacturing	Tourism
The agriculture, forestry and fishing sector is well-established in the South West region, with regional viticulture activity accounting for 25% of Australia's premium wine value.[294] Opportunities exist in the development of agri-innovation hubs, such as the Bunbury node of the South-West WA Hub, which will drive research in drought-resilient agricultural practices.[295]	Manufacturing in the region is highly diverse and makes the largest contribution to the regional economy, accounting for over 22% of regional output.[296] The South West has significant potential to grow advanced manufacturing, with the South West Advanced Manufacturing and Technology Hub (SW AMTECH) already proposed for the Bunbury Geographe region.[297]	The South West region is the most visited tourism destination in WA outside of Perth,[298] and experienced a 6.8% increase in overnight visitor numbers between 2015 and 2019.[299] Nature-based tourism attractions, events, festivals, premium food and beverage offerings and proximity to the capital city, bring significant potential for further growth.[300]

Busselton Jetty in Western Australia

Infrastructure gaps

Sector:	Social infrastructure
Sub-sector:	Education (tertiary)
Infrastructure gap:	Access to further education and skills training

A key strategic priority identified in the South West Regional Development Commission's Strategic Plan 2021–2023 is to deliver, 'a region that has a highly skilled and industry-ready workforce'.[301] The South West currently has a relatively diverse labour force, providing it with significant opportunities to take advantage of industry growth trends and attract businesses and investments through upskilling its current workforce. However, education facilities in the South West would benefit from further investment to adequately provide the specialised facilities and equipment needed to support growth industries such as advanced manufacturing.[302] The COVID-19 pandemic has exacerbated skills shortages in the region, particularly across the tourism, retail and hospitality industries as well as horticulture, viticulture and food manufacturing.[303]

Beyond enabling industry growth and innovation, better matching training offerings with the region's current and future needs would help reduce the unemployment rate in the South West, which has averaged 5.1% from 2018–2020.[304] An example of progress in this area includes work happening in Collie and surrounds to identify training and reskilling opportunities in light of the state's shift to renewable energy and storage.[305] The South West region also has higher levels of youth disengagement at 19.9% as compared to the Western Australia average of 14.6%.[306] Improving access to skills training facilities to deliver job-ready training will help to address these workforce issues, and can also aid the region in attracting and engaging young adults.[307]

Key facts:

Average unemployment rate of

5.1%

(2018–2020).[308]

36.6%

of residents with a post-secondary qualification.[309]

Disengagement rate of

19.9%

among the region's young people.[310]

Impact:

- The COVID-19 pandemic exposed vulnerabilities of having almost half of all jobs in the region in sectors that are highly susceptible to external shocks, such as hospitality, retail, construction, and manufacturing.[311] Housing shortages in the region are exacerbating skills shortages.[312] Access to further education and skills training will help to develop the workforce for future jobs, and further diversify the economy for greater resilience.
- There is a lack of education and training opportunities which meet both student demand and that of local industry and businesses. In addition, the digital economy is expected to demand new skills and create new opportunities dependent on local skills development.
- The region has a lower proportion of students seeking higher education in the South West when compared to metropolitan-based students. There are opportunities to improve engagement in education and skills training through more innovative, industry-ready training opportunities in the region.[313]

Consultation feedback:

Stakeholders identified the importance of developing a skilled workforce to support new and emerging industries in addition to stimulating innovation in existing industries of agriculture, manufacturing, and mining. Further, stakeholders believe that education options within the South West could be improved through better digital connectivity.

Stakeholders also believe greater opportunities for training and career development will further contribute to the region's liveability and ability to attract and retain talent. Workshop attendees also noted that the region is anticipating economic and population growth in coming decades and thus, more educational offerings will be essential to meeting this demand.

Sector:	Water
Sub-sector:	–
Infrastructure gap:	Water security

The South West region has experienced a consistent annual population growth rate of 1.5% (2010–2020),[314] with future water security critical to supporting this population growth as well as the region's diversified economy with major agriculture, manufacturing, and mining.[315] The region relies on surface and groundwater resources which are susceptible to climate fluctuations. However, water security is under threat, with a drying climate and much of the available water flows already licensed for use. CSIRO has named the South West one of the most 'water challenged' parts of the country.[316]

With increasing temperatures, rising sea levels, and reduced rainfall, ensuring the South West has long term water security for agriculture, industry and domestic purposes, whilst preserving the region's rich environmental landscape will be a key challenge.[317] The RDA South West has identified a number of strategies to pre-emptively support local water security, for example increased investment in research and development, water infrastructure and improvements to piped irrigation to support efficiency.[318] Stakeholder feedback has also highlighted the need for wastewater and sewerage infrastructure capable of treating increasing volumes as the region continues to grow. Long-term water planning will be necessary to secure water supplies that are climate-resilient, cater to population growth, and reduce stress on the environment.[319]

Key facts:

Water demand to increase

150%

by 2060.[320]

Winter rainfall forecast to decrease by

15%

by 2030.[321]

Impact:

- Rainfall in the South West has already declined 16% below the long-term average, which has resulted in less surface and groundwater supplies. The reduction of water run-off into rivers and streams has been as much as 50% and reduction in the recharge of aquifers as high as 30%.[322]
- Surface water dams largely supply inland communities of the South West, but with a drying climate, this has triggered the need to improve water supply systems to guarantee water security.[323]
- Tourism and lifestyle industries in the South West are heavily dependent on the natural assets of the region, which are water dependent ecosystems. Declining rainfall has dried out soils which now act as sponges soaking up water when it rains, further declining surface and groundwater assets.[324]

Consultation feedback:

Water security is seen by stakeholders as crucial to the region's economic growth, with mining and agriculture heavily reliant on water supplies. Water security is under pressure with surface and groundwater supplies already utilised. Investment in water infrastructure is needed to enable a reliable and quality water supply that is resilient to climate fluctuations.

Stakeholders also raised the issue that some areas of the South West do not have access to reticulated potable water. Access to wastewater infrastructure is also a major issue as some communities do not have a wastewater treatment plant, which is critical for health, wellbeing, and liveability.

Sector:	Place and economic development
Sub-sector:	–
Infrastructure gap:	Industry enabling infrastructure to support growth and innovation

The South West is a fast-growing region with a strong industrial and agricultural labour force and growing capabilities in the digital sector.[325] Optimising potential in these areas will rely on the region attracting and retaining skilled workers, a goal which can be enabled through provision of high-quality social and community infrastructure.[326] Infrastructure which enables development of sector-specific knowledge or innovation hubs, including robust digital, transport and essential services infrastructure, will also help optimise the capacity of businesses to operate efficiently in co-located strategic precincts.[327]

The region has identified six priority sectors for growth and diversification opportunities, including technology and advanced manufacturing; mining and mining equipment, technology and services; sustainable and green energy; agriculture, forestry and fishing; tourism, events and creative industries; and trade and investment.[328]

Sustainable and green energy, particularly affordable green energy is necessary for supporting the competitiveness of regional industries, including the resource and manufacturing sectors. Investment in energy infrastructure can help the region to make the most of renewable energy options and opportunities to decarbonise. Quality transport infrastructure is also a supply chain facilitator of market access. A sophisticated port, rail and road network within reach of current and emerging manufacturers, mining operations and industries will support the region's position as an industry hub and export gateway, and support industry competitiveness. Additional rail corridor capacity will facilitate efficiency, reduced road usage and will improve both industry and social outcomes.

Key facts:

The region demonstrates significant growth potential, with Gross Regional Product having increased

30%

from 2015–2020.[329]

Five industries employ over

50%

of the region's workforce (retail, health care and social assistance, construction, education and training and manufacturing).[330]

The region is home to the world's largest

lithium

deposit, an asset offering significant value-add potential if enabling infrastructure is in place.[331]

Impact:

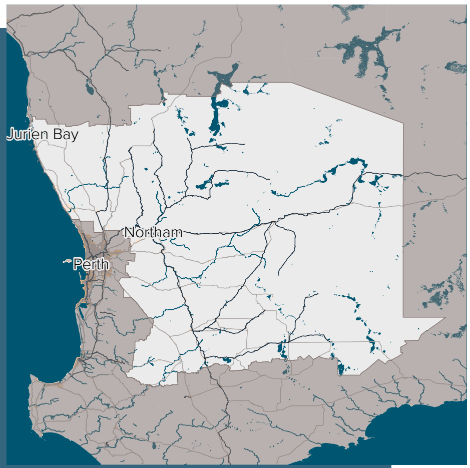
- Whilst the region has benefited from economic growth in recent years, the COVID-19 pandemic has exposed vulnerabilities in an over-reliance on a limited number of industries. A housing shortage in the region has also exacerbated current skills shortages.[332] To maintain and build economic resilience, new infrastructure to support innovation must be in place to support enterprise and diversify employment opportunities.[333]
- The South West has significant potential for growth in value-add processes related to traditional industries. The region exports 21% of the global supply of alumina, almost a third of all lithium, and is Australia's only silicon manufacturer.[334] However, attracting investments to capitalise on this growth will require world-class infrastructure.
- Infrastructure investments for roads, transport, land, utilities, freight, and digital technology will be required to ensure the region protects its areas of competitive advantage both locally and globally, and secures its future economic growth and investment attraction.[335]

Consultation feedback:

Industries identified for growth by stakeholders included tourism, agriculture and food, manufacturing, lithium export, and hydrogen. Infrastructure investments are expected to help unlock growth potential with digital technologies raised frequently as an enabler to innovation, especially for the advanced manufacturing, mining, and agricultural industries.

Investment in transport was also identified as a key driver for future prosperity, as improved physical connections between communities in the region as well as external to the region improve market access. Stakeholders also placed great value on the industry growth potential to be derived from increased efficiencies in supply chains through airfreight options and improved rail freight.

6.8.8 Wheatbelt



The Wheatbelt region is situated in the south west of Western Australia and is home to a population spread over nearly 200 towns and smaller settlements within 42 local government areas.[336] A premium agricultural region that is the state's main producer of cereal crops, the region also supports a diverse economy compromising mining, commerce, retail, manufacturing, fishing and tourism. These industries are supported by a wealth of small to medium enterprises (SMEs) which help drive the regional economy and population growth.

The Wheatbelt has seen population trends vary across the region, with growth in peri-urban areas and decline for some remote communities. The region has also seen an increase in reliance on digital connectivity with the emergence of online services and increased adoption of new technologies.

As the region plans for the future, it has identified digital connectivity, water security and energy transmission infrastructure as being critical to supporting its communities and industries. Digital connectivity will be important to enabling industry to adopt new technologies for growth and communities to access online services. Water and energy infrastructure are also expected to require further investment to adapt to changing energy needs and water security demands.

Strengths

Key existing assets

Economic	**Energy infrastructure**	The region makes a substantial contribution to the state's renewable energy production through wind and solar as well as biomass. The region's electricity is supplied by the South West Interconnected System which comprises 7,800 km of transmission lines.
	Strategic location	Proximity to Perth supports the region's peri-urban growth whilst enabling access to markets, labour, services and visitors. Access to the Goldfields-Esperance region provides growing opportunities for business models that service the agriculture and mining sector.
	Transport infrastructure	Eastern Goldfields Rail and major road transport links pass through the region, providing access to markets for primary producers. The local freight rail network plays a critical role in transporting significant agriculture exports, in particular grains throughout the year.
Natural	**Climate and topography**	The region has a large area of arable land and a mild climate which underpins the local agricultural sector. However, projected changes in climate for the region, including rising temperatures and declining rainfall may have implications for the region's agricultural production.
	Natural environments	The Pinnacles, Wave Rock and the Great Western Woodlands are among the region's renowned landscapes.
	Natural resources	The region is rich in mineral resources, including gold, iron ore, gravel and limestone as well as lithium, nickel, copper and kaolin, which contribute significantly to local economic output.

Key regional growth industries

Agriculture, forestry and fishing	Mining
Agriculture is the largest industry in the region, accounting for almost 26% of regional output.[337] The region is the primary producer of cereal crops in the state and contributes other agricultural products such as canola, olives, vegetables, wine grapes, honey, citrus fruits and livestock.[338] The Wheatbelt region's growth opportunities lie in engaging with value-adding processes such as niche food productions, wine and beverage manufacturing, horticulture and aquaculture.[339,340]	Mining is the second largest industry in the Wheatbelt region, producing approximately $2.36 billion of output in 2018-19[341]. With known mineral deposits and potential for gold, iron ore, gypsum, nickel, tin, tantalum, lithium, copper, lead, zinc, uranium and clays the region continues to be subject to exploration activity.[342] The industry includes businesses in the region which provide mining support services.[343]
Energy	**Tourism**
With conditions conducive to wind, solar and biomass generation, the Wheatbelt region has considerable prospects in renewable energy production, already contributing to over 50% of the state's renewable energy from wind farms.[344,345] The region hosts the state's largest wind farm with a strong pipeline of projects to expand capacity.[346,347] Bioenergy is also an emerging sub-sector, with Wheatbelt considered ideal for large scale production.[348]	The region's tourism industry is characterised by its significant nature-based offerings, including coastlines and inland landscapes, including Wave Rock and Great Western Woodlands, unique biodiversity, and food and agritourism experiences.[349] Upward trajectory of overnight visitor numbers, from 824,000 in 2013–2015 to over 1 million in 2017–2019, demonstrates the region's potential for tourism growth particularly from intrastate visitors, who make up the majority of the local tourism market.[350] With rich First Nations heritage in the area, there is opportunity to expand opportunities for associated tourism and educational offerings, leveraging proximity to the Perth metropolitan area.[351]


Wheatbelt, Western Australia

Infrastructure gaps

Sector:	Telecommunications
Sub-sector:	–
Infrastructure gap:	Broadband and digital connectivity

There is growing demand for better telecommunications infrastructure in the Wheatbelt region. Issues include reliable internet connectivity, adequate data speeds, data allowances and mobile coverage.[352] This has impacted local communities and businesses by limiting the capacity for remote working, attracting investment, responding and recovering from emergencies and leveraging new technologies.[353] Despite the rollout of new mobile phone towers since 2013 as part of the Mobile Black spot Program, mobile coverage has still been an issue in the region for residents and businesses, including local agribusinesses.[354] In parts of the region, a lack of mobile coverage prevents communities from utilising available technologies while working away from the primary residence.[355]

Internet connectivity in the region is through Sky Muster, ADSL or Fixed Wireless services and mobile Wi-Fi.[356] The growing number of users that connect to Sky Muster for internet connection has had negative impacts on data limits, data speeds and costs.[357] ADSL and Fixed Wireless Services have also had low speeds and limiting data allowances.[358]

Inadequate infrastructure has led to the delivery of local solutions including privately owned base stations or fibre optic connections.[359] These solutions only benefit some of the community but demonstrate the opportunities that lie in innovative, bespoke infrastructure solutions for the region. Recent introduction of LEO satellite technology through the early deployment of Starlink in parts of the region also has the potential to transform the local telecommunications landscape and help meet the demand for better connectivity.[360,361]

Key facts:

73% of workers consider mobile coverage to be the most important issue in the success of their business.[362]

The region's 42 local government areas averaged a 2021 Australian Digital Inclusion Index (ADII) score of 44.4, ranging from 61 to 67. This is below the West Australian average of 72.[363]

Sky Muster connectivity is an issue for 96% of agribusinesses.[364]

Impact:

- Inadequate telecommunications infrastructure has limited the delivery of digital businesses, education and health services.[365] These challenges have been made more apparent through the COVID-19 pandemic.
- Beyond a lack of infrastructure to support connectivity, poor digital literacy is an issue in enabling digital inclusion in the region.[366]
- Failure to provide adequate infrastructure in the region is a driver of social isolation. Broadband and mobile connectivity are critical for social connectivity in the region to participate in local networks, local research, access local shire websites and e-newsletters.[367]

Consultation feedback:

Key issues identified in regional consultation included unreliable network access and variable mobile coverage. These were perceived as inhibiting business investment, future opportunities for the region and delivery of vital services such as education.

Stakeholders noted there has been an increased reliance on digital connectivity in the region, which has seen a rise in online businesses, as well as the use of telehealth, making appropriate infrastructure a top priority. Stakeholder feedback noted that the region has made significant investments in digital infrastructure to enable e-health, include equipping health services with digital and information systems and providing greater access to telehealth services.[368,369]

In contrast, there is some concern over the rise in technology and how this will threaten businesses operating using traditional means, with digital literacy noted as being a complimentary requirement for improving connectivity.

Sector:	Water
Sub-sector:	–
Infrastructure gap:	Water security

Infrastructure to enhance water security is of paramount importance to the Wheatbelt region. Water is supplied predominantly via the Goldfields Agricultural Water Supply Scheme and Integrated Water Supply System.[370] Other water infrastructure including dams, localised water supply systems, rainwater collection and groundwater abstraction are used to provide water to the community and agricultural industries.[371]

Peri-urban growth, industry expansion, climate change and rising salinity will increase demand on freshwater resources.[372] Developing water efficient infrastructure for townships, residences and industry will mitigate these challenges. Delivery of stormwater harvesting and water recycling infrastructure and reducing scheme water sourced from aquifers will improve water security.[373] Delivery of stormwater harvesting and water recycling infrastructure and reducing scheme water sourced from aquifers will improve water security.[374] Currently desalination is not cost efficient for widespread introduction, however offers an opportunity for further investigation.[375]

Ageing infrastructure has also resulted in leaks.[376] There is a need to upgrade infrastructure to support the pumping, treatment and delivery of water to support the region's growth. Leak repairs in conduits and dams will reduce water wastage.

Key facts:

50%

of WA's local government areas that experience issues with high rates of salinity are in the Wheatbelt region.[377]

Leaks contribute to

2.7 billion litres

of unaccounted water annually.[378]

Over

20%

of WA's water deficiency declarations since 2019 have been in the Wheatbelt region.[379,380]

Impact:

- Insecure water supplies will negatively impact agriculture production in the region. Agriculture, forestry and fishing currently accounts for 46% of the region's exports.[381]
- Insufficient water resources infrastructure will increase susceptibility to drought impacts. Climate change research indicates an increase in rainfall variability and long periods without rain, indicating the need for efficient infrastructure.[382]
- Limited availability of freshwater has multiple negative social and commercial impacts including anxiety and income stress for businesses.

Consultation feedback:

Stakeholders noted that water security issues in the region placed its agriculture and mining industries at risk and threatened effective functioning of businesses and emergency services. However, stakeholders also believed the region could leverage its best practice agricultural knowledge, including its water efficient agricultural methods, to generate new value and drive productivity.

Stakeholders felt water resource issues resulted from poor governance and decision-making. They felt water management decisions have been made previously without engaging the community or understanding the region's strategic priorities and profile. Another issue raised was that delivery of infrastructure has failed to consider future trends, particularly the impact of climate change on water security.

Sector:	Energy
Sub-sector:	Electricity and gas
Infrastructure gap:	Distribution, transmission and generation of energy

Energy to the Wheatbelt region is supplied by the South West Interconnected System (SWIS), distributed via the South West Interconnected Network.[383] The changing profile of the region has driven the need to reinforce infrastructure to boost supply and efficiency. The system was originally designed for low load densities typical for agriculture, however growth of mining and the general population has brought new challenges.[384] Despite ample renewable energy generation, connection costs and capacity constraints have limited renewable energy supply into the SWIS.[385]

Energy is typically distributed via radial supply networks. This infrastructure is unreliable, due to environment exposure and use of wooden transmission poles.[386] Towns located at the end of the network face long response times to fix infrastructure in emergencies such as Cyclone Seroja. Due to unreliability, towns have generators for key services, but not all residents are supported.[387] There is a strong need for end of grid localised power generation infrastructure, potentially renewable, to improve reliability and cost efficiency.[388]

The region is one of three locations currently being scoped by Western Power and the State Government for the development of a renewables-based disconnected microgrid pilot.[389] Operating independently from the rest of the grid, and supported by battery energy storage, these small, isolated and self-supporting networks have the potential to help build the reliability, quality and supply of energy in regional towns and remote communities.[390] For regional and remote communities in the Wheatbelt, they may provide a sustainable and cost-effective alternative to replacing parts of the ageing distribution network, which can cause poor reliability and power interruptions.

Key facts:

The region generates at least

50%

of WA's renewable energy.[391]

The 30-year cost of supply in the region is

$240,000

per customer.[392]

141

power poles downed by Cyclone Seroja, demonstrating increased risks posed by more frequent natural disasters.[393]

Impact:

- Capital cost of connecting new commercial and residential development to the network has been a constraint on new projects.[394]
- Power outages are a key source of stress for residents, who can be left without power for multiple days.[395]
- Inefficient and unreliable energy supply negatively impacts businesses with no access to backup generators. The government's rollout of Standalone Power Systems to support residents has markedly improved this but does not support all community members.[396]

Consultation feedback:

Stakeholders identified energy infrastructure critical for not just basic liveability, but also further growth of the local economy. Stakeholders felt the local regional communities should have their needs and preferences reflected in state strategic planning and future infrastructure services and assets.

Slow rollout of infrastructure has been a challenge for the region. Stakeholders felt that by the time rollouts are finished, industry-best standards have changed, and the new systems are sub-optimal or redundant. Respondents agreed future power solutions need to address forecasts and trends such as renewable energy adoption and the region's ageing assets. Growth of renewable energy utilisation and the potential for export was perceived as a key strength of the region going forward to help mitigate power issues, attract investment and improve liveability.

References

1 Goldfields Esperance Development Commission, n.d., ***Lithium and energy materials investment in the Goldfields-Esperance region***, available via: https://www.gedc.wa.gov.au/GEDCRDS/media/documents/Lithium-and-Energy-Material-Opportunities.pdf

2 Australian Venture Consultants on behalf of Goldfields Voluntary Regional Organisation of Councils, 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, p4, available via: https://www.rdage.com.au/aboutus/projects/.

3 Goldfields Esperance Development Commission 2019, ***Lithium and energy materials investment in the Goldfields-Esperance region***, Department of Primary Industries and Regional Development, Kalgoorlie, p 1, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/IP-FINAL-LOW-RES.pdf.

4 City of Kalgoorlie-Boulder 2019, ***Jobs for the Future in Regional Areas Submission***, City of Kalgoorlie-Boulder, Boulder, p 4, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/IP-FINAL-LOW-RES.pdf.

5 ***REMPLAN 2021***, Goldfields-Esperance Region, REMPLAN, viewed 12 July 2021, https://appremplan.com.au/goldfieldsesperanceregion/economy/summary.

6 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, West Perth, p 38, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

7 Goldfields Esperance Development Commission 2017, ***Kalgoorlie-Boulder Investment Prospectus 2017***, Goldfields Esperance Development Commission, Kalgoorlie, p 14, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/IP-FINAL-LOW-RES.pdf.

8 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, West Perth, p 3, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

9 Goldfields Esperance Development Commission, ***Invest in the Esperance Region***, Goldfields Esperance Development Commission, Kalgoorlie, p 2, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/Invest-in-the-Esperance-Region.pdf.

10 Goldfields Esperance Development Commission 2019, ***Aquaculture investment opportunities in the Goldfields-Esperance region***, Department of Primary Industries and Regional Development, Kalgoorlie, p 1, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/Aquaculture-Opportunities-Goldfields-Esperance.pdf.

11 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 105, available via: www.gedc.wa.gov.au/our-region/regional-plans/goldfields-esperance-regional-investment-blueprint.

12 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 105, available via: www.gedc.wa.gov.au/our-region/regional-plans/goldfields-esperance-regional-investment-blueprint.

13 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 106, available via: www.gedc.wa.gov.au/our-region/regional-plans/goldfields-esperance-regional-investment-blueprint.

14 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 108, available via: www.gedc.wa.gov.au/our-region/regional-plans/goldfields-esperance-regional-investment-blueprint.

15 Australian Venture Consultants on behalf of Goldfields Voluntary Regional Organisation of Councils, 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, p7, available via: https://www.rdage.com.au/aboutus/projects/.

16 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 107, available via: www.gedc.wa.gov.au/our-region/regional-plans/goldfields-esperance-regional-investment-blueprint.

17 REMPLAN 2021, ***Goldfields-Esperance region: economy, trends***, building approvals, REMPLAN, viewed 18 July 2021, available via: https://app remplan.com.au/goldfieldsesperanceregion/economy/trends/building-approvals-count.

18 REMPLAN 2021, ***Goldfields-Esperance region: community, population, age***, REMPLAN, viewed 18 July 2021, available via: https://app remplan.com.au/goldfieldsesperanceregion/community/population/age.

19 WA Recovery 2021, ***Goldfields-Esperance Recovery Plan***, WA Recovery, available via: www.wa.gov.au/sites/default/files/2020-08/Goldfields-Esperance-Recovery-Plan.pdf.

20 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 107, available via: www.gedc.wa.gov.au/our-region/regional-plans/goldfields-esperance-regional-investment-blueprint.

21 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 107, available via: www.gedc.wa.gov.au/our-region/regional-plans/goldfields-esperance-regional-investment-blueprint.

22 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, Government of Western Australia, Kalgoorlie, p 107, available via: https://www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf

23 GVROC 2022, GVROC Housing Strategy, p4, available via: https://www.gvroc.com/_files/ugd/13930a_63392261ef5845fc93b332e3fe096c34.pdf.

24 City of Kalgoorlie Boulder 2019, ***Kalgoorlie-Boulder Higher Education and Training Guide***, City of Kalgoorlie Boulder, Boulder, p 7, available via: www.gedc.wa.gov.au/news-and-media/publications.

25 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 11, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf

26 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 11, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf.

27 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 88, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf.

28 REMPLAN 2021, ***Goldfields-Esperance region: community, education, qualification***, REMPLAN, viewed 18 July 2021, available via: https://app.remplan.com.au/goldfieldsesperanceregion/community/education/qualifications.

29 .id Consulting 2022, ***RDA Goldfields-Esperance - Education institution attending***, .id Consulting, viewed 4 March 2022, https://profile.id.com.au/rdage/education?BMID=40

30 REMPLAN 2021, ***Goldfields-Esperance region: Economy, Trends, Jobs***, REMPLAN, viewed 18 July 2021, https://app.remplan.com.au/goldfieldsesperanceregion/economy/trends/jobs.

31 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 11, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf.

32 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 88, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf.

33 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 11, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf.

34 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 143, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf.

35 Goldfields-Esperance Development Commission 2016, ***Goldfields-Esperance Regional Investment Blueprint: A plan for 2050***, GEDC, Kalgoorlie, p 111, available via: www.gedc.wa.gov.au/GEDCRDS/media/documents/G-E_Regional_Investment_Blueprint.pdf.

36 Australian Venture Consultants 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, Goldfields Voluntary Regional Organisation of Councils, Kalgoorlie, pp 97-100, available via: https://rdage.com.au/publications.

37 Australian Venture Consultants 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, Goldfields Voluntary Regional Organisation of Councils, Kalgoorlie, pp 97-100, available via: https://rdage.com.au/publications.

38 Australian Venture Consultants 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, Goldfields Voluntary Regional Organisation of Councils, Kalgoorlie, p 99, available via: https://rdage.com.au/publications.

39 Australian Venture Consultants 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, Goldfields Voluntary Regional Organisation of Councils, Kalgoorlie, p 98, available via: https://rdage.com.au/publications.

40 Road Safety Commission 2019, ***Goldfields-Esperance***, Government of Western Australia, viewed 18 July 2021, available via: www.rsc.wa.gov.au/Statistics/Regional-Statistics/Goldfields-Esperance.

41 RoadWise 2021, ***RoadWise: Goldfields-Esperance Region***, WA Local Government Association, viewed 19 July 2021, available via: www.roadwise.asn.au/roadsafety/goldfields-esperance.aspx.

42 REMPLAN 2021, ***Goldfields-Esperance Region***, REMPLAN, viewed 12 July 2021, https://appremplan.com.au/goldfieldsesperanceregion/economy/summary.

43 Australian Venture Consultants 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, Goldfields Voluntary Regional Organisation of Councils, Kalgoorlie, pp 1-5, available via: https://rdage.com.au/publications.

44 Australian Venture Consultants 2020, ***An infrastructure Strategy for industry growth: Opportunities identification study***, Goldfields Voluntary Regional Organisation of Councils, Kalgoorlie, p 32, available via: https://rdage.com.au/publications.

45 Taylor, B et al. 2017, ***Strategic foresight for regional Australia: Megatrends, scenarios and implications***, CSIRO and Australian Government Department of Infrastructure, Regional Development and Cities, Canberra, p 34, available via: https://publications.csiro.au/rpr/download?pid=csiro:EP175665&dsid=DS2.

46 REMPLAN 2021, ***Great Southern Region: Economy Summary***, REMPLAN, viewed 15 July 2021, https://appremplan.com.au/greatsouthernregion/economy.

47 Bankwest Curtin Economics Centre 2019, ***Future-Proofing the WA Economy***, Bankwest Curtin Economics Centre, Bentley, p 149-150, available via: https://bcec.edu.au/assets/2019/08/BCEC-Future-Proofing-the-WA-Economy-report.pdf.

48 Shire of Katanning, n.d., ***Katanning Regional Sheep Saleyards***, viewed 11 January 2022, available via: https://www.katanning.wa.gov.au/explore/things-to-see-and-do/regional-saleyards.aspx.

49 Great Southern Development Commission, n.d., ***Aquaculture***, viewed 11 January 2022, available via: https://www.gsdc.wa.gov.au/our-activities/our-projects/aquaculture/

50 Regional Development Australia Great Southern, ***Our Regions Industry***, RDA Australia Great Southern, viewed 15 July 2021, www.rdagreatsouthern.com.au/our_region_industry.html

51 Regional Development Australia Great Southern, ***Our Regions Industry***, RDA Australia Great Southern, viewed 15 July 2021, www.rdagreatsouthern.com.au/our_region_industry.html

52 Great Southern Centre for Outdoor Recreation Excellence 2018, ***Great Southern Outdoor Recreation Strategy 2018 -2021***, Great Southern Centre for Outdoor Recreation Excellence, Albany, p 20, available via: https://outdoorsgreatsouthern.org.au/wp-content/uploads/2018/10/Great-Southern-Outdoor-Recreation-Strategy-2018-2021_FINAL.pdf.

53 Kimberley Development Commission, Economy, ***Great Southern Development Commission***, viewed 15 July 2021, www.gsdc.wa.gov.au/our-region/economy/

54 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

55 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

56 Great Southern Development Commission 2015, Great Southern Regional Investment Blueprint, Great Southern Development Commission, p 165, available via https://www.gsdc.wa.gov.au/media/1062/great-southern-regional-investment-blueprint-october-2015.pdf

57 Government of Western Australia Department of Transport 2010, ***Western Australian regional freight transport network plan***, WA DoT, Perth, pp 9–37, available via: www.transport.wa.gov.au/Freight-Ports/regional-freight-plan.asp.

58 CPH Group, 2022, ***Records smashed as Western Australia growers deliver 21.3 million tonnes***, available via: https://www.cbh.com.au/media-releases/2022/02/records-smashed-as-western-australian-growers-deliver-21-million-tonnes.

59 Regional Development Australia Great Southern WA 2013, Regional Plan 2013-2018, RDA Great Southern WA, p 23, available via http://www.rdagreatsouthern.com.au/pdf/RDA_RegionalPlan_web.pdf

60 Government of Western Australia Department of Transport 2010, ***Western Australian regional freight transport network plan***, WA DoT, Perth, pp 9–37, available via: www.transport.wa.gov.au/Freight-Ports/regional-freight-plan.asp.

61 REMPLAN 2020, ***Great Southern Region: Economy, Industries, Employment***, REMPLAN, viewed 12 July 2021, http://app.remplan.com.au/greatsouthernregion/economy/industries/employment.

62 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

63 Great Southern Development Commission 2015, Great Southern Regional Investment Blueprint, Great Southern Development Commission, p 165, available via https://www.gsdc.wa.gov.au/media/1062/great-southern-regional-investment-blueprint-october-2015.pdf

64 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

65 Great Southern Development Commission 2015, Great Southern Regional Investment Blueprint, Great Southern Development Commission, p 165, available via https://www.gsdc.wa.gov.au/media/1062/great-southern-regional-investment-blueprint-october-2015.pdf

66 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

67 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

68 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

69 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

70 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, pp 34-35, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

71 Water Corporation n.d., Great Southern, ***Water Corporation***, viewed 11 January 2022, https://www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA/Great-Southern.

72 Water Corporation n.d., Great Southern, ***Water Corporation***, viewed 11 January 2022, https://www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA/Great-Southern.

73 Government of Western Australia Department of Water 2014, ***Great Southern regional water supply strategy***, WA DoW, Perth, p 2, available via: www.water.wa.gov.au/__data/assets/pdf_file/0005/2939/108261.pdf.

74 Water Corporation n.d., ***Responding to Climate Change***, Water Corporation, viewed 11 January 2022, https://www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA/Great-Southern/Responding-to-climate-change.

75 Water Corporation n.d., ***Great Southern***, Water Corporation, viewed 11 January 2022, https://www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA/Great-Southern.

76 Water Corporation, 2021, ***Securing Denmark's future water supply***, available via: https://www.watercorporation.com.au/About-us/Latest-updates/August-2021/Securing-Denmarks-future-water-supply

77 Water Corporation, 2021, ***Securing Denmark's future water supply***, available via: https://www.watercorporation.com.au/About-us/Latest-updates/August-2021/Securing-Denmarks-future-water-supply

78 Great Southern Development Commission, 2021, ***Housing and Land Snapshot***, p6, available via: https://www.gsdc.wa.gov.au/media/2362/gs-housing-and-land-snapshot-v2-dec21.pdf.

79 Great Southern Development Commission, 2021, ***Housing and Land Snapshot***, p41, available via: https://www.gsdc.wa.gov.au/media/2362/gs-housing-and-land-snapshot-v2-dec21.pdf.

80 Government of Western Australia, 2021, ***Premier unveils plans for new housing in Albany's Spencer Park***, available via: https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/09/Premier-unveils-plans-for-new-housing-in-Albanys-Spencer-Park.aspx

81 RDA Great Southern, 2013, ***Regional Plan 2013-2018***, p21, available via: http://www.rdagreatsouthern.com.au/pdf/RDARegionalPlan2013_2018.pdf.

82 Anglicare WA 2021, ***Rental Affordability Snapshot 2021 Western Australia***, Anglicare WA, Perth, pp 2–14, available via: https://www.anglicarewa.org.au/docs/default-source/advocacy/anglicare-wa---rental-afforability-snapshot-2021.pdf?sfvrsn=dba8e99b_6.

83 Great Southern Development Commission, 2021, ***Housing and Land Snapshot***, p6, available via: https://www.gsdc.wa.gov.au/media/2362/gs-housing-and-land-snapshot-v2-dec21.pdf.

84 Great Southern Development Commission, 2021, ***Housing and Land Snapshot***, p6, available via: https://www.gsdc.wa.gov.au/media/2362/gs-housing-and-land-snapshot-v2-dec21.pdf.

85 Shelter WA ***New report finds housing stress in WA's regions at unprecedented levels***, media release, Shelter WA, 8 March 2021, available via: www.shelterwa.org.au/peak-housing-and-homelessness-body-shelter-wa-has-released-new-data-today-that-has-found-homelessness-and-rental-stress-in-was-regions-at-record-levels-the-heat-map-summary-report-was-prod/.

86 Great Southern Development Commission, 2021, ***Housing and Land Snapshot***, p41, available via: https://www.gsdc.wa.gov.au/media/2362/gs-housing-and-land-snapshot-v2-dec21.pdf.

87 Great Southern Development Commission, 2021, ***Housing and Land Snapshot***, p6, available via: https://www.gsdc.wa.gov.au/media/2362/gs-housing-and-land-snapshot-v2-dec21.pdf.

88 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p32, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

89 Australian Government, Office of Northern Australia, November 2021, ***Our North, Our Future: 2021-2026***, p11, available via: https://www.infrastructure.gov.au/sites/default/files/documents/Our-North-Our-Future-2021-2026-Targeted-Growth.pdf.

90 Pacific Hydro 2020, The Ord Hydro Plant, viewed 11 May 2022, www.pacifichydro.com.au/projects/operations/the-ord-hydro-plant/.

91 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p37, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

92 .id Consulting 2021, ***RDA Kimberley: Reports***, .id Consulting, viewed 14 July 2021, https://economy.id.com.au/rda-kimberley/reports

93 id Consulting 2021, ***RDA Kimberley (Broome)***, viewed 11 January 2022, available via: https://economy.id.com.au/rda-kimberley/value-add-by-industry?WebID=110.

94 Kimberley Development Commission 2020, ***Minerals and Energy***, Kimberley Development Commission, viewed 15 July 2021, https://kdc.wa.gov.au/economic-profile/minerals-energy/.

95 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, p 7, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf.

96 Kimberley Development Commission 2021, ***Primary Industries***, Kimberley Development Commission, viewed 15 July 2021, https://kdc.wa.gov.au/economic-profile/primaryindustries/.

97 Kimberley Development Commission 2021, ***Primary Industries***, Kimberley Development Commission, viewed 15 July 2021, https://kdc.wa.gov.au/economic-profile/primaryindustries/.

98 Kimberley Development Commission 2021, ***Primary Industries***, Kimberley Development Commission, viewed 15 July 2021, https://kdc.wa.gov.au/economic-profile/primaryindustries/.

99 REMPLAN 2021, ***Kimberley Region: Economy***, REMPLAN, viewed 14 July 2021, https://app.remplan.com.au/kimberleyregion/economy#:~:text=The%20Kimberley%20is%20made%20up,to%20the%20region's%20diverse%20economy.

100 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, p 6, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf.

101 Kimberley Development Commission 2019, ***Kimberley tourism hits record highs***, Kimberley Development Commission, viewed 15 July 2021, https://kdc.wa.gov.au/tourism-visitors-hit-record-high-in-the-kimberley/.

102 Regional Development Australia Kimberley 2021, ***2021 Regional Telecommunications Review Submission***, available via: https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-605-rda-kimberley.pdf

103 Government of Western Australia Department of Primary Industries and Regional Development 2018, ***Submission to the 2018 Regional Telecommunications Independent Review Committee Inquiry***, WA DPIRD, Perth, available via: http://communications.gov.au/sites/default/files/submissions/department_of_primary_industries_and_regional_development_wa_dpird.pdf.

104 Regional Development Australia Kimberley 2021, ***2021 Regional Telecommunications Review Submission***, available via: https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-605-rda-kimberley.pdf

105 Regional Development Australia Kimberley 2020, ***Business in the Kimberley***, RDA Kimberley, Broome, available via: www.rdakimberley.com.au/wp-content/uploads/2020/03/Business-in-the-Kimberley-report-final-web.pdf.

106 Government of Western Australia Minister for Regional Development, Agriculture and Food, ***Hydrogen Industry Connectivity boost for remote tourist gems***, media release, Government of Western Australia, Perth, 22 May 2021, available via: http://mediastatements.wa.gov.au/Pages/McGowan/2021/05/Connectivity-boost-for-remote-tourist-gems.aspx.

107 ***Kimberley Development Commission Digital connectivity boost for the Ord***, media release, Kimberley Development Commission, Broome, 13 December 2018, available via: https://kdc.wa.gov.au/digital-connectivity-boost-for-the-ord/.

108 Regional Development Australia Kimberley 2021, Submission to the 2021 Regional Telecommunications Review Submission, available via: https:// www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-605-rda-kimberley.pdf

109 Bankwest Curtin Economics Centre 2018, ***Falling through the net: The digital divide in Western Australia***, Bankwest Curtin Economics Centre, Bentley, available via: https://bcec.edu.au/assets/2018/08/BCEC-Falling-Through-the-Net-The-Digital-Divide-in-WA.pdf.

110 Bankwest Curtin Economics Centre 2018, ***Falling through the net: The digital divide in Western Australia***, Bankwest Curtin Economics Centre, Bentley, available via: https://bcec.edu.au/assets/2018/08/BCEC-Falling-Through-the-Net-The-Digital-Divide-in-WA.pdf.

111 Thomas, J et al. 2021, Australian digital inclusion index 2021, available via: https://www.digitalinclusionindex.org.au/dashboard/National.aspx.

112 East Kimberley Chamber of Commerce, 2021, ***Regional Telecommunications Review 2021***, available via: https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-302-ekcci-pt-1.pdf

113 Regional Development Australia Kimberley 2021, ***2021 Regional Telecommunications Review Submission***, available via: https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-605-rda-kimberley.pdf

114 O'Connor, T 'Ground based GPS stations hoped to boost mining, agriculture and Indigenous land management in Kimberley', ***ABC News***, 18 April 2021, available via: http://abc.net.au/news/2021-04-18/gps-uprade-kimberley/100071694

115 Kimberley Development Commission, 2021, ***Kimberley Region Housing Snapshot September 2021***, available via: https://kdc.wa.gov.au/wp-content/uploads/2021/09/Kimberley-Housing-Snaphot-September-2021.pdf.

116 Kimberley Development Commission, 2021, ***Kimberley Region Housing Snapshot September 2021***, available via: https://kdc.wa.gov.au/wp-content/uploads/2021/09/Kimberley-Housing-Snaphot-September-2021.pdf.

117 Shire of Broome 2021, ***Housing in the Shire of Broome***, Shire of Broome, viewed 16 July 2021, http://broome.wa.gov.au/Community/Housing-in-the-Shire-of-Broome.

118 Thomas, S, 2021, ***Opinion: Time for action on regional housing shortage***, viewed 11 January 2022, available via: https://www.farmweekly.com.au/story/7319375/opinion-time-for-action-on-regional-housing-shortage/.

119 McKenzie, F 2014, ***The Challenge of Affordable Housing in Regional and Remote Communities***, Parliament of Australia, Canberra, available via: https://www.aph.gov.au/parliamentary_business/committees/senate/economics/affordable_housing_2013/submissions?main_0_content_1_RadGrid1ChangePage=3_20.

120 Barry, H 'Holistic Kimberley housing program helps people into their own homes during WA housing crisis', ***ABC News***, January 3 2021, available via: www.abc.net.au/news/2021-06-03/wa-housing-crisis-indigenous-housing-program-jalbi-jiya-/100173750.

121 Kimberley Development Commission, 2021, ***Kimberley Region Housing Snapshot September 2021***, available via: https://kdc.wa.gov.au/wp-content/uploads/2021/09/Kimberley-Housing-Snaphot-September-2021.pdf.

122 Government of Western Australia, 2021, ***New transitional housing nearing completion in the East Kimberley***, available via: https://www.mediastatements.wa.gov.au/Pages/McGowan/2018/09/New-transitional-housing-nearing-completion-in-the-East-Kimberley.aspx.

123 Government of Western Australia Department of Communities 2021, ***Subsidised housing for the Pilbara and East Kimberley region***, WA Department of Communities, Perth, 24 June 2021, available via: http://wa.gov.au/government/announcements/subsidised-housing-the-pilbara-and-east-kimberley-region.

124 .id Consulting 2022, RDA Kimberley - Community Profile Housing Tenure, .id Consulting, viewed 4 March 2022, https://profile.id.com.au/rda-kimberley/tenure

125 Considine, J and Mewett, S 2017, ***Estimating unmet housing demand and priority areas for public and affordable housing at the Local Government Area level – a housing practitioner's approach***, Government of Western Australia Department of Communities, Freemantle, available via: http://housing.wa.gov.au/HousingDocuments/Demand_Model_Paper_2017.pdf.

126 Shire of Broome ***Shire changes temporary accommodation rules in reaction to housing shortage***, media release, Shire of Broome, Broome, 2 June 2021, available via: https://www.broome.wa.gov.au/files/assets/public/media/media-release-shire-changes-temporary-accommodation-rules-in-reaction-to-housing-shortage_1.pdf.

127 Infrastructure Australia 2019, ***Remote housing overcrowding and quality***, Infrastructure Australia, viewed 16 July 2021, available via: http://infrastructureaustralia.gov.au/map/remote-housing-overcrowding-and-quality.

128 Australian Housing and Urban Research Institute, 2016, ***Reviewing changes to housing management on remote Indigenous communities***, AHURI, Melbourne, available via: www.ahuri.edu.au/__data/assets/pdf_file/0010/10270/AHURI_Final_Report_No271_Reviewing-changes-to-housing-management-on-remote-Indigenous-communities.pdf.

129 Australian Housing and Urban Research Institute, 2016, ***Reviewing changes to housing management on remote Indigenous communities***, AHURI, Melbourne, available via: www.ahuri.edu.au/__data/assets/pdf_file/0010/10270/AHURI_Final_Report_No271_Reviewing-changes-to-housing-management-on-remote-Indigenous-communities.pdf.

130 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p36, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

131 Main Roads Western Australia, n.d., ***Regional Road Safety Upgrades***, viewed 11 January 2022, available via: https://www.mainroads.wa.gov.au/projects-initiatives/all-projects/regional/regional-road-safety-upgrades/.

132 Main Roads Western Australia, n.d., ***Regional Road Safety Upgrades***, viewed 11 January 2022, available via: https://www.mainroads.wa.gov.au/projects-initiatives/all-projects/regional/regional-road-safety-upgrades/.

133 Kimberly Development Commission, 2015, ***2036 and Beyond: A regional investment blueprint for the Kimberley***, p48, available via: https://kdc.wa.gov.au/wp-content/uploads/2018/12/2036-and-Beyond-A-Regional-Investment-Blueprint-for-the-Kimberley.pdf.

134 ACIL Allen for Infrastructure WA, 2021, Regionalising the State Infrastructure Strategy, p36, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

135 Main Roads Western Australia, 2021, ***Community Perceptions Summary Report 2021***, p10, available via: https://www.mainroads.wa.gov.au/globalassets/community-environment/community/cps-2021-summary-report.pdf.

136 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, p 7, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf.

137 Office of Northern Australia, 2021, Our North, ***Our Future: 2021-2026***, p18, available via: https://www.infrastructure.gov.au/sites/default/files/documents/Our-North-Our-Future-2021-2026-Targeted-Growth.pdf.

138 Australian Government, 2021, ***Great Northern Highway - Broome to Kununurra (Nellie Springs to Sally Downs Well and Arthur Creek)***, viewed 11 January 2022, available via: https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=113662-20WA-NP.

139 RDA Mid West Gascoyne, 2021, ***Take a Look at Mid West WA: Quick facts***, viewed 11 January 2022, available via: https://www.rdamwg.com.au/mwg-region.html

140 Regional Development Australia Midwest Gascoyne 2020, ***Take a look at the Mid West WA***, RDA Midwest Gascoyne, viewed 4 August 2021, via: www.rdamwg.com.au/mwg-region.html.

141 Australian Government, 2011, ***National Heritage Places - Wilgie Mia Aboriginal Ochre Mine***, viewed 11 January 2022, available via: https://www.awe.gov.au/parks-heritage/heritage/places/national/wilgie-mia.

142 Australia's Golden Outback, 2021, ***Murchison GeoRegion Trail***, viewed 11 January 2022, available via: https://www.australiasgoldenoutback.com/business/attractions/murchison-georegion-trail#:~:text=The%20Murchison%20GeoRegion%20is%20Australia%E2%80%99s%20first%20major%20geotourism,deeper%20understanding%20of%2C%20and%20connection%20with%2C%20the%20land..

143 HMAS Sydney Memorial, 2020, ***HMAS SYDNEY II MEMORIAL***, viewed 11 January 2022, available via: https://www.hmassydneymemorialgeraldton.com.au/

144 Tourism WA Strategy and Research 2020, ***The Gascoyne Overnight Visitor Factsheet 2017/18/19***, Tourism Western Australia, p 1, available via: www.tourism.wa.gov.au/Publications%20Library/Markets%20and%20research/2019/Ad-hoc/RDC%20Factsheets/The%20Gascoyne%20RDC%20Factsheets%20YE%20Dec%2019.pdf.

145 Regional Development Australia Midwest Gascoyne 2021, ***Take a Look at Mid West WA***, RDA Midwest Gascoyne, available via: www.rdamwg.com.au/mwg-region.html.

146 ACIL Allen for Infrastructure WA, 2021, Regionalising the State Infrastructure Strategy, p50, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

147 Tourism WA, 2021, ***Destination Kalbarri***, viewed 11 January 2022, available via: https://www.westernaustralia.com/en/Destination/Kalbarri/56b266c0aeeeaaf773cf95f3.

148 RAC, n.d., What blooms in the Gascoyne?, viewed 11 January 2022, available via: https://rac.com.au/travel-touring/info/whats-blooming-in-the-gascoyne.

149 RAC, n.d., What blooms in the Mid West?, viewed 11 January 2022, available via: https://rac.com.au/travel-touring/info/wildflowers/whats-blooming-in-the-mid-west.

150 REMPLAN 2021, ***Midwest: Economy, Industries, Output***, REMPLAN, viewed 12 July 2021, https://app.remplan.com.au/midwestregion/economy/industries/output.

151 REMPLAN 2021, ***Gascoyne: Economy, Industries, Output***, REMPLAN, viewed 12 July 2021, https://app.remplan.com.au/gascoyneregion/economy/industries/output.

152 Gascoyne Development Commission 2022, ***Horticulture***, Gascoyne Development Commission, viewed 22 February 2022, https://www.gdc.wa.gov.au/industry-profiles/horticulture/

153 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, p 15, 19, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf.

154 Infrastructure Western Australia 2020, ***A Look at the Regions***, Government of Western Australia, Perth, p 18, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf.

155 Government of Western Australia Department of Jobs, Tourism, Science and Innovation 2020, ***Western Australian Renewable Hydrogen Roadmap***, Government of Western Australia, Perth, p 12, available via: https://www.wa.gov.au/government/publications/western-australian-renewable-hydrogen-strategy-and-roadmap.

156 Department of Jobs, Tourism, Science and Innovation 2020, ***Western Australian Renewable Hydrogen Roadmap***, Government of Western Australia, p 6, available via: https://www.wa.gov.au/system/files/2020-12/Western%20Australian%20Renewable%20Hydrogen%20Roadmap%20-%20November%202020.pdf

157 The Hon Melissa Price MP Minister for Science and Technology, 2021, ***Three new hydrogen clusters identified for regional Australia***, media release, available via https://www.minister.industry.gov.au/ministers/price/media-releases/three-new-hydrogen-clusters-identified-regional-australia

158 Hon Mark McGowan Premier, 2021, ***$61.5 million boost for WA's renewable hydrogen industry***, media release, available via https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/09/61-point-5-million-dollar-boost-for-WAs-renewable-hydrogen-industry.aspx

159 Horizon Power, 2021, Clean green energy ahead for Exmouth, ***Horizon Power***, viewed 22 February 2022, https://www.horizonpower.com.au/about-us/news--announcements/clean-green-energy-ahead-for-exmouth/

160 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p56, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

161 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p57, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

162 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p50, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

163 Government of Western Australia Department of Planning, Lands and Heritage 2019, ***Guilderton to Kalbarri Sub-regional Strategy***, WA DPLH, Perth, p 20, available via: https://www.wa.gov.au/system/files/2021-08/MWT-WBT-Guilderton-Kalbarri-Sub-regional-Strategy.pdf

164 Government of Western Australia Department of Planning, Lands and Heritage 2019, ***Guiderton to Kalbarri Sub-regional Strategy***, WA DPLH, Perth, p 20, available via: www.dplh.wa.gov.au/getmedia/ef5a6b2b-4bfb-4839-9be9-412c425d0645/MWT-WBT-Guilderton-Kalbarri-Sub-regional-Strategy.

165 Government of Western Australia Department of Planning, Lands and Heritage 2019, ***Guiderton to Kalbarri Sub-regional Strategy***, WA DPLH, Perth, p 20, available via: www.dplh.wa.gov.au/getmedia/ef5a6b2b-4bfb-4839-9be9-412c425d0645/MWT-WBT-Guilderton-Kalbarri-Sub-regional-Strategy.

166 Shelter WA 2021, ***Data shows impact on people and services in the lead up to rental moratorium lifting***, Shelter WA, viewed 22 July 2021, https://shelterwa.org.au/data-shows-impact-on-people-and-services-in-the-lead-up-to-rental-moratorium-lifting/.

167 Government of Western Australia 2020, ***Gascoyne Recovery Plan***, Government of Western Australia, viewed 22 February 2022, https://www.wa.gov.au/system/files/2020-08/Gascoyne%20Recovery%20Plan.pdf

168 Government of Western Australia 2020, ***Mid West Recovery Plan***, Government of Western Australia, viewed 22 February 2022, https://www.wa.gov.au/system/files/2020-08/Mid%20West%20Recovery%20Plan.pdf

169 Shelter WA 2021, ***Data shows impact on people and services in the lead up to rental moratorium lifting***, Shelter WA, viewed 22 July 2021, https://shelterwa.org.au/data-shows-impact-on-people-and-services-in-the-lead-up-to-rental-moratorium-lifting/.

170 Mann, F "Public housing properties sit empty in Geraldton as wait list grows", ***ABC News***, 20 July 2021, available via https://www.abc.net.au/news/2021-07-20/homes-sit-empty-in-geraldton-as-waitlist-grows/100306868

171 Mann, F "Public housing properties sit empty in Geraldton as wait list grows", ***ABC News***, 20 July 2021, available via https://www.abc.net.au/news/2021-07-20/homes-sit-empty-in-geraldton-as-waitlist-grows/100306868

172 Government of Western Australia Department of Planning, Lands and Heritage 2019, ***Guilderton to Kalbarri Sub-regional Strategy***, WA DPLH, Perth, p 20, available via: https://consultation.dplh.wa.gov.au/regional-planning/guilderton-kalbarri-srs/.

173 Shelter WA 2021, ***Data shows impact on people and services in the lead up to rental moratorium lifting***, Shelter WA, viewed 22 July 2021, https://shelterwa.org.au/data-shows-impact-on-people-and-services-in-the-lead-up-to-rental-moratorium-lifting/.

174 Government of Western Australia Department of Transport 2019, ***Western Australian Regional Freight Transport Network Plan***, WA DoT, p 23, available via: www.transport.wa.gov.au/mediaFiles/about-us/ABOUT_P_RegionalFreightPlan_FullA3.pdf.

175 Western Australian Planning Commission 2015, ***Regional Planning and Infrastructure Framework – Part A: Regional strategic***, Western Australian Planning Commission, p 20, available via: www.dplh.wa.gov.au/getmedia/1ce85380-f1c1-4081-93db-8aa4de6d75ae/Gascoyne-Regional-Planning-and-Infrastructure-Framework-Part-A.

176 Traill, M and Enciso, C 'Aerial photographs show Exmouth flooding after almost a year's worth of rain in a night' ***The West Australian***, 10 June 2021, available via https://thewest.com.au/news/disaster-and-emergency/aerial-photographs-show-exmouth-flooding-after-a-years-worth-of-rain-in-36-hours-ng-b881896950z

177 Western Australia Department of Planning, Lands and Heritage 2019, ***Guilderton to Kalbarri Sub-regional Strategy***, Government of Western Australia, p 52, available via: https://consultation.dplh.wa.gov.au/regional-planning/guilderton-kalbarri-srs/.

178 Road Safety Commission WA 2021, ***Regional road statistics***, Government of Western Australia, viewed 22 July 2021, www.rsc.wa.gov.au/Statistics/Regional-Statistics/Mid-West-Gascoyne.

179 Main Roads Western Australia 2018, ***Main Roads Annual Report 2018***, Government of Western Australia, p 54, available via: https://annualreports.mainroads.wa.gov.au/AR-2018/operational-performance/road-management.html.

180 Main Roads Western Australia 2015, ***Annual report***, Government of Western Australia, available via: https://parliament.wa.gov.au/publications/tabledpapers.nsf/displaypaper/3913433a96996e7230b40e6348257eca00275fb9/$file/3433.pdf.

181 Western Australia Department of Planning, Lands and Heritage 2019, ***Guilderton to Kalbarri Sub-regional Strategy***, Government of Western Australia, p 46, available via: https://consultation.dplh.wa.gov.au/regional-planning/guilderton-kalbarri-srs/.

182 Main Roads Western Australia 2015, ***Annual report***, Government of Western Australia, available via: https://parliament.wa.gov.au/publications/tabledpapers.nsf/displaypaper/3913433a96996e7230b40e6348257eca00275fb9/$file/3433.pdf.

183 Western Australian Planning Commission 2015, ***Regional Planning and Infrastructure Framework – Part A: Regional strategic***, Western Australian Planning Commission, p 20, available via: www.dplh.wa.gov.au/getmedia/1ce85380-f1c1-4081-93db-8aa4de6d75ae/Gascoyne-Regional-Planning-and-Infrastructure-Framework-Part-A.

184 Road Safety Commission WA 2021, ***Regional road statistics***, Government of Western Australia, viewed 22 July 2021, www.rsc.wa.gov.au/Statistics/Regional-Statistics/Mid-West-Gascoyne.

185 Western Australian Planning Commission 2015, ***Regional Planning and Infrastructure Framework – Part A: Regional strategic***, Western Australian Planning Commission, p 20, available via: www.dplh.wa.gov.au/getmedia/1ce85380-f1c1-4081-93db-8aa4de6d75ae/Gascoyne-Regional-Planning-and-Infrastructure-Framework-Part-A.

186 Western Australian Planning Commission 2015, ***Regional Planning and Infrastructure Framework – Part A: Regional strategic***, Western Australian Planning Commission, p 20, available via: www.dplh.wa.gov.au/getmedia/1ce85380-f1c1-4081-93db-8aa4de6d75ae/Gascoyne-Regional-Planning-and-Infrastructure-Framework-Part-A.

187 Bankwest Curtin Economics Centre 2018, ***Falling through the net: the digital divide in Western Australia***, Bankwest Curtin Economics Centre, p 51, https://bcec.edu.au/assets/2018/08/BCEC-Falling-Through-the-Net-The-Digital-Divide-in-WA.pdf

188 Thomas, J et al. 2021, ***Australian digital inclusion index 2021***, available via: https://www.digitalinclusionindex.org.au/dashboard/National.aspx.

189 Herrmann, B 'Mid West businesses, farmers struggle to get work done as tourism spike, Cyclone Seroja worsen 4G coverage' ***ABC News***, 16 September 2021, available via https://www.abc.net.au/news/2021-09-16/mid-west-tourism-leaves-farming-businesses-no-internet/100464092

190 REMPLAN 2022, ***Peel community profile***, REMPLAN, viewed 20 February 2022, https://app.remplan.com.au/peelregion/community/population/age?g=au2016lga&state=75R3tX!jRbeiVnDXiYqbzXfDjVWlfpTBFazoHQF3FRFy1tXFpuqKrUpKx

191 Mandurah Tourism Inc, ***Getting Around***, Mandurah Tourism Inc, viewed 20 February 2022, https://visitmandurah.com/getting-around/

192 Peel Development Commission 2015, ***Peel Regional Investment Blueprint***, Government of Western Australia, p 58, available via: www.peel.wa.gov.au/wp-content/uploads/2015/12/Peel-Blueprint-15_LR.pdf

193 Peel Development Commission, ***WA Food Innovation Precinct***, Government of Western Australia, viewed 15 July 2021, www.peel.wa.gov.au/transformpeel/western-australian-food-innovation-precinct/.

194 REMPLAN 2021, ***Peel Region: Our Place - Our Community***, REMPLAN, viewed on 14 July, https://app.remplan.com.au/peelregion/community/summary.

195 Peel Development Commission 2015, ***Peel Regional Investment Blueprint***, Government of Western Australia, p 35, available via: www.peel.wa.gov.au/wp-content/uploads/2015/12/Peel-Blueprint-15_LR.pdf

196 Peel Development Commission 2015, ***Peel Regional Investment Blueprint***, Government of Western Australia, p 56, available via: www.peel.wa.gov.au/wp-content/uploads/2015/12/Peel-Blueprint-15_LR.pdf.

197 Peel Alliance 2020, ***Future Peel***, Peel Alliance, p 19, available via: https://peelalliance.org.au/wp-content/uploads/2019/10/Peel-Alliance-state-budget-requests-web.pdf.

198 Peel Development Commission 2015, ***Peel Regional Investment Blueprint***, Government of Western Australia, p 52, available via: www.peel.wa.gov.au/wp-content/uploads/2015/12/Peel-Blueprint-15_LR.pdf.

199 Peel Development Commission,

200 Peel Development Commission, ***Transform Peel: Location***, Government of Western Australia, viewed 16 July 2021, www.peel.wa.gov.au/transformpeel/location/.

201 WA Department of Water and Environmental Regulation, ***Peel Integrated Water Initiative***, Government of Western Australia, viewed 16 July 2021, www.dwer.wa.gov.au/peel-integrated-water-initiative.

202 WA Department of Primary Industries and Regional Development, ***Peel-Harvey Catchment***, Government of Western Australia, viewed 16 July 2021, https://estuaries.dwer.wa.gov.au/estuary/peel-harvey-estuary/catchment/.

203 WA Department of Primary Industries and Regional Development, ***Peel-Harvey Catchment***, Government of Western Australia, viewed 16 July 2021, https://estuaries.dwer.wa.gov.au/estuary/peel-harvey-estuary/catchment/.

204 Peel Development Commission 2016, Transform Peel: Location, ***Peel Development Commission***, available via: www.peel.wa.gov.au/wp-content/uploads/2016/09/Transform-Peel-for-website-updated-1-Setpember-2016.pdf.

205 WA Department of Primary Industries and Regional Development, ***Peel-Harvey Estuary***, Government of Western Australia, viewed 16 July 2021, https://estuaries.dwer.wa.gov.au/estuary/peel-harvey-estuary/.

206 Peel Development Commission 2015, ***Peel Regional Investment Blueprint 2050***, Peel Development Commission, p 85, available via https://www.peel.wa.gov.au/wp-content/uploads/2016/05/Peel-Blueprint-16_LR.pdf

207 RDA Peel, ***Peel Region Action Plan***, RDA Peel, p 10, available via https://www.rdapeel.org.au/wp-content/uploads/2021/06/Action-Plan-Final-June-2021.pdf

208 WA Department of Water and Environmental Regulation 2014, ***Water for growth***, Government of Western Australia, Perth, available via: www.water.wa.gov.au/planning-for-the-future/meeting-demand/water-for-growth.

209 Western Australia Department of Training and Workforce Development 2015, ***Peel workforce development plan 2015-2018***, Government of Western Australia, p 69, available via: www.dtwd.wa.gov.au/sites/default/files/uploads/Peel-workforce-development-plan-2015-2018.pdf.

210 Western Australia Department of Training and Workforce Development 2015, ***Peel workforce development plan 2015-2018***, Government of Western Australia, p 69, available via: www.dtwd.wa.gov.au/sites/default/files/uploads/Peel-workforce-development-plan-2015-2018.pdf.

211 Western Australia Department of Planning, Lands and Heritage 2018, ***Perth and Peel@3.5million***, Western Australian Planning Commission, Perth, p 2, available via: www.dplh.wa.gov.au/perth-and-peel-@-3-5-million-frameworks.

212 Australian Government Department of Infrastructure Transport, Regional Development and Communications, ***Perth to Bunbury Faster Rail Business Case***, Australian Government DITRDC, viewed 18 February 2022, https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=110525-20WA-MRL

213 REMPLAN 2021, ***Peel region: community, wellbeing, motor vehicles***, REMPLAN, viewed 17 July 2021, https://app remplan.com.au/peelregion/community/wellbeing/motor-vehicles.

214 REMPLAN 2021, ***Peel region: economy, workers, method of travel to work***, REMPLAN, viewed 17 July 2021, https://app remplan.com.au/peelregion/economy/workers/method-of-travel-to-work.

215 WA Department of Transport 2018, ***Perth and Peel@3.5million*** The Transport Network, Government of Western Australia, p 29, available via: www.transport.wa.gov.au/mediaFiles/projects/PROJ_P_Perth_Peel_3.5million_TransportNetwork.pdf.

216 Western Australia Department of Planning, Lands and Heritage 2018, ***Perth and Peel@3.5million***, Western Australian Planning Commission, Perth, p 11, available via: www.dplh.wa.gov.au/perth-and-peel-@-3-5-million-frameworks.

217 Western Australia Department of Planning, Lands and Heritage 2018, ***Perth and Peel@3.5million***, Western Australian Planning Commission, Perth, p 13, available via: www.dplh.wa.gov.au/perth-and-peel-@-3-5-million-frameworks.

218 Peel Development Commission 2015, ***Peel regional investment blueprint***, PDC, Mandurah, p 4, available via: www.investpeel.com.au/economic-agendas.

219 Peel Development Commission 2015, ***Peel regional investment blueprint***, PDC, Mandurah, p 12, available via: www.investpeel.com.au/economic-agendas.

220 REMPLAN 2021, ***Peel region: community, education, qualifications***, REMPLAN, viewed 16 July 2021, https://app remplan.com.au/peelregion/community/education/qualifications.

221 Peel Development Commission 2015, ***Peel regional investment blueprint***, PDC, Mandurah, p 25, available via: www.investpeel.com.au/economic-agendas.

222 Peel Development Commission 2019, ***Work in the Peel Region***, PDC, Mandurah, viewed 16 July 2021, www.peel.wa.gov.au/our-region/work.

223 REMPLAN 2021, ***Peel Region: community, trends, unemployment***, REMPLAN, viewed 16 July 2021, https://app remplan.com.au/peelregion/community/trends/unemployment.

224 REMPLAN 2021, ***Peel region: community, education, qualifications***, REMPLAN, viewed 16 July 2021, https://app remplan.com.au/peelregion/community/education/qualifications.

225 City of Mandurah 2020, ***Strategic Community Plan 2020-2040***, City of Mandurah, Mandurah, p 6, available via: www.mandurah.wa.gov.au/learn/vision/strategies-and-plans.

226 Peel Development Commission 2015, ***Peel regional investment blueprint***, PDC, Mandurah, p 51, available via: www.investpeel.com.au/economic-agendas.

227 Peel Development Commission 2015, ***Peel regional investment blueprint***, PDC, Mandurah, p 51, available via: www.investpeel.com.au/economic-agendas.

228 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p82, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

229 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p82, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

230 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p82, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

231 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p80, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

232 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p80, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

233 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p80, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

234 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p80, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

235 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p80, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

236 Peel Alliance, 2020, ***Future Peel: 2020 State Funding Requests to Support the Priorities of the Peel Region***, p27, available via: http://peelalliance.readyaimfire.com.au/wp-content/uploads/2019/10/Peel-Alliance-state-budget-requests-web.pdf.

237 ACIL Allen for Infrastructure WA, 2021, ***Regionalising the State Infrastructure Strategy***, p83, available via: https://infrastructure.wa.gov.au/sites/default/files/2021-07/Regionalising%20the%20State%20Infrastructure%20Strategy%20Vision_Final%20Report_June%202021.pdf.

238 WA Government, 2018, ***Perth and Peel @3.5million*** The Transport Network, p25, available via: https://www.transport.wa.gov.au/mediaFiles/projects/PROJ_P_Perth_Peel_3.5million_TransportNetwork.pdf.

239 WA Government, 2018, ***Perth and Peel @3.5million*** The Transport Network, p25, available via: https://www.transport.wa.gov.au/mediaFiles/projects/PROJ_P_Perth_Peel_3.5million_TransportNetwork.pdf.

240 RDA Peel. 2021, ***RDA Peel Strategic Plan 2021-2025***, p6, available via: https://www.rdapeel.org.au/wp-content/uploads/2021/07/RDA-Strategic-Plan-v5-pages.pdf.

241 Infrastructure WA, 2020, p8, ***A Look at the Sectors***, available via: https://www.infrastructure.wa.gov.au/sites/default/files/202107/40681%20INFWA_InfrastructureWA_SECTORS_FINAL_0.pdf.

242 Infrastructure WA, 2020, ***A Look at the Sectors***, p8, available via: https://www.infrastructure.wa.gov.au/sites/default/files/202107/40681%20INFWA_InfrastructureWA_SECTORS_FINAL_0.pdf.

243 Pilbara Development Commission 2021, ***2020-21 Annual Report***, Pilbara Development Commission, p 8, available via https://www.pdc.wa.gov.au/application/files/8616/3168/6786/PDC_Annual_Report_2020-2021_WEB.pdf.

244 RDA Pilbara 2020, ***Economic prospects and the cost of doing business in the Pilbara***, RDA Pilbara, Karratha, p 6, available via: www.rdapilbara.org.au/publications.aspx.

245 Curtin University 2014, Pilbara 2050 – Ensuring the longterm viability of the Pilbara, Curtin University, p 23, available via http://www.pilbara2050.net/Pilbara%202050%20Final%20Report.pdf

246 RDA Pilbara 2014, The Pilbara, RDA Pilbara, viewed 15 July 2021, www.rdapilbara.org.au/the-pilbara.aspx.

247 RDA Pilbara 2020, 2019-20 Annual Report, RDA Pilbara, p 4, available via: https://www.pdc.wa.gov.au/application/files/4516/0187/8004/PDC_Annual_Report_2019-20_Electronic_pages.pdf

248 Bankwest Curtin Economics Centre 2019, Future-Proofing the WA Economy, Bankwest Curtin Economics Centre, p 93-94, available via: https://bcec.edu.au/assets/2019/08/BCEC-Future-Proofing-the-WA-Economy-report.pdf.

249 Pilbara Development Commission 2021, Our focus: Energy, Government of Western Australia, viewed 16 July 2021, www.pdc.wa.gov.au/our-focus/strategicinitiatives/energy.

250 Government of Western Australia 2021, $117.5 million to progress two renewable hydrogen hubs, Government of Western Australia, viewed 17 February 2022, https://www.mediastatements.wa.gov.au/PagesMcGowan/2021/11/117-point-5-million-dollars-to-progress-two-renewable-hydrogen-hubs.aspx

251 REMPLAN 2021, Pilbara Region: Economy Summary, REMPLAN, viewed 16 July 2021, https://app.remplan.com.au/pilbararegion/economy/.

252 Pilbara Ports Authority 2021, Direct shipping to the Pilbara opening up new markets, Pilbara Ports Authority, viewed 17 February 2022, https://www.pilbaraports.com.au/about-ppa/news,-media-and-statistics/news/2021/august/direct-shipping-to-the-pilbara-opening-up-new-mark

253 Pilbara Ports Authority 2015, Port Development Strategy 2030, Pilbara Ports Authority, p 14, available via: www.pilbaraports.com.au/about-ppa/publications/forms-and-publications/forms-publications/strategy-plan/2020/june/ppa-port-development-strategy-2030.

254 Infrastructure Western Australia 2020, A Look at the Regions, Government of Western Australia, West Perth, p 11, available via: www.infrastructure.wa.gov.au/sites/default/files/2020-06/40681%20INFWA_InfrastructureWA_REGIONS_FINAL.pdf

255 Regional Development Australia Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 5, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

256 Regional Development Australia Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 16, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

257 Regional Development Australia Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 16, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

258 More than Mining 2022, The Proposal, More than Mining, viewed 22 February 2022, https://www.morethanmining.com.au/about/the-proposal.aspx

259 Australian Competition and Consumer Commission 2020, Northern Australia Insurance Inquiry, ACCC, p 216-217, available via https://www.accc.gov.au/publications/northern-australia-insurance-inquiry-final-report

260 RDA Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 10, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

261 Rethink Social Housing 2018, Discover the public housing regions in Western Australia, Government of Western Australia Housing Authority, viewed 17 February 2022, http://www.rethinksocialhousing.com/The-Waitlist

262 RDA Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 10, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

263 RDA Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 15, available via: https://www.rdapilbara.org.au/copy-of-resources.

264 Calautti, L 2019, Perth rental prices on he rise in fastest annual growth in six years), 10 July 2021, available via: https://www.domain.com.au/news/perth-rental-prices-on-the-rise-in-fastest-annual-growth-in-six-years-857881/.

265 REMPLAN 2021, Pilbara region: economy, trends, building approval count, REMPLAN, viewed 17 July 2021, https://app.remplan.com.au/pilbararegion/economy/trends/building-approvals-count.

266 Regional Development Australia Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 5, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

267 Regional Development Australia Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 5, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

268 RDA Pilbara 2020, Economic prospects and the cost of doing business in the Pilbara, RDA Pilbara, Karratha, p 8, available via: www.rdapilbara.org.au/publications.aspx.

269 RDA Pilbara 2021, Strategic Plan 2021/22 – 2023/24, RDA Pilbara, p 29, available via https://www.rdapilbara.org.au/_files/ugd/c14dc8_ad9b335c5f254d6eb1cdb003496be9cf.pdf

270 Pilbara Development Commission 2021, Education, Government of Western Australia, viewed 17 July 2021, www.pdc.wa.gov.au/our-focus/strategicinitiatives/education.

271 Pilbara Development Commission 2019, Strategic plan 2019-2021, Government of Western Australia, Perth, p 14, available via: www.pdc.wa.gov.au/application/files/2015/8407/2781/FINAL_PDC_Strategic_Plan_2019-21.pdf.

272 Pilbara Development Commission 2021, Education, Government of Western Australia, viewed 17 July 2021, www.pdc.wa.gov.au/our-focus/strategicinitiatives/education.

273 REMPLAN 2021, *Pilbara Region: Community, Education*, Qualifications, REMPLAN, viewed 17 July 2021, https://app.remplan.com.au/pilbararegion/community/education/qualification.

274 REMPLAN 2021, *Pilbara Region: Economy, Trends, Jobs*, REMPLAN, viewed 17 July 2021, https://app.remplan.com.au/pilbararegion/economy/trends/jobs.

275 Pilbara Development Commission 2019, *Strategic plan 2019-2021*, Government of Western Australia, Perth, p 14, available via: www.pdc.wa.gov.au/application/files/2015/8407/2781/FINAL_PDC_Strategic_Plan_2019-21.pdf.

276 Government of Western Australia Department of Primary Industries and Regional Development 2017, *Living in the regions 2016: Insights report*, WA DPIRD, Perth, p 23, available via: www.drd.wa.gov.au/Publications/Documents/Living%20in%20the%20Regions%202016.pdf.

277 RDA Pilbara 2020, *Economic prospects and the cost of doing business in the Pilbara*, RDA Pilbara, Karratha, p 5, available via: https://www.rdapilbara.org.au/_files/ugd/c14dc8_2f59442a2f6e40c0a145f4b5e0b4e42c.pdf.

278 Western Australia Department of Training and Workforce Development 2013, *Pilbara workforce development plan 2013-2016: Executive summary*, Pilbara Development Commission, Perth, p 20, available via: www.pdc.wa.gov.au/application/files/7314/4352/2742/Pilbara_ExecSummary_web.pdf.

279 Government of Western Australia Department of Treasury, *Regulatory framework for the Pilbara electricity networks – Design consultation paper*, Public Utilities Office, p vii, available via https://www.wa.gov.au/system/files/2019-08/Pilbara-Electricity-Reforms-Design-Consultation-Paper_0.pdf

280 Government of Western Australia, *Pilbara Electricity System*, Government of Western Australia, viewed 22 February 2022, https://www.wa.gov.au/organisation/energy-policy-wa/pilbara-electricity-system

281 Government of Western Australia 2021, *Pilbara electricity reforms*, Government of Western Australia, viewed 22 February 2022, https://www.wa.gov.au/government/document-collections/pilbara-electricity-reforms

282 Pilbara Development Commission 2021, *Our focus: Energy, Government of Western Australia*, viewed 16 July 2021, www.pdc.wa.gov.au/our-focus/strategicinitiatives/energy.

283 Pilbara Development Commission 2021, *Our focus: Pilbara solar export pre-feasibility study*, Government of Western Australia, viewed 17 July 2021, www.pdc.wa.gov.au/our-focus/pilbara-blueprint/pilbarasolar.

284 Pilbara Development Commission, *Energy*, viewed 1 November 2021, https://www.pdc.wa.gov.au/our-focus/strategicinitiatives/energy

285 Asian Renewable Energy Hub, *About the Asian Renewable Energy Hub*, Asian Renewable Energy Hub, viewed 22 February 2022, https://asianrehub.com/about/

286 Pilbara Development Commission 2019, *Annual report 2019-2020*, Government of Western Australia, p 35, available via: www.pdc.wa.gov.au/application/files/4516/0187/8004/PDC_Annual_Report_2019-20_Electronic_pages.pdf.

287 Pilbara Development Commission 2019, *Annual report 2019-2020*, Government of Western Australia, p 35, available via: www.pdc.wa.gov.au/application/files/4516/0187/8004/PDC_Annual_Report_2019-20_Electronic_pages.pdf.

288 Pilbara Development Commission 2021, *Our focus: Energy, Government of Western Australia*, viewed 16 July 2021, www.pdc.wa.gov.au/our-focus/strategicinitiatives/energy.

289 RDA Pilbara 2020, *Pilbara quarterly economic update: December 2020*, RDA Pilbara, Karratha, p 8, available via: www.rdapilbara.org.au/publications.aspx.

290 RDA Pilbara 2020, *Pilbara quarterly economic update: December 2020*, RDA Pilbara, Karratha, p 2, available via: www.rdapilbara.org.au/publications.aspx.

291 Asian Renewable Energy Hub, *About the Asian Renewable Energy Hub*, Asian Renewable Energy Hub, viewed 22 February 2022, https://asianrehub.com/about/

292 RDA South West, n.d., *The South West region*, viewed 11 January 2022, available via: https://www.rdasouthwest.com.au/the-south-west.

293 RDA South West and Australian Government 2022, *Regional Futures South West*, RDA South West and Australian Government, p 19, available via https://www.rdasouthwest.com.au/

294 Tourism Western Australia 2018, Margaret River Wine Region, Tourism Western Australia, viewed 17 July 2021, www.westernaustralia.com/en/things_to_do/food_and_wine/wineries_and_wine_tasting_in_wa/pages/margaret_river_wine_region.aspx.

295 Department of Agriculture, Water and the Environment 2021, Future Drought Fund South-West WA Drought Resilience Adoption and Innovation Hub, Australian Government, p 1, available via: www.agriculture.gov.au/sites/default/files/documents/fdf-hubs-wa-factsheet.pdf.

296 REMPLAN 2021, *South West Region*, REMPLAN, viewed 12 July 2021, https://appremplan.com.au/southwestregion/economy/industries/gross-regional-product.

297 South West Development Commission 2021, South West Advanced Manufacturing and Technology Hub (SW AMTECH), Government of Western Australia, viewed 17 July 2021, www.swdc.wa.gov.au/project/sw-amtech/.

298 Western Australia Department of Jobs, *Tourism, Science and Innovation, Major Industries in South West*, Government of Western Australia, viewed 17 July 2021, www.watoindia.in/wa/html/southwest-majorindustries.htm.

299 Tourism WA Strategy and Research 2020, *Overnight Visitor Factsheet 2019*, Tourism WA Strategy and Research, p 2, available via: www.tourism.wa.gov.au/Publications%20Library/Markets%20and%20research/2019/Ad-hoc/Tourism%20Region%20Factsheets/Tourism%20Region%20Factsheet%20-%20Australia%27s%20South%20West%20YE%2019.pdf.

300 Invest South West, Diverse Industry Sectors, *Invest South West*, viewed 12 July 2021, www.investsouthwest.org.au/sectors/.

301 South West Development Commission 2021, *Strategic plan: The next three years 2021-2023*, Government of Western Australia, pp 30-32, available via: www.swdc.wa.gov.au/strategic-plan/.

302 South West Development Commission 2021, ***Strategic plan: The next three years 2021-2023***, Government of Western Australia, pp 30-32, available via: www.swdc.wa.gov.au/strategic-plan/.

303 Australian Government Department of Education Skills and Employment 2020, ***South West WA Local Jobs Plan***, Department of Education, Skills and Employment, p 5, available via https://www.dese.gov.au/local-jobs-program/resources/south-west-wa-local-jobs-plan

304 REMPLAN 2021, ***RDA South West: Economy, trends, unemployment***, REMPLAN, viewed 18 July 2021, https://app remplan.com.au/rdasouthwest/economy/trends/unemployment.

305 Government of Western Australia Department of Premier and Cabinet 2020, ***Collie's Just Transition Plan***, Department of Premier and Cabinet, p 19, available via https://www.wa.gov.au/government/publications/collies-just-transition-plan

306 Local Jobs Program 2020, ***Local jobs plan South West Western Australia: October 2020***, WA Department of Education, Skills and Employment, p 13, available via: www.dese.gov.au/download/8359/south-west-wa-local-jobs-plan/12520/south-west-wa-local-jobs-plan/pdf.

307 RDA South West 2022, ***2022 South West Futures***, RDA South West, p 86, available via https://www.rdasouthwest.com.au/sw-regional-futures

308 REMPLAN 2021, ***RDA South West: Economy, trends, unemployment***, REMPLAN, viewed 18 July 2021, https://app remplan.com.au/rdasouthwest/economy/trends/unemployment.

309 REMPLAN 2021, ***RDA South West: Community, education, qualifications***, REMPLAN, viewed 18 July 2021, https://app remplan.com.au/rdasouthwest/economy/workers/education.

310 Local Jobs Program 2020, ***Local jobs plan South West Western Australia: October 2020***, WA Department of Education, Skills and Employment, p 13, available via: www.dese.gov.au/download/8359/south-west-wa-local-jobs-plan/12520/south-west-wa-local-jobs-plan/pdf.

311 South West Development Commission 2021, ***Strategic plan: The next three years 2021-2023***, Government of Western Australia, p 9, available via: www.swdc.wa.gov.au/strategic-plan/.

312 Juanola M, 'Home owners in WA's South West called on to let out rooms to workers amid rental crisis', ***WA Today***, 17 November 2020, available via https://www.watoday.com.au/national/western-australia/home-owners-in-wa-s-south-west-called-on-to-let-out-rooms-to-workers-amid-rental-crisis-20201112-p56e2l.html

313 South West Development Commission and RDA South West 2014, ***South West regional blueprint***, Government of Western Australia, p 41, available via: www.drd.wa.gov.au/projects/Economic-Development/Pages/Regional-Blueprints.aspx.

314 REMPLAN 2020, ***RDA South West: Economy, trends, population***, REMPLAN, viewed 5 August 2021, https://app.remplan.com.au/rdasouthwest/economy/trends/population.

315 REMPLAN 2020, ***RDA South West: Economy, trends, population***, REMPLAN, viewed 5 August 2021, https://app.remplan.com.au/rdasouthwest/economy/trends/population.

316 Regional Development Australia South West 2022, ***2022 South West Futures***, RDASW, Bunbury, p 29, available via; www.rdasouthwest.com.au/sw-regional-futures.

317 Infrastructure WA 2020, ***A look at the regions***, IWA, Perth, p 31, available via: www.infrastructure.wa.gov.au/look-regions.

318 Regional Development Australia South West 2022, ***2022 South West Futures***, RDASW, Bunbury, p 26, available via: www.rdasouthwest.com.au/sw-regional-futures.

319 Water Corporation 2015, ***Water Forever South West***, WC, Osborne Park, p 8, available via: www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA.

320 Water Corporation 2015, ***Water Forever South West***, WC, Osborne Park, p 8, available via: www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA.

321 Water Corporation 2021, ***Climate & Southern WA***, WC, Osborne Park, viewed 17 July 2021, www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA.

322 Western Australia Department of Water 2015, ***Securing water resources for the South West***, Government of Western Australia, Perth, p 2, available via: www.water.wa.gov.au/planning-for-the-future/meeting-demand/water-for-growth.

323 Water Corporation 2015, ***Water Forever South West***, WC, Osborne Park, p 8, available via: www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA.

324 Water Corporation 2021, ***Climate & Southern WA***, WC, Osborne Park, viewed 17 July 2021, www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA.

325 South West Development Commission 2021, ***Investment***, Government of Western Australia, viewed 18 July 2021, www.swdc.wa.gov.au/article/copy/.

326 South West Development Commission 2019, ***Annual Report 2019-2020***, Government of Western Australia, p 27, available via: www.swdc.wa.gov.au/category/annual-reports/.

327 South West Development Commission 2021, ***Strategic plan: The next three years 2021-2023***, Government of Western Australia, p 3, available via: www.swdc.wa.gov.au/strategic-plan/.

328 South West Development Commission 2021, ***Strategic plan: The next three years 2021-2023***, Government of Western Australia, p 3, available via: www.swdc.wa.gov.au/strategic-plan/.

329 REMPLAN 2021, ***RDA South West: Economy, trends, Gross Regional Product***, REMPLAN, viewed 18 July 2021, https://app remplan.com.au/rdasouthwest/economy/trends/gross-regional-product.

330 REMPLAN 2021, ***RDA South West: Economy, jobs and business insights***, REMPLAN, viewed 16 February 2022, https://app.remplan.com.au/rdasouthwest/economy/industries/employment?state=1xGXS8!kVmBSpvVNs7n6qBikJkDQUpiZhrQ4SWMeRNU17N72tDh6Yhkh4S00JRu2BW

331 South West Development Commission 2021, ***Investment***, Government of Western Australia, viewed 18 July 2021, www.swdc.wa.gov.au/article/copy/.

332 Juanola M, 'Home owners in WA's South West called on to let out rooms to workers amid rental crisis', ***WA Today***, 17 November 2020, available via https://www.watoday.com.au/national/western-australia/home-owners-in-wa-s-south-west-called-on-to-let-out-rooms-to-workers-amid-rental-crisis-20201112-p56e2l.html

333 South West Development Commission 2019, ***Annual Report 2019-2020***, Government of Western Australia, p 6, available via: www.swdc.wa.gov.au/category/annual-reports/.

334 REMPLAN 2021, ***RDA South West: Economy, jobs and business insights***, REMPLAN, viewed 18 July 2021, https://app.remplan.com.au/rdasouthwest/economy/summary.

335 South West Development Commission 2021, ***Strategic plan: The next three years 2021-2023***, Government of Western Australia, Perth, p 25, available via: www.swdc.wa.gov.au/strategic-plan/.

336 Regional Development Australia Wheatbelt WA 2016, ***Our Region***, Regional Development Australia Wheatbelt WA, viewed 16 February 2022, http://www.rdawheatbelt.com.au/our-region

337 REMPLAN 2021, ***Wheatbelt: Economy***, REMPLAN, viewed 18 July 2021, https://app.remplan.com.au/wheatbeltregion/economy#:~:text=The%20Wheatbelt%20spans%20across%20154%2C862,Central%20Midlands%20and%20Wheatbelt%20South.

338 Regional Development Australia Wheatbelt 2016, ***Our Region***, RDA Wheatbelt, viewed 12 July 2021, www.rdawheatbelt.com.au/our-region.

339 Wheatbelt Development Commission 2015, ***Wheatbelt Blueprint***, Wheatbelt Development Commission, p 4, available via: www.wheatbelt.wa.gov.au/files/3114/2786/4217/Wheatbelt_Regional_Investment_Blueprint_-_Final_APPROVED_WEB_REDUCED.pdf.

340 Bankwest Curtin Economics Centre 2019, ***Future-Proofing the WA Economy***, Bankwest Curtin Economics Centre, p 121, available via: https://bcec.edu.au/assets/2019/08/BCEC-Future-Proofing-the-WA-Economy-report.pdf.

341 REMPLAN 2022, Economy, ***Jobs and Business Insights – Wheatbelt Region***, REMPLAN, viewed 15 February 2022,https://app.remplan.com.au/wheatbeltregion/economy/summary?state=MQ8GclML9U4rDG1tbxoWKBi7INIPkj

342 Government Western Australia Department of Biodiversity, Conservation and Attractions 2021, ***Wheatbelt Region parks and reserves management plan 95***, Conservation and Parks Commission, p 57, available via https://www.dpaw.wa.gov.au/images/Wheatbelt%20Region%20Parks%20and%20Reserves%20Management%20Plan%202021.pdf

343 Wheatbelt Development Commission Annual Report 2020, ***Wheatbelt Development Commission Annual Report 2019-2020***, Wheatbelt Development Commission, p 18, available via https://www.wheatbelt.wa.gov.au/files/8916/0206/0783/Wheatbelt_Development_Commission_Annual_Report_2019-2020_Compressed.pdf

344 Western Australia Planning Commission 2015, ***Wheatbelt Regional Planning and Infrastructure Framework – Part A Regional Strategic Planning***, Western Australia Planning Commission, p 34, available via https://www.dplh.wa.gov.au/getmedia/7e94caf8-e88a-4499-83ef-50bd5a259af7/WBT_Wheatbelt_Regional_Planning_and_Infrastructure_Framework_Part_A

345 Wheatbelt Development Commission 2018, ***Wheatbelt Fast Facts***, Wheatbelt Development Commission, p 2, available via https://www.wheatbelt.wa.gov.au/publications/other-publications-reports/

346 Government of Western Australia, 2021, ***'Western Australia's biggest wind farm officially opens'***, Government of Western Australia, viewed 22 February 2022, https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/05/Western-Australias-biggest-wind-farm-officially-opens.aspx

347 Wheatbelt Development Commission 2017, ***Alternative Energy Solution on the Rise***, Wheatbelt Development Commission, viewed 14 July 2021, www.wheatbelt.wa.gov.au/news/alternative-energy-solution-rise/.

348 Government of Western Australia, 2021, ***'Western Australia's biggest wind farm officially opens'***, Government of Western Australia, viewed 22 February 2022, https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/05/Western-Australias-biggest-wind-farm-officially-opens.aspx

349 Wheatbelt Development Commission 2015, ***Wheatbelt Blueprint***, Wheatbelt Development Commission, p 42, available via: www.wheatbelt.wa.gov.au/files/3114/2786/4217/Wheatbelt_Regional_Investment_Blueprint_-_Final_APPROVED_WEB_REDUCED.pdf.

350 Tourism WA Strategy and Research 2020, ***The Wheatbelt Overnight Visitor Factsheet 2017/18/19***, Tourism WA Strategy and Research, p 2, available via: www.tourism.wa.gov.au/Publications%20Library/Markets%20and%20research/2019/Ad-hoc/RDC%20Factsheets/The%20Wheatbelt%20RDC%20Factsheets%20YE%20Dec%2019.pdf.

351 Wheatbelt Development Commission 2017, ***Growing Wheatbelt Tourism 2017-2020 Draft Strategy***, Wheatbelt Development Commission, p 13-15, available via https://www.wheatbelt.wa.gov.au/news/tourism-growth-wheatbelt/

352 Regional Development Australia Wheatbelt 2018, ***Telecommunications Enquiry Submission***, RDA Wheatbelt, p 2-4, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf

353 Shire of Chittering, 2021, ***Submission to Regional Telecommunications Review 2021***, Australian Government Department of Infrastructure, Transport, Regional Development and Communications, p 1-2, available via https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-607-shire-of-chittering.pdf.

354 Regional Development Australia Wheatbelt 2018, Telecommunications Enquiry Submission, RDA Wheatbelt, p 2-4, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf

355 Shire of Chittering, 2021, ***Submission to Regional Telecommunications Review 2021***, Australian Government Department of Infrastructure, Transport, Regional Development and Communications, p 1, available via https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-607-shire-of-chittering.pdf.

356 Regional Development Australia Wheatbelt 2018, *Telecommunications Enquiry Submission*, RDA Wheatbelt, p 5-8, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf

357 Regional Development Australia Wheatbelt 2018, *Telecommunications Enquiry Submission*, RDA Wheatbelt, p 5-8, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf

358 Regional Development Australia Wheatbelt 2018, *Telecommunications Enquiry Submission*, RDA Wheatbelt, p 5-8, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf

359 Wheatbelt Development Commission 2018, *NEWROC telecommunications network launched*, Wheatbelt Development Commission, viewed 14 July 2021, www.wheatbelt.wa.gov.au/news/newroc-telecommunications-network-launched/.

360 Australian Government 2021, ***2021 Regional Telecommunications Review – A step change in demand***, Australian Government, p. 61-61, available via https://www.infrastructure.gov.au/sites/default/files/documents/2021-rtirc-report-a-step-change-in-demand.pdf

361 Snape J 'Starlink's secrets revealed as first Australian customers sign up ahead of launch later in 2021', *ABC News*, 9 February 2021, available via: https://www.abc.net.au/news/2021-02-12/starlink-australia-price-availability-revealed/13144262

362 Regional Development Australia Wheatbelt 2018, *Telecommunications Enquiry Submission*, RDA Wheatbelt, p 5-8, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf

363 Thomas, J et al. 2021, Australian digital inclusion index 2021, available via: https://www.digitalinclusionindex.org.au/dashboard/National.aspx.

364 Regional Development Australia Wheatbelt 2018, *Telecommunications Enquiry Submission*, RDA Wheatbelt, p 5-8, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf

365 Regional Development Australia Wheatbelt 2020, *Wheatbelt Annual Report 2020*, RDA Wheatbelt, p 16, available via www.rdawheatbelt.com.au/images/documents/publications/annual_reports/RDAW0003_ANNUAL_REPORT_2020_RegionalDevelopmentAutralia_Web.pdf.

366 Regional Development Australia Wheatbelt 2018, *Telecommunications Enquiry Submission*, RDA Wheatbelt, p 11, available via www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf.

367 Regional Development Australia Wheatbelt 2018, *Telecommunications Enquiry Submission*, RDA Wheatbelt, p 10, available via: www.communications.gov.au/sites/default/files/submissions/regional_development_australia_rda_wheatbelt_wa.pdf.

368 Government of Western Australia, *'Wheatbelt Health Service redevelopments complete'*, Government of Western Australia, viewed 22 February 2022, https://www.mediastatements.wa.gov.au/Pages/McGowan/2018/03/Wheatbelt-Health-Service-redevelopments-complete.aspx.

369 Government of Western Australia WA Country Health Service 2021, ***Annual Report 2020-2021***, WA Country Health Service, p 14, available via https://www.wacountry.health.wa.gov.au/~/media/WACHS/Documents/Annual-reports/WACHS-annual-report-2020-21.pdf.

370 Wheatbelt Development Commission 2013, ***Wheatbelt Snapshot Series: Potable Water***, Wheatbelt Development Commission, p 1-2, available via: www.wheatbelt.wa.gov.au/files/4114/0055/8100/Wheatbelt_Snapshot_Series_-_Potable_Water_2013.03.18.pdf.

371 Wheatbelt Development Commission 2013, ***Wheatbelt Snapshot Series: Potable Water***, Wheatbelt Development Commission, p 1-2, available via: www.wheatbelt.wa.gov.au/files/4114/0055/8100/Wheatbelt_Snapshot_Series_-_Potable_Water_2013.03.18.pdf.

372 Government of Western Australia Department of Planning 2015, *Wheatbelt Regional Planning and Infrastructure Framework Part A: Regional Strategic Planning*, WA Department of Planning Lands and Heritage, Perth, p 33-34, 42-45, available via: https://www.dplh.wa.gov.au/information-and-services/district-and-regional-planning/country-planning/regional-planning-and-infrastructure-frameworks.

373 Government of Western Australia Department of Planning 2015, *Wheatbelt Regional Planning and Infrastructure Framework Part A: Regional Strategic Planning*, WA Department of Planning Lands and Heritage, Perth, p 33-34, 42-45, available via: https://www.dplh.wa.gov.au/information-and-services/district-and-regional-planning/country-planning/regional-planning-and-infrastructure-frameworks.

374 Government of Western Australia Department of Planning 2015, *Wheatbelt Regional Planning and Infrastructure Framework Part A: Regional Strategic Planning*, WA Department of Planning Lands and Heritage, Perth, p 33-34, 42-45, available via: https://www.dplh.wa.gov.au/information-and-services/district-and-regional-planning/country-planning/regional-planning-and-infrastructure-frameworks.

375 Government of Western Australia Department of Planning 2015, *Wheatbelt Regional Planning and Infrastructure Framework Part A: Regional Strategic Planning*, WA Department of Planning Lands and Heritage, Perth, p 33-34, 42-45, available via: https://www.dplh.wa.gov.au/information-and-services/district-and-regional-planning/country-planning/regional-planning-and-infrastructure-frameworks.

376 Jose, L 'Western Australian Government tackles water waste with $32 million for aged farm water system', ***ABC News***, 9 July 2015, available via: www.abc.net.au/news/rural/2015-07-09/western-australian-wheatbelt-water-system-efficiency-uprade/6608060.

377 Government of Western Australia Department of Planning 2015, ***Wheatbelt Regional Planning and Infrastructure Framework Part A: Regional Strategic Planning***, WA Department of Planning Lands and Heritage, Perth, p 33-34, 42-45, available via: https://www.dplh.wa.gov.au/information-and-services/district-and-regional-planning/country-planning/regional-planning-and-infrastructure-frameworks.

378 Jose, L 'Western Australian Government tackles water waste with $32 million for aged farm water system', ***ABC News***, 9 July 2015, available via: www.abc.net.au/news/rural/2015-07-09/western-australian-wheatbelt-water-system-efficiency-uprade/6608060.

379 Kelly, D ***Water deficiency declarations revoked in six shires***, media release, media release, Government of Western Australia, Perth, 28 May 2021, available via: www.mediastatements.wa.gov.au/Pages/McGowan/2021/05/Water-Deficiency-Declarations-revoked-in-six-shires.aspx.

380 Kelly, D ***Water deficiency declared in the shires of Dumbleyung and Kent***, media release, Government of Western Australia, Perth, 21 February 2020, available via: www.mediastatements.wa.gov.au/Pages/McGowan/2020/02/Water-deficiency-declared-in-the-shires-of-Dumbleyung-and-Kent.aspx.

381 REMPLAN 2021, ***Wheatbelt: Economy, Jobs and Business Insights***, REMPLAN, viewed 10 July 2021, https://app.remplan.com.au/wheatbeltregion/economy/industries/regional-exports.

382 Boruff, B, Biggs, E, Pauli, N, Callow, N and Clifton, J 2018, 'Changing water system vulnerability in Western Australia's Wheatbelt region', ***Applied Geography, vol. 91***, pp 131-143.

383 Wheatbelt Development Commission 2018, ***Wheatbelt Snapshot Series***, WDC, Northam, p 1, available via: www.wheatbelt.wa.gov.au/files/2615/3742/3728/WDC_Snapshot_Series_Power_and_Energy_Snapshot_WN_AS_Final_2018.pdf.

384 Wheatbelt Development Commission 2013, ***Wheatbelt Snapshot Series Power and Energy***, WDC, Northam, p 11, available via: www.wheatbelt.wa.gov.au/files/5914/0178/2156/Wheatbelt_Snapshot_Series_-_Power_and_Energy_2013.06.20.pdf.

385 Western Australia Planning Commission 2015, ***Wheatbelt Regional Planning and Infrastructure Framework Part A: Regional Strategic Planning***, WAPC, Perth, pp 33-24 and 42-45, available via: www.dplh.wa.gov.au/information-and-services/district-and-regional-planning/country-planning/regional-planning-and-infrastructure-frameworks.

386 Western Australia Planning Commission 2015, ***Wheatbelt Regional Planning and Infrastructure Framework Part A: Regional Strategic Planning***, WAPC, Perth, pp 33-34 and 42-45, available via: www.dplh.wa.gov.au/information-and-services/district-and-regional-planning/country-planning/regional-planning-and-infrastructure-frameworks.

387 Wheatbelt Development Commission 2018, ***Wheatbelt Snapshot Series***, WDC, Northam, p 10, available via: www.wheatbelt.wa.gov.au/files/2615/3742/3728/WDC_Snapshot_Series_Power_and_Energy_Snapshot_WN_AS_Final_2018.pdf.

388 Wheatbelt Development Commission 2017, ***Alternative energy solution on the rise***, WDC, viewed 14 July 2021, www.wheatbelt.wa.gov.au/news/alternative-energy-solution-rise.

389 Government of Western Australia 2022, ***Disconnected Microgrid Pilot Opportunity – Closes 7 January***, WA Government, Perth, viewed 23 February 2022, www.wa.gov.au/government/announcements/disconnected-microgrid-pilot-opportunity-closes-7-january.

390 Government of Western Australia Energy Policy WA, ***"Disconnected microgrid webinar"***, Perth, 17 November 2021, available via: www.wa.gov.au/government/announcements/disconnected-microgrid-pilot-opportunity-closes-7-january.

391 Wheatbelt Development Commission 2018, ***Wheatbelt Fast Facts***, WDC, Northam, p 2, available via: www.wheatbelt.wa.gov.au/publications/other-publications-reports.

392 Mercer, D 2020 'Wave of green energy set to wash over WA's Wheatbelt as new laws shake up electricity industry', ***ABC News***, 1 May 2020, available via: www.abc.net.au/news/rural/2020-05-01/new-laws-trigger-wheatbelt-green-energy-wave-in-wa/12176494.

393 Western Power, ***Storm Response 25 February***, media release, WP, Perth, 25 February 2021, available via: www.westernpower.com.au/community/news-opinion/storm-response-25-february.

394 Wheatbelt Development Commission 2018, ***Wheatbelt Snapshot Series***, WDC, Northam, p 15, available via: www.wheatbelt.wa.gov.au/files/2615/3742/3728/WDC_Snapshot_Series_Power_and_Energy_Snapshot_WN_AS_Final_2018.pdf.

395 Western Power, ***Storm Response 25 February***, media release, WP, Perth, 25 February 2021, available via: www.westernpower.com.au/community/news-opinion/storm-response-25-february.

396 Mitchell, S 2021 'Standalone power to bring the lights back on for Cyclone Seroja-battered residents', ***ABC News***, 10 July 2021, available via: www.abc.net.au/news/2021-07-10/stand-alone-power-systems-cyclone-seroja-midwest/100268518.

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