

THE COST OF DOING BUSINESS IN THE PILBARA



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An Australian Government Initiative



Regional
Development
Australia

PILBARA



Acknowledgements

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Executive Summary

STUDY FOCUS AND PURPOSE

Between 2013 and 2015 Regional Development Australia (RDA) Pilbara undertook studies on the cost of doing business in the Pilbara. Produced three years later the 2018 report is the 4th in the series. Much has changed. Its coverage includes the main centres of Karratha, Port Hedland, Newman and Onslow.

Whilst this report has a focus on costs it also analyses opportunities and has an emphasis on Small and Medium Enterprises (SMEs) and business start-ups. The expansion of these private sector categories is fundamental to diversification and increasing employment in the Pilbara.

The results of this study will be used to:

- Inform businesses and Non Government Organisations (NGOs) about the prevailing cost structure and future costs to improve planning and operations;
- Inform development and government agencies about costs so that policy formulation can be adjusted to not only take such costs into account, but also recognise the impact cost structures have on opportunities for growth.

WHAT HAS CHANGED?

Pronounced downturn 2015 to 2017

Since the last report was prepared in 2015 the economic downturn accelerated until the second half of 2017. Between 2015 until the middle of 2018 new investments in the iron ore sector declined sharply as a result of much lower prices in global markets, as supply exceeded demand. In addition, the massive investments in the Liquid Natural Gas (LNG) sector and much of the investment in property and improving the infrastructure of the main centres in the Pilbara was completed by the end of 2017. The result was less employment, a decrease in the populations of the main centres, lower incomes and a slowdown in almost every sector of the Pilbara economy. The demand for goods and services from SMEs decreased, whilst at the same time prices fell for many items, particularly the costs of accommodation and remuneration.

An upturn starting in late 2017

An upturn started in embryonic fashion about the middle of 2017, when the investments of the previous five to six years in iron ore and LNG went into full production and decisions on replacement iron ore mines and increased LNG capacity came closer to finalisation. The next wave of investments was preceded by more intensive feasibility studies and the upturn started to gather pace at the beginning of 2018.

The resources sector has been a key driver of both the WA and Australian economies over the last decade, through increased capital investment resulting in significant employment opportunities, higher incomes and greater demand for services. The added value of the sector to the Pilbara has increased considerably, in line with strong growth in the global economy, particularly in China and South East Asia. Recently, iron ore and LNG prices have improved, particularly in Australian dollar terms as a result of depreciation of the Australian dollar against both the US\$ and the Euro. Moreover, the high-quality iron ore producers (mainly BHP and Rio Tinto) have benefitted from higher prices paid for premium grades of iron ore, mainly by Chinese importers.

As a result, the outlook for replacement investment and maintaining high levels of production in the iron ore sector has strengthened, whilst in the LNG sector one major new investment has been committed on Barrow Island by Chevron and others are planned. This will increase production levels still further. Moreover, the large LNG players have announced increased coordination of maintenance schedules. This will allow companies providing maintenance services to plan better and has also provided the industry, with the support of the WA State Government, to promote WA as an LNG service centre offering decades of guaranteed work. A more competitive maintenance and logistics services sector will create thousands of jobs in WA, with positive impacts for the Pilbara.

In addition, lithium investment and production in the Pilbara will add new value and diversification to the economy of the Pilbara. Moreover, gold exploration is being carried out on a significant scale, a new fertiliser plant may be constructed on the Burrup Peninsula and feasibility studies for a very large solar power generating facility are fairly well advanced. Various other diversification projects are also at different stages of development and major port developments are underway or at the planning stage

Category	Committed (\$bn.)	Possible in next 1 to 7 years (\$bn.)
Iron Ore	7	18.5
LNG	9.1	30
Lithium		0.3
Energy (Solar Power)		20
Fertiliser		4.5
Salt	0.35	
Other (gold, base metals etc)	0.05	n.a.
Total	16.5	73.3

Table 1: Preliminary Summary of Major Projects in the Short to Medium Term in the Resources Sector in the Pilbara (\$ billion)¹

**THE RESOURCES SECTOR HAS BEEN A KEY DRIVER OF BOTH
THE WA AND AUSTRALIAN ECONOMIES OVER THE LAST DECADE**



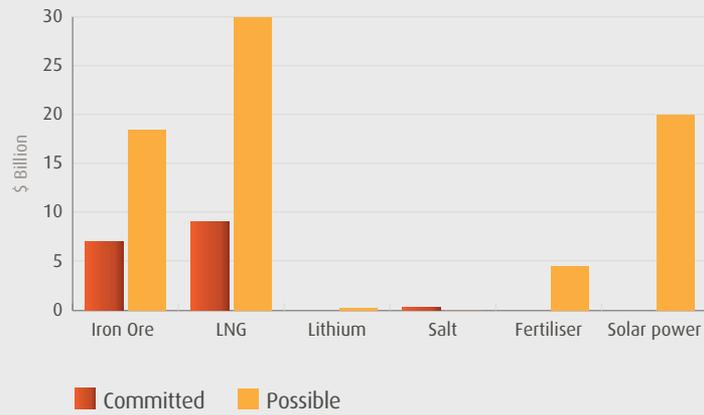


Figure 1: Preliminary Summary of Major Projects in the Short to Medium Term in the Resources Sector in the Pilbara (\$ billion)

RISKS TO THE UPTURN

What could decrease the prospects for an economically better off Pilbara? There are substantial risks to the overall business environment.

- There is a possible slowdown in the economy of the USA, as interest rates rise and Treasury bond yields increase. The end of the longest period of a rising stock market in history is becoming more likely. Rising costs of money in the USA have a negative impact globally;
- Growth in Europe and China is slowing down and several nations are facing economic crises, such as Turkey, Iran, Argentina and Venezuela;
- The major resources companies are likely to continue to adopt automation technologies, which could constrain employment growth in this sector; and
- There are some worrying signals in the Australian economy such as household debt levels and mortgage stress.

OPPORTUNITIES FOR SMES AND START-UPS

The contribution of the resources sector to the economy of the Pilbara will rise further as exports grow and significant diversification within this sector will assist in providing a more stable platform for all businesses in the Pilbara. Furthermore, the far-sighted planning for more liveable towns in the Pilbara provides a more attractive environment for the resident population and initiatives undertaken by RDA Pilbara, the Chambers of Commerce, the Pilbara Development Commission, the Local

Governments, the Small Business Centres, NGOs, Landcorp and other agencies to support business has improved the operating environment for both the public and private sectors.

These positive developments are likely to result in greater demand for goods and services and an improved business environment over the next few years. Employment is likely to rise somewhat, there is already more FIFO activity, the population will stabilise and may increase slightly and business activity in general has picked up.

The need for diversification in other sectors has long been recognised by government and the business sector. Whilst it is known that there are limitations to diversification, including geographic isolation and a small population, there are efforts to encourage value chains, such as an increased emphasis on local purchasing programmes. A stronger and broader resources sector provides increased business opportunities for business start-ups. Also, there are a number of planned and possible small to medium scale start-up businesses in tourism, agriculture, and marine related initiatives that in total could result in capital investment of over \$100 million over the medium term, with quite significant employment opportunities.

The significant investment over the last 10 years in social infrastructure (health campuses, art and recreation centres, schools, town rejuvenation etc) provides a catalyst for service clusters to develop around these new facilities.

Region/Country	Karratha	Port Hedland	Newman	Onslow
Median Individual Weekly Income	1.85	1.86	2.01	1.69
Median Household Weekly Income	1.6	1.56	1.6	1.3
House Prices	0.6	0.4	0.2	0.5
Rent - Accommodation	1.1	1.0	1.1	1.5
Rent - Commercial	0.8	0.6	0.9	1.0
Rent - Retail	0.6	0.7	0.6	0.6
Rent - Industrial	0.7	0.5	1.7	n.a.
Construction	1.6	1.6	1.7	1.6
Water	1.0	0.8	0.8	1.4
Electricity SMEs	2.5	2.5	2.5	2.5
Electricity Large Businesses	2.3	2.3	2.3	2.3
Insurance SME Light Industrial	2.0	3.0	1.6	2.0
Insurance SME Services	2.3	2.3	2.1	2.5
Petrol	1.1	1.1	1.1	1.1
Diesel	1.0	1.0	1.0	1.0
Car Hire	1.2	1.2	1.3	1.3
Truck Hire	1.5	1.5	1.7	1.6

Table 2: Business Cost Multipliers (First Quarter 2018): Pilbara Towns compared to Perth

KEY COST FINDINGS

Regional Price Indicators (RPI)

- Since 2011 the gap between the Pilbara Regional Consumer Price Index and Perth prices has fallen from 137 to 118 in 2015, and to 111 in 2017². As a result the Consumer Price Index in the Pilbara is now the second highest regional index after the Kimberley, instead of the highest, of the regions in WA.
- Although costs have consistently moderated over the last few years, in the medium term (2018 to 2021) the absolute level of costs will remain high and with increased resource industry investment activity costs may start to rise again, particularly transport, construction, accommodation and wages – but probably not at the same rate as in the boom years from 2008 to 2013.

Business Cost Multipliers

- Multipliers show the comparative cost for similar products and services in different locations. Perth=1³.
- Estimates of multipliers for a range of major cost items comparing the main towns in the Pilbara with Perth indicate that although high price differences have continued since 2015, for some item's prices are now on a par with Perth, or even lower, for example rents.
- However, the Pilbara is still expensive and there is evidence that price rises have started as investment activity is increasing once again. This is particularly true of wages.

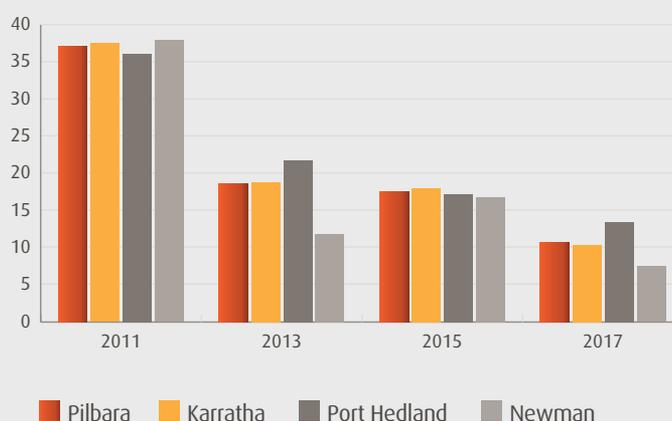


Figure 2: Pilbara Towns - CPI Indexes for the period 2011 to 2017 (Percentage above Perth)

Business Operating Cost Comparisons

- The percentage difference in the costs of operating businesses of a similar type in Perth and in each of the main towns in the Pilbara in 2013 was very high, as this was near the height of the 2008 to 2013 boom. Subsequently the differences narrowed in 2014 and 2015, although costs remained elevated.
- In comparison with Perth the costs of operating a business in the Pilbara in 2018 are rising again after the downturn and the percentage differences are very high, as shown in Table 3 below, due mainly to the increasing cost of labour. They are moving towards the same percentage differences that were experienced near the height of the boom in 2013.

Town	% Above Perth 2018
Karratha	72
Port Hedland	70
Newman	86
Onslow	62

Table 3: Comparison of % Costs of Operating a Business in Pilbara Towns with Perth (2018)

Future Costs

In the resource sector capital costs have been reduced considerably and in the medium term the level of cost competitiveness of Australia, and the Pilbara in particular, has continued to improve. However, overall, it is likely that costs in the Pilbara will not fall further and are likely to increase somewhat in the medium term.

Unlike at the time of the last boom there is also an infrastructure investment surge underway on the East coast. This could have significant impacts on the availability and therefore cost of trade and construction workers for the Pilbara.

The significant contribution of the Pilbara economy to the economy of WA and Australia needs to be maintained, by keeping costs as low as possible. Policy makers need to continue to promote an enabling environment, which assists in reducing costs across the board. The still relatively high costs faced by NGOs in 2018 in the Pilbara must be taken into account by funding agencies to ensure there is provision for adequate and secure funding to ensure service delivery.



PILBARA TOWN SNAPSHOTS

Whilst there are similarities between the Pilbara urban centres there are also differences in terms of geography, demographics, facilities, the diversity of the resource base, and diversification opportunities. Hence the scale and longevity of the business cycle and its impact on the local economy in each of the centres differ.

Karratha

The Business Environment

The business environment has improved, with a greater level of confidence, more demand from the resources sector for services, more families settling in Karratha, much improved liveability and a measure of economic diversification. The environment is likely to strengthen further as additional investments take place in both industry and infrastructure.

Property

House prices have increased by up to 35% over the last year and rents have increased by 5% to 8%. This places some pressure on employers that need to provide accommodation to staff. People, particularly those in the 25 to 40 year age bracket, are showing interest in purchasing residential property due to more confidence in the economy and lower prices compared to the boom period. Demand for industrial premises has increased in the old industrial estate and there is increased interest in Gap Ridge with a number of enquiries in the last few months. The uptake of city centre retail and commercial developments is moving in a positive direction.

Impact of Resource Sector Investments

More buoyancy in the resources sector is leading to more activity in Karratha and the nearby towns of Wickham and Roebourne. The impact of the resources sector in the future is likely to be driven primarily by LNG development in the Browse and Scarborough basins and related infrastructure expansion by Woodside on the Burrup Peninsula, although final investment decisions are not expected until 2019 at the earliest. The impact of the Balla Balla iron ore, railway, and port development project could also come into play in 2019, once the final investment decision has been made. The workload for operation and maintenance has increased, due to the capital investments that are now in production mode, and the need to make up for reduced maintenance during the economic slow down. The amount of industrial land on the Burrup Peninsula is apparently to be increased with a focus on downstream processing.

Non Resource Sector Projects

There are several diversified investments under active investigation, such as the Sahara Forest greenhouse project, which could be located adjacent to the airport. The new hotel in Karratha is likely to go ahead and will consist of 100 rooms. The algae project is still being assessed. An Aboriginal Corporation is exploring the possibility of investing \$30 million in a tourism project on the Burrup Peninsula. The oyster project is progressing. Extraction of mercury is to be started using Woodside waste and it is possible that Chevron waste may also be used. The Bulky Goods precinct has been constructed and IGA are possibly going to construct a retail precinct in the Karratha suburb of Tambrey. Rio Tinto is constructing a large accommodation facility in Dampier.

SME Costs

Executive salaries are starting to go up. Costs for semi-skilled and skilled workers are increasing. Rents are still considered to be too high in the main shopping centre and may start moving up elsewhere. It is the view of stakeholders that personnel costs are going to rise. It is already starting to become more difficult to attract workers and to retain them. Housing may have to be provided again (this fell away somewhat during the slow down) to attract staff and is likely to become more expensive. For example, rents are moving back towards \$1,000 per week for executive type housing, where a shortage may develop.

NGO Costs

Funding by the State Government has been reduced. Salaries and staff retention are an issue and there are indications that staff are leaving for local mining jobs. For example, one NGO has lost a number of administration staff to mining jobs recently. NGOs need to review their wage structures to remain competitive. Forecasts for wage increases are that a review of around 10-15% is required depending on position. Due to the mining upswing there is now a smaller pool of skilled and experienced candidates so that recruiting outside of the region is required. This results in relocation costs and housing costs for non-resident personnel. Rent costs are increasing and therefore new residents expect higher levels of pay to compensate for higher accommodation costs. Some NGOs are focussing on strategies to increase training and recruiting from the local population.

Port Hedland

The Business Environment

The resources sector is widening and deepening. Replacement iron ore mines and the development of lithium is having a positive impact and there is more confidence in the economy in most sectors. Exports of iron ore are at record levels and increasing port capacity is apparently on the cards again, with the development of the outer harbour under consideration. If this is approved it will have a major impact on the town. Moreover the town is now much more liveable and major initiatives by NGO organisations, the resources sector and government agencies have been underway for some time to improve social cohesion. Once again, Port Hedland is being viewed by the business community as a town of opportunity. However, in the retail sector on-line shopping and the population stagnation has had a significant impact. There are 9 empty shops in the main shopping centre, where rents are considered to be too high by some stakeholders, although discussions with the Centre managers indicates that there has been some flexibility when leases come up for renewal. The Chamber of Commerce is promoting a direct air link between Port Hedland and Vietnam and this could facilitate inward investment into the Pilbara, cultural exchanges, increased tourism and additional export potential may be facilitated, for example, for prime quality beef. Links with the Middle East are also being explored by the Chamber, with the possible production of new products for this market.

Property

The property market is improving with rents rising and sales volumes increasing in Port Hedland and other signs of green shoots presage a recovery. Property price increases in Port Hedland are of the order of 20% over the last few months. However, over 90% of persons seeking to buy properties need to apply for loans and with lending standards being increased this may place a cap on the number of properties sold. Although upward pressures on accommodation costs in South Hedland are not apparent yet, it is anticipated that price increases will start soon. If demand continues to pick up a shortage of accommodation may be the result and rents will rise further, although this is not considered to be likely in the immediate future.

SME Costs

Overall, SME businesses expect costs to increase due to competition for labour with the resources sector. Although insurance costs are still very high, costs for commercial insurance

have fallen by up to 20% over the last few years, with increased sourcing of insurance from organisations outside the Pilbara. A similar situation exists for residential property. Skilled labour costs have risen recently.

NGO Costs

NGO costs are starting to rise for staff accommodation. To combat labour cost increases it is necessary to undertake staff retention measures, including increasing in-house training, local recruitment, focussing on building team spirit and inculcating a culture of working for a worthwhile cause.

Newman

The Business Environment

Business has picked up recently, due to a pick-up in mining activity. This includes the hotel business, mainly because of bookings by resource sector companies and the winter tourism season. The car hire business has seen a sharp pickup over the last few months; and mining services businesses are seeing increased opportunities, such as in engineering services. Air passenger movements show a small increase month on month in 2018 compared to 2017. Looking to the future, the economy may slow down once construction of the new South Flank mine by BHP has been completed in 4 years' time – however this will not be the case if new replacement iron ore mines are developed.

Property

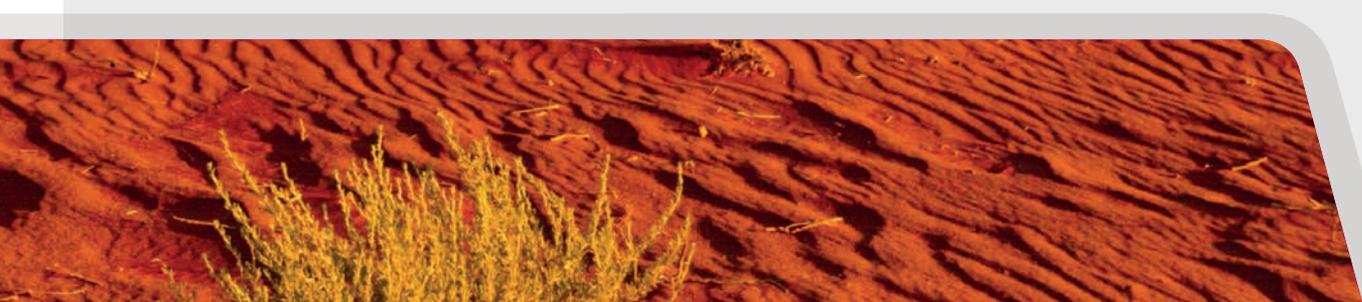
The housing market has strengthened markedly and prices are rising. Rents are also increasing, but at a slower pace. Investors and owner-occupiers are the main buyers of properties with an approximate 50/50 split during 2018. It is noticeable that new residents include young families.

SME Costs

Costs in Newman are rising and will rise further. Pressure on wages is slowly becoming evident. The hourly rate for tradesmen in Newman is about 25% higher than Perth. There is a shortage of tradesman type skills in Newman, for example plumbers.

NGO Costs

NGOs are quite active with more families moving into Newman. However, it is difficult to compete with the mines for labour. For example, four staff have left one NGO in the last few months to work for a major mining company. The jump in housing prices and rentals in the last 12 months has put pressure on NGO employees.





Conclusions and Recommendations

CONCLUSIONS

- Improved business environment – stimulating greater demand for goods and services;
- Employment is likely to rise particularly in construction and contracting;
- Population will stabilise and may increase slightly;
- Property market showing signs of improvement;
- Retail sector turnover of businesses remains challenging;
- Business Costs will not fall further and may increase somewhat in the medium term;
- Diversification - some opportunities - but there are limitations, including distance and access to markets;
- Innovation starting to show some green shoots; and
- Increased emphasis on local procurement should begin to show results.

RECOMMENDATIONS

The more promising business environment needs to be supported and promoted. Actions to be taken could include:

Business Development Organisations: SME and Start-up Support

- Increasing markets for SMEs is a priority. Whilst businesses can target the local resource sector market with a potential for scale, market opportunities need to be opened up in the rest of Australia and internationally by the Pilbara Chambers of Commerce and the newly created Enterprise Hubs. Both local and export opportunities need to be constantly appraised and more attention should be given to opening up markets and further stimulating innovation in a practical manner. In this regard fact-finding missions for small business need to be expanded and the Enterprise Hubs would benefit from expanding linkages with similar organisations in other Australian States and overseas to foster innovation and to link enterprises using a value chain approach.

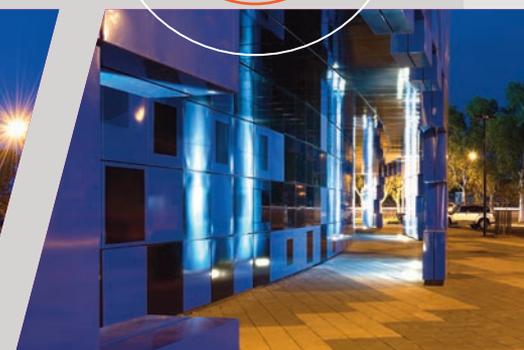
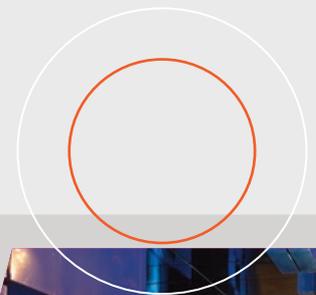
- The normalisation of accommodation costs need to be publicised as widely as possible to encourage more business operations in the Pilbara.
- Discussions with policymakers aimed at reducing the cost of insurance across the community as a whole and for business in particular needs to continue.
- The banking industry needs to engage closely with customers to make sure that opportunities are understood for accessing finance. In this regard service provision to the more remote communities and smaller centres is important and needs further development.
- Initiatives to help businesses develop online selling capabilities or strategies to mitigate the impact of online buying on local sales are required.
- Encouraging higher value-added enterprises to locate to the Pilbara, particularly with regard to supplying digital and additive technologies to the resource industry needs to be supported.

NGO Sector

- NGOs have a vital role to play in the region in providing a range of much needed services. NGOs may have difficulties in attracting and retaining staff unless they make significant contributions to their accommodation costs.
- Policy makers and funding agencies should consider NGOs in the Pilbara as still operating under “exceptional circumstances” when assessing their funding applications.
- Embracing collaborative approaches needs to be fostered to reduce duplication of services or sending mixed messages to funding agencies and development partners.

Local, State and Federal Government Support

- The key constraint to business start-ups and the broader SME sector is the high cost of labour. Flexibility in regulations related to employment of overseas workers is an ongoing and ever present requirement, with the aim of increasing access to a greater pool of labour, which should have an impact on reducing labour costs.
- An annual survey of labour costs and availability would assist businesses and NGOs to plan better as this is one of the most important factors in their operations.
- Another key issue with regard to attracting resident workers and tourists is the need for establishing more cost competitive air links as a priority. These include flight costs from Perth as well as developing viable international air links.
- The Federal Government programmes for economic development of Northern Australia and the concept of diversification and changes to the enabling environment need to be taken advantage of not only in the Pilbara, but also through regional initiatives that cross state boundaries.
- Further investments in vital infrastructure are needed to support economic growth, such as lower cost housing and more development in the smaller centres.
- There needs to be a continuing effort to reduce the permanent FIFO component of the workforce through encouraging local residency.
- Active implementation of local procurement programmes such as WA Industry Link, and Reconciliation Action Plans involving Aboriginal Corporations is required.
- Ensuring local council rates are competitive to retain and attract businesses is important.



I. Context

Regional Development Australia (RDA) Pilbara commissioned Imani Development Austral to prepare studies on the Cost of Doing Business in the Pilbara in 2013, 2014 and 2015. After a gap of three years the study was updated in 2018, which has seen a change in the enabling business environment, as the outlook has improved. From a policy perspective economic development in the Pilbara remains critical to the fortunes of WA and the nation. The study has been undertaken after consultations with a range of stakeholders in the main centres. The intent is to update the prospects for business in the Pilbara and the cost of doing business profile for each major centre (Karratha, Port Hedland, Newman, and Onslow) in the region.

The report presents developments and forecasts for the global economy and commodity markets as these are the main drivers of levels of investment and production in the Pilbara, business opportunities for SMEs and the cost structure of the region in the main towns in the Pilbara. Analysis of developments in the economy is an essential input into the cost estimation process.

The results and conclusions will be used to:

- Inform businesses and NGOs about the business environment, the prevailing cost structure and future costs, to improve planning and operations; and
- Inform government agencies so that policy formulation can be adjusted to take the prevailing costs into account.

The economic environment for SMEs deteriorated in the years 2013 to 2017 as the construction phase of the resources sector of the economy wound down, which in turn led to a decrease in the demand for goods and services and reductions in employment. This resulted in a reduction in economic activity and a tougher overall economic environment for SMEs. Over the period 2012-2017 there was a fall in the number of small businesses (turnover of less than \$200k per year) in the Pilbara.

The positive aspect of the downturn was a sharp reduction in many cost items, which made the Pilbara a more attractive place to invest and do business in the medium and longer term. This has been termed a “normalisation” of costs and the process needs to be maintained.

During the latter part of 2017, and in 2018, the first signs of an upswing in the economy of the Pilbara have emerged. Whilst capital investment declined sharply during the downturn the export value of commodities has increased dramatically. Furthermore, investments in the Pilbara in the resources sector are set to increase in the short and medium term as the major iron ore companies invest in replacement mines, substantial developments leading to increasing LNG supplies and processing are planned, lithium production has started and may be increased and gold mining exploration has expanded significantly. In addition it is possible that a new fertiliser production plant will be constructed on the Burrup Peninsula outside of Karratha and other non-resource sector investments are under consideration. The more positive economic outlook will result in a greater demand for goods and services in the short and medium term, resulting in a better business outlook.

The major cost drivers in the Pilbara for most sectors of the economy are the costs of construction and operational costs of the resource sector. In 2018 attention has continued to be paid to the future direction of the resources sector as increases or decreases in the level of investment and production and the resultant demand for services has the largest impact on the economic growth of the region and the regional inflation trend. In the resource sector itself one of the main considerations remains the competitiveness of Australia and the Pilbara in particular. In this regard cost cutting measures taken by the organisations operating in the resources sector after 2013 led to significantly lower operating costs and competitiveness improved substantially. However, as investment increases over the medium-term costs will flatten out and may rise somewhat, particularly labour and construction costs.

Clearly it is in the best interests of all businesses, small or large that costs are controlled. Limited supply options and constraints to economic diversification remain. Lack of diversity is a situation that still needs to be addressed. In this regard, opportunities are being explored by government development agencies, Local Government Authorities (LGAs) and businesses. With a broader and deeper extractive industries sector and opportunities afforded by the abundance of sunshine and marine resources that are increasingly being recognised, the prospects have risen for a greater degree of diversification.





2. Methodology

2.0 FOCUS

The focus of the Study is on the major costs of doing business in the Pilbara. Costs in the main towns of Karratha, Port Hedland, Newman and Onslow, have been compared with costs in Perth and in some cases WA and Australia. The inclusion of Perth and Australia as a point of comparison is because Perth still remains an expensive city in some aspects compared to some others in Australia. Two primary methods of collecting and analysing data have been used, which give a reasonably comprehensive picture of the costs of doing business in the Pilbara.

2.1 DATA SOURCES AND COST INDICATORS

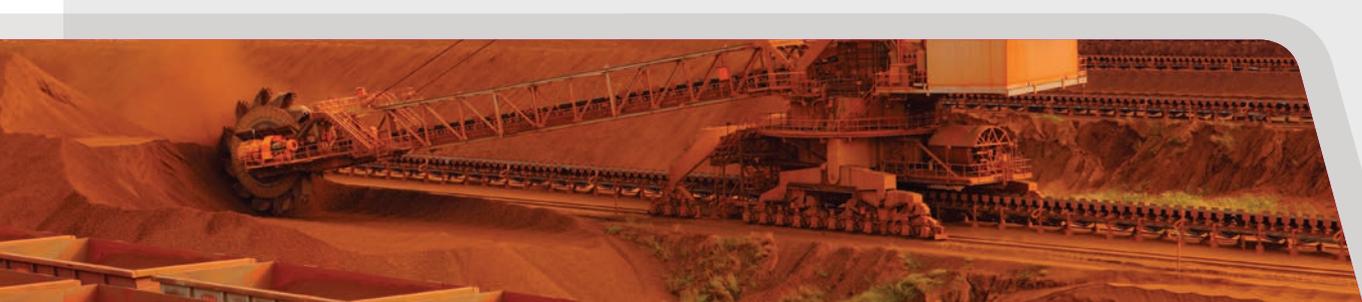
Data sources include:

1. Other Studies⁴ such as the Chamber of Minerals and Energy (CME) 2018 to 2027 Resources Sector Outlook; the Consumer Price Index (CPI) and Regional Price Indices (RPI) prepared by the Department of Primary Industries and Regional Development in 2007, 2011, 2013, 2015 and 2017 (estimates of the CPI are used by businesses as one set of data to negotiate salaries and wages.) No estimates of the CPI are prepared by the Australian Bureau of Statistics (ABS), or the Department of Treasury Western Australia at regional level as CPI estimates are made only for States and major cities; a cost of doing business study prepared by the CME in 2018⁵; the RDA Pilbara's Map and Gap Supply Chain Study 2017; RDA Pilbara's Cost of Doing Business Studies in 2013, 2014 and 2015; and an RDA Pilbara Study on Banking and Insurance in the Pilbara⁶; various economic and development reports of the Pilbara LGAs and numerous reports on various aspects of economic development in the Pilbara.
2. Data from ABS, WA Apex bodies, LGAs, the Pilbara Development Commission, and companies in the resources sectors.

3. Discussions were held with some major resource companies, business Apex bodies, regional organisations in Perth and the Pilbara, State and Local Government Agencies, utility providers, SMEs in the Pilbara, Estate Agents, NGOs and Employment Agencies, which provided useful insights on the business environment, the cost structure and the future direction of costs.

The selection of indicators for establishing costs in the Pilbara is based on cost items that are common to all types of business, the importance of the cost item (contribution to total budgets) and data availability/accuracy. Cost items include:

- Employment (Salaries and wages);
- Accommodation;
- Utilities (electricity, water and gas);
- Commercial and Retail Rent;
- Vehicle Hire;
- Fuel (petrol and diesel);
- Insurance;
- Airfares;
- Consumables;
- The cost of buying properties is also included since this cost is a major consideration for employees and employers, who often provide subsidised housing or purchase accommodation outright for their work force;
- Since high construction costs are a major factor in determining office accommodation and commercial costs these have also been analysed;
- Environmental costs are also (briefly) included; and
- Other cost issues have been given some attention such as competitiveness and the high cost of capital in the Pilbara.

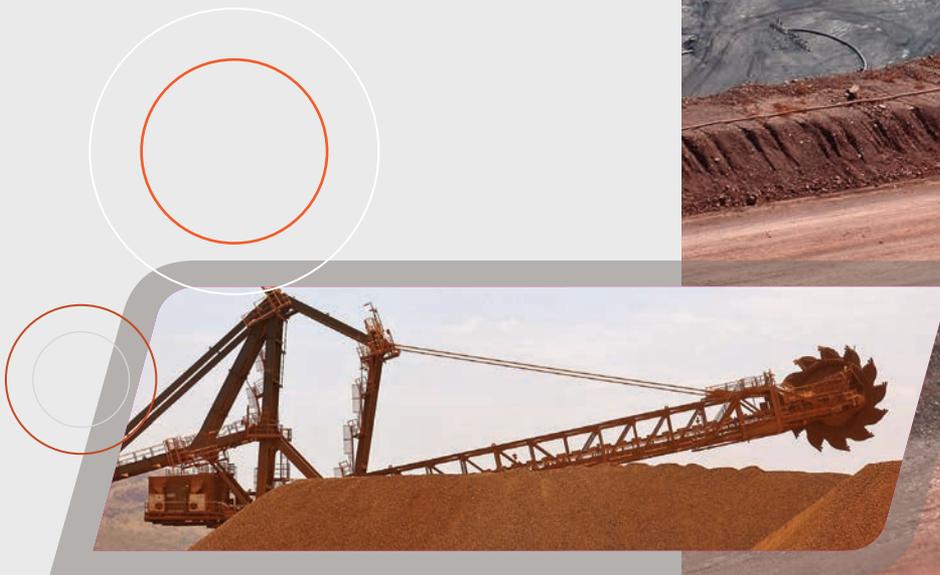


2.2 DATA ANALYSIS AND OUTPUTS

Where possible, prices have been estimated to show not only absolute prices and price differences, but also changes over time. A comparison of costs in the Pilbara towns with Perth was undertaken, and for some indicators comparison was also made with WA and Australia as a whole. An estimate of the Business Price Index and Business Cost Multipliers for major cost categories between the towns in the region and Perth was updated.

An illustrative model budget showing the relative cost of doing business in the main towns in the Pilbara in 2015 compared to Perth was prepared. It is not possible to do this for all categories of business and therefore typical cost items for a medium size commercial service type business were used as the basis for the model, based either on average costs (salaries and wages) or actual unit costs. The data needs to be treated with caution, as particular business costs vary enormously as do variations between sectors.

Future price increases and the cost structure for doing business in the Pilbara was estimated based on the available data, and the opinions and the views of various stakeholder organisations.



3. The cost of doing business in the Pilbara

3.0 REGIONAL PRICE INDEXES (RPI) 2015 AND 2017 AND THE COST OF LIVING

The cost of living is a standard and fundamental factor taken into account in setting employment benefits. The ABS and the Department of Treasury Western Australia do not compile cost of living indices below State and city level. The Department of Primary Industries and Regional Development (DPIRD) estimates regional price indexes every two years comparing the cost of living in the main Pilbara towns (Karratha, Newman and Port Hedland) with prices in Perth. Data is not available for Onslow.

The most recent estimates were made in 2011, 2013, 2015 and 2017⁷. This allows for cost of living comparisons over a timeframe that spans the peak of the mining boom, the severe downturn starting in 2013 and a slight pick-up in activity starting in late 2017.

The 2013 data showed that although there was a decrease in costs in the Pilbara in comparison with 2011 it was clear that the cost of living in all Pilbara centres remained substantially higher than Perth (and also the remainder of WA and Australia). In 2015 for the entire basket of goods and services, prices were still the highest in the Pilbara region, followed closely by the Kimberley and Gascoyne regions.

In 2017 the picture changed slightly. Overall, prices were highest in the Kimberley region, followed by the Pilbara and Gascoyne regions. Costs have trended downwards relative to costs in Perth for most product categories. Port Hedland is the most expensive town, followed by Karratha and Newman.

Year	Pilbara	Karratha	Port Hedland	Newman
2011	137.1	137.5	136.1	137.9
2013	118.6	118.8	121.8	111.9
2015	117.5	118.0	117.2	116.8
2017	110.7	110.4	113.5	107.5

Table 4: DPIRD estimates of RPI in the Pilbara Towns (Perth = 100)

Business organisations and NGOs still need to continue to offer salaries that are sufficient to meet high costs of living and to attract staff – albeit that cost pressures have subsided to an extent. There remains a need to provide subsidised or free accommodation for staff in some cases, although this practice has become less necessary.

The influence of specific cost items on the RPI is clear. Differences in costs compared to Perth remained very large for housing, food, and health & personal care. However, all categories were trending downwards except for clothing and recreation & education.

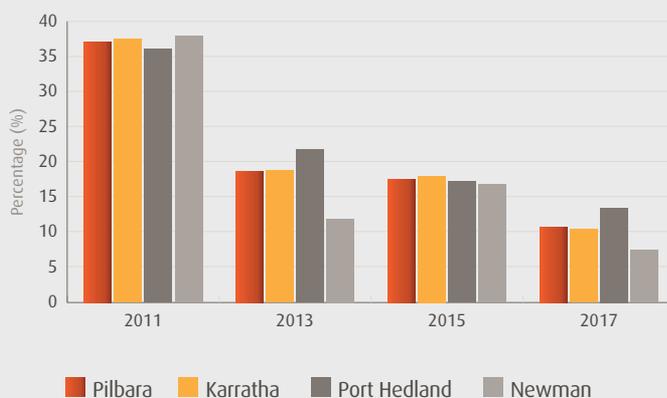


Figure 3: Pilbara Towns - CPI Indexes for the period 2011 to 2017 (Percentage above Perth)

Pilbara

- The indexes for the Pilbara in 2017 were the second highest of any region in WA
- In 2017 the indices show that in the Pilbara the level of remuneration should have been 18% higher than that in Perth
- The difference between the overall indices from in 2011 to 2017 indicates that the cost of living in the Pilbara decreased significantly in comparison to Perth – however the overall cost structure is still high
- The 2017 indexes imply a fall in the rate of inflation for consumer prices

Town	Index		Trend
	2015	2017	
Food	117.6	110.3	▼
Clothing	99	103.7	▲
Housing	132.2	120.6	▼
Cigarettes, Tobacco, Alcoholic Drinks	104.3	101.6	▼
Health and Personal Care	116.9	111.6	▼
Transportation	115.6	101.9	▼
Household Equipment and Operation	115.4	106.1	▼
Recreation and Education	97.9	108.0	▲

Table 5: Cost Differences for Specific Product Groups between the Pilbara and Perth: 2015 compared to 2017. Perth = 100

The high cost structure still has policy implications for government agencies. Although this is already well known and steps have been taken to reduce cost pressures regarding accommodation in particular, the cost base of the Pilbara needs ongoing attention. Although costs have recently fallen

for some items, they need to be reduced further for long term community sustainability, and the viability of the NGO and SME sectors. Business organisations and NGOs still need to continue to offer salaries that are sufficient to meet high costs of living and to attract staff – albeit that cost pressures have subsided to an extent. There remains a need to provide subsidised or free accommodation for staff in some cases, although this practice has become less necessary.

As shown in Figure 4 ABS data shows that although Pilbara living costs remain high in relation to Perth they have declined since reaching a peak in 2011 and the deviation from Perth supports data from the DPIRD surveys.

Stakeholder information also supports the picture of falling prices over the last few years with costs peaking in 2011. Price decreases started in 2012 for some commodities and this trend continued in subsequent years. Although prices have moderated over the last few years, they are likely to remain elevated and may well increase significantly if the full suite of approved and possible resource sector investments is implemented in the short to medium term.

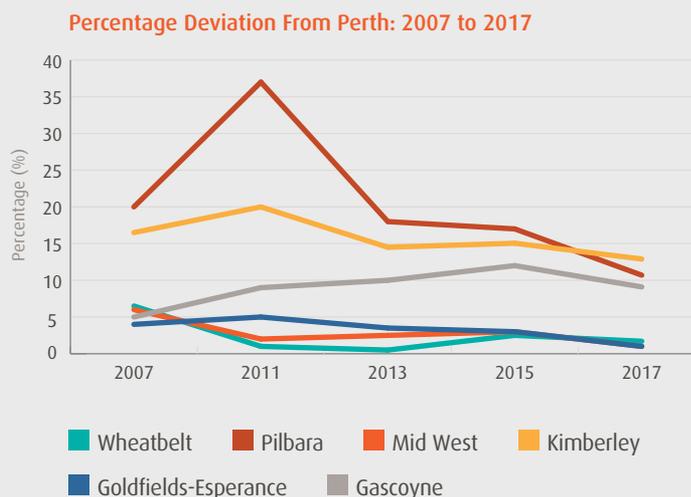


Figure 4: Cost of living indicators - Australian Bureau of Statistics

The high cost structure still has policy implications for government agencies. Although this is already well known and steps have been taken to reduce cost pressures regarding accommodation in particular, the cost base of the Pilbara needs ongoing attention. Although costs have recently fallen for some items, they need to be reduced further for long term community sustainability, and the viability of the NGO and SME sectors. Business organisations and NGOs still need to continue to offer salaries that are sufficient to meet high costs of living and to attract staff, albeit that cost pressures have subsided to an extent. There remains a need to provide subsidised or free accommodation for staff in some cases, although this practice become less necessary over the 2013 to 2017 period.



The current Employee Location Awards per week for Not-for-Profit organisations as of 1st July 2018 were as follows:

Karratha	\$36.30
Port Hedland	\$30.10
Newman	\$20.70
Onslow	\$37.60

The broader inflation rate picture for WA as a whole in comparison to the rest of Australia is illustrated by the low quarterly and annual inflation rates for Perth in comparison to other major cities. Low cost increases in Perth have an impact on all WA regions, since many goods and services are sourced out of Perth. Lower costs in Perth will have a marginal mitigating effect on rises in Pilbara prices.

Capital Cities	Quarter on Quarter	Year on Year
Perth	0.1	0.9
Sydney	0.3	2.1
Melbourne	0.9	2.2
Brisbane	0.1	1.7
Adelaide	0.4	2.3
Hobart	0.7	2.0

Table 6: Capital Cities Rate of Inflation First Quarter 2018⁸

The inflation rate in Perth reveals that prices growth have been at or near the top of the range during the period of the mining boom from around 2005 to 2012. This was followed by Perth having lower rates of growth in prices relative to the other capital cities, especially in recent quarters. The inflation rate for Perth currently stands at 0.8% on an annual basis for the 2017 September quarter, as compared to 2.1% for Australia as a whole.

The Economist magazine introduced the concept of the Macdonald's Exchange Rate – a somewhat flippant way of calculating if a country's currency was over or under valued. It has gained popularity and is remarkably accurate. If you apply the same fuzzy logic to the cost of a Big Mac in Perth with that in the Pilbara in September 2018, the outcome is illuminating:

- Perth: \$6.40
- Karratha: \$7.10
- Port Hedland: \$7.00



Karratha is 11% higher-priced compared to Perth, while Port Hedland is 9% higher. In 2015, the Karratha price was 18% higher than Perth.

Pilbara Population 2006 to 2016

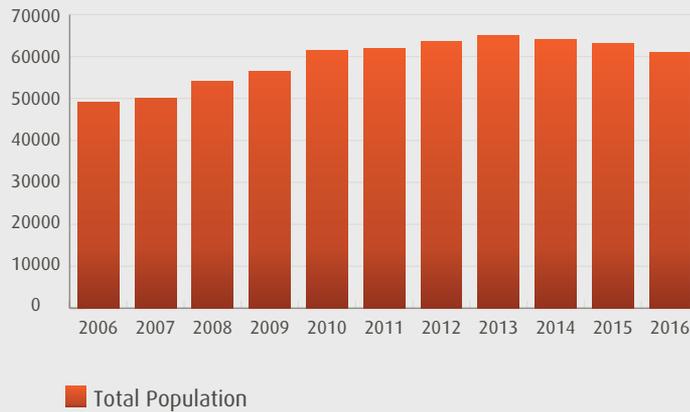


Figure 5: Population of the Pilbara¹⁰

3.1 EMPLOYMENT AND POPULATION IN THE PILBARA

Population

As predicted in previous RDA Pilbara reports, over the last few years the resident population of the Pilbara decreased as the economy slowed down after 2013. The total population of the Pilbara was about 61,400 in 2016⁹, compared to 64,000 between 2012 and 2014, as depicted in Figure 6. A smaller population decreases the amount of local labour available and increases pressure on employers when the economy once again starts to expand. A smaller population also means a smaller local market.

The distribution of the population in the Pilbara in 2016 is shown below, with Karratha having the largest number of residents and the Shire of East Pilbara the least:

Ashburton:	13,026 (21.9%)
East Pilbara:	10,591 (17.8%)
Karratha:	21,472 (36.1%)
Port Hedland:	14,465 (24.3%)

Whilst the population of the Pilbara may grow slightly in the years ahead the rate of growth is likely to be more in line with rest of WA or slightly lower. The anticipated population growth rate for WA over the next ten years is 1.5%. However, for regional WA it varies considerably (for instance it is forecast that there will be increases in the South West and declines in the Wheatbelt). For the Pilbara it is possible that rate of growth will be in the region of 1% over the next ten years.

From a policy perspective, the Federal and State governments' approach to temporary skilled worker visas will have a significant impact. Also, for WA there will be a need to reverse the trend of net migration to the rest of Australia, with a net loss of 7,000 people recorded in 2016.



The resident population of Karratha is likely to grow most of the major centres, due to its more diversified economy consisting of iron ore, oil and LNG. The location of the Woodside processing facility nearby is likely to become even more important as a central hub for the LNG processing industry and possible growth in other sectors utilising gas as an input to production will result in greater levels of employment. At the same time, it is possible that the populations of the other centres will grow slightly, in particular Port Hedland. This trend will be underpinned by the even larger and more diversified resources sector and the possible growth of other sectors albeit that this is in an incipient phase.

Employment

The cost of labour in all sectors in the Pilbara is influenced primarily by the level of investment, production and the demand and supply of labour in the Australian resources sector. Factors such as distance and isolation are also important.

Employment costs have moderated in all sectors over the last few years. However, due to the high level of investment in the short and medium term and the general recovery in the economy of the Pilbara, labour costs have risen over the last six to twelve months and are higher in some categories than Perth. Further increases are anticipated as the current wave of investment gathers pace. As a result policy designed to increase the skills required and mobility and freedom of movement of labour is required to meet future demand.

Total Employment in the Pilbara

According to the WA Chamber of Minerals and Energy in 2016/17 the resources sector employed 59,593 people, with the largest number employed in the iron ore industry with rising numbers in the LNG sector. In 2016 there were 31,915 residents in employment in the region, illustrating the high proportion of non-resident workers.

Mining and construction employ the largest number of workers by far, comprising about 63% of the work force. Unemployment in the Pilbara has risen from a very low base to a high of 4.5% in 2016, however this rate of unemployment is thought to be coming

down at present and is likely to continue to decline. According to the Pilbara Development Commission of the total number of 63,850 jobs in the Pilbara Region¹¹ in 2016 there are:

- 24,920 jobs in Ashburton (Shire) (39.03%)
- 15,353 jobs in East Pilbara (Shire) (24.05%)
- 13,572 jobs in Karratha (City) (21.26%)
- 10,005 jobs in Port Hedland (Town) (15.67%)

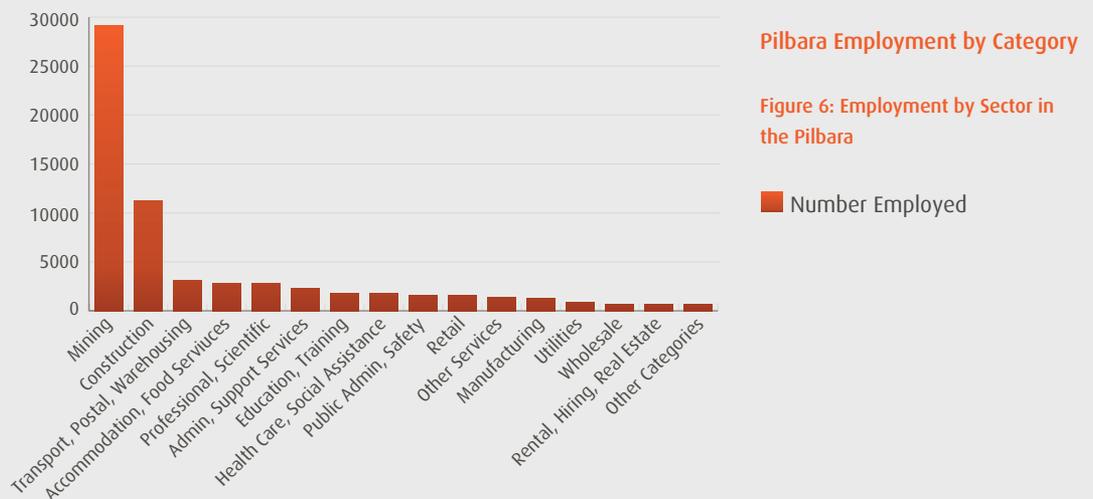
Resource Sector Employment in WA

In WA the resources sector and supporting work force¹² has been declining since its peak of around 120,000 in 2013 to some 115,000 in 2015/16, before rising again to about 118,000 in 2016/17. Modest growth in employment is expected over the next decade.

Over the medium term the number of mining and construction workers is expected to increase from 2018 onwards. Although increases in the number of operational workers may be limited by automation, technological advances and increased efficiency, it is probable that there will be an increase in the total number of employees as production levels in iron ore rise slightly, iron ore replacement mines are constructed and production of LNG increases.

Further employment opportunities may well result in other sectors, such as lithium, gold and fertilisers if current plans to invest further in these sectors materialise. Within this overall employment outlook there is a growing demand Australia-wide for skilled workers and this is also the case in the Pilbara. The demand for skilled labour in particular is expected to increase in the short and medium term.

Due to the regional and remote locations of operations the reliance on fly-in fly-out and drive-in drive-out (FIFO/DIDO) workers is likely to continue. The implications of labour force changes in the resources sector is that incomes and expenditure in regional towns may increase, although these will continue to be mitigated to some extent by the high proportion of the non-resident workforce.



Pilbara Employment by Category

Figure 6: Employment by Sector in the Pilbara

■ Number Employed

3.2 INCOME AND LABOUR COSTS IN THE PILBARA

Pilbara Development Commission Data¹³

Data from the PDC indicates that over 26% of employees have weekly incomes of more than \$2,000 and that there are very wide differences in income levels. For example, more than 13% of workers have an income of \$800 per week or less and income disparities are unlikely to be reduced without further diversification in the economy.

The wages and salaries paid by businesses and organisations in the Pilbara region are estimated at \$8.141 billion. This is a very large amount in relation to the size of the population. In this regard, the Pilbara Region represents 29.29% of the \$27.790 billion in wages & salaries paid by businesses and organisations in Regional WA, and 7.59% of the \$107.284 billion in wages & salaries paid by businesses and organisations in Western Australia as a whole.

The proportions of the total \$8.141 billion paid in wages & salaries in the Pilbara Region are as follows:

- \$3.527 billion wages & salaries is paid in Ashburton (43.32%);
- \$1.962 billion wages & salaries is paid in East Pilbara (24.10%);
- \$1.587 billion wages & salaries is paid in Karratha (19.50%); and
- \$1.065 billion wages & salaries is paid in Port Hedland (13.08%).

Australian Bureau of Statistics (ABS) Data on Income Changes in the Pilbara Compared to Perth, Western Australia and Australia

The high salaries in the Pilbara are reflected in Table 7 showing personal income levels and the rapid rate of growth from 2001 until 2011 at the start of the height of the resources boom. With the exception of Onslow incomes declined slightly in 2016 but remain at an elevated level. Data in the Pilbara towns relative to those in Perth, WA, and Australia over the period between 2001 and 2016 show that the percentage increase in individual incomes was between 87% and 170% for the Pilbara cities, as opposed to an increase of 50% for Perth, 34% for WA and 76.5% for Australia generally.

The data is entirely consistent with developments in investments and production in the resources sector. As the transition from construction to operations started in 2013 income levels decreased in line with less demand for labour and services. The exception is Onslow where LNG investments offshore and facilities onshore continued until late 2017 and further expansion of supplies and processing capacity is to continue due to investment decisions taken by Chevron.

Following a similar trend line, the Median Weekly Income for families and households also increased from 2001 to 2011. The most recent data from the 2016 ABS census shows continuing high levels of income as shown in Figure 7. The Pilbara has the highest level of household income in Western Australia with a median of \$2,422 a week. The WA median is \$1,595.

Table 7: Median Individual Weekly Income for Pilbara City/Town, Perth, WA and Australia 2001 – 2016 (\$)

Town/City/Year	Percentage Change on Base Year (2001)							
	2001	2006	2011	2016	2001-2006	2006-2011	2001-2011	2001-2016
Karratha	704	940	1,543	1,350	34%	64%	119%	91.76%
Newman	785	1,095	1,538	1,468	39%	40%	96%	87.0%
Port Hedland	689	862	1,368	1,361	25%	59%	99%	97.5%
Onslow	452	428	926	1,224	-5%	116%	105%	170%
Perth	484	513	669	728	6%	30%	38%	50%
West Australia	540	500	662	724	-7%	32%	23%	34%
Australia	375	466	577	662	24%	24%	54%	76.5%

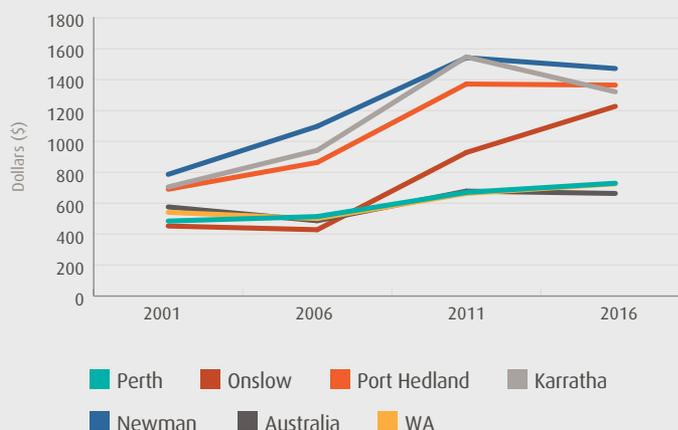


Figure 7: Median Weekly Income Pilbara Towns, Perth, WA and Australia – 2001 to 2016 (\$)

Location	Family	Household
East Pilbara	2,536	2,353
West Pilbara	2,936	2,569
Karratha	2,536	2,626
Port Hedland	3,000	2,563
Ashburton	2,889	2,456

Table 8: Weekly Median Incomes Pilbara Regions and Towns in 2016 (\$)

There is no ABS data available on labour costs after 2016. Anecdotal evidence suggests that incomes have stabilised in 2017, however, further increases in incomes are anticipated in the short to medium term due to the need for larger operational workforces and increased levels of investment in iron ore, LNG, other resource related investments and smaller investments in the non-resources sectors, such as tourism and agriculture.

Bank West Curtin Economics Centre: Focus on WA Report¹⁴

The value of the Curtin Economics Centre is that it analyses whether incomes have kept pace with or exceeded inflation. In the Pilbara incomes have exceeded price rises and therefore wage earners have been in a position to save more or spend more than the average population of WA. Regional income movements have been more volatile than regional price movements relative to Perth over the period 2006/7 to 2016/17. In most regions, incomes relative to Perth have failed to keep up with prices relative to Perth. The Pilbara is a clear exception, where income relative to Perth strongly outstripped prices relative to Perth in the period 2006/7 to 2016/17.

Comparison of 2018 with 2013 and 2015 Labour Costs for SMEs¹⁵

For the RDA Pilbara Study on the Cost of Doing Business in 2013 a survey of SMEs and NGOs on labour costs was carried out. Subsequently in 2015 discussions with a wide range of stakeholders in the Pilbara (resource companies, port authorities, employment agencies, real estate agents, Chambers of Commerce, banks etc.) indicated that high employment costs abated starting from about mid-2012. For the 2018 RDA Pilbara report similar discussions have been held with stakeholders on labour costs.

The overall conclusion is that in 2016 until about mid 2017 labour costs fell slightly further before flattening out, with a slight upward movement in wages starting to become evident over the last few months, a trend that started to become more accentuated from about April 2018.

Furthermore, the general consensus of opinion is that wages will rise over the short term and perhaps over the medium term as the upward trajectory of investments continues. These pressures are most evident in the resources sector for most categories of workers and across the board for skilled and semi-skilled workers. Stakeholders in Karratha expressed the most concern regarding a looming shortage of skilled workers in industries providing services to the extraction industries. Increases in costs have been flagged by the resources companies themselves in numerous forums of late. The main conclusions regarding labour costs are as follows:

- They remain high in some sectors, although rates of pay differ considerably between business categories with high employment costs in industries such as mining, engineering, mining support services, finance, insurance and construction;
- Remuneration is lower in many other types of businesses in areas such as retail, food, travel, administration and tourism;
- As in the years prior to 2018, persons working in higher paid professions can cope with the high costs of living and are in a position to accumulate savings at high rates. For persons in lower paid categories, such as administration, the high cost structure in the Pilbara remains problematic;
- Although there have been reductions in benefits, such as housing subsidies/allowances over the last few years, businesses may have to start offering increased levels of accommodation support to retain or attract staff;
- Staff retention is once again starting to become an issue with workers tempted to leave less well-paid positions for higher paid jobs in the resources sector, although this is not yet a major concern; and
- Recruitment from the Eastern States and from overseas is starting to pick up, however there is also a high level of infrastructure investment taking place in the Eastern States, which is limiting the availability of skilled workers.

The cost estimates shown in Table 9 are based on information supplied from disparate sources and are indicative only.

Employment Cost Item	2013 SME Survey Data	2015 Estimate	Difference (- %)	2018 Estimate	Difference (+%)
Managers Full Time	2,640	2,110	-20	2,215	+5
Professionals Full Time	2,190	1,750	-20	1,750	0
Technicians and Trade Workers Full Time	2,600	1,560	-40	2,030	+30
Clerical and Administrative Workers	1,150	980	-15	1,025	+5
Machinery Operators and Drivers Full Time	2,880	2,300	-30	2,415	+5

Table 9: Estimated 2018 SME Employment Costs (\$ salaries and wages averages per week) compared to 2015 data and 2013 SME Survey Data¹⁶

Comparison of 2018 with 2013 and 2015 Labour Costs for NGOs

Similarly, in the NGO sector it was estimated that labour costs fell between 2012 and 2015, however, anecdotal evidence suggests that wage pressures are starting to rise. The State government has reduced support to the sector and many NGOs simply cannot increase remuneration to compete with the resources sector. As a result, several NGOs interviewed have lost substantial numbers of workers in 2018, who have left for better paid positions elsewhere. Others are coping by increasing training and providing a working environment that assists with staff retention.

Labour costs for employers remain quite high despite the fall in costs between 2012 and 2015 and in 2018 labour costs are anticipated to rise by 5% to 15%, dependent on the type of labour, according to some NGOs. Some categories of employees will continue to struggle to meet costs of rental accommodation, with after tax earnings that barely cover daily needs.

A comparison of 2018 cost estimates with 2015 and 2013 is shown in Table 10. These estimates are no more than indicative.

Employment Cost Item	2013 NGO Survey Data	2015 Estimate	Difference (minus - %)	2018 Estimate	Difference (plus - %)
Chief Executive Salaries	2,040	1,840	-10	2,040	+10
Operations Managers	1,900	1,710	-10	1,900	+15
Technicians and Trade Workers	1,520	910	-40	1,040	+15
Clerical and Administrative Workers	800 to 1,430	780	-20 -30	820	+5
Community and Service Workers	800 to 1,350	860	-10 -20	950	+10
Family Support Workers (Casual)	430	340	-20	370	+10

Table 10: Estimated 2018 NGO Employment Costs (\$ salaries and wages - averages per week) compared to 2015 and 2013 NGO Survey Data¹⁷

3.3 HOUSEHOLD EXPENDITURE IN WA AND THE PILBARA

Household Expenditure in WA

The impact of the mining boom in WA and the subsequent downturn had a major effect on expenditure levels. Real total expenditure increased from 2003 in all states and territories, but the rate of growth differs greatly between them. In WA as well as in Queensland, real household expenditure climbed by 25% between 2003/4 and 2009/10, as the resources sector boomed¹⁸. This significantly exceeded the national average rate of increase in real household expenditure of 16%. On the other hand, after the peak of the mining boom, the growth rate of household expenditure decreased considerably in the same states, dropping to as low as 4% to 5% during 2009-15. This was lower than the national average expenditure growth rate of 10%.

During the 2003-09 period, both Perth and the rest of the State experienced a significant growth in household expenditure, rising by 33% for those living outside Perth and 22% for those living in the capital. The economic slowdown during 2009-15 appears to have hit regional areas harder as they experienced an 8% decline in median expenditure. Median household expenditure in Perth, on the other hand, has continued to increase in real terms, but at a lower rate from the previous period, reaching an 8% growth rate in 2015/16.

Expenditure Increases in the City of Karratha and Port Hedland¹⁹

The overall increase in household expenditure in Karratha from 2011/12 to 2016/17 was 25%. The 2016 ABS survey expenditure data gives a very good picture on changes in levels of expenditure related to disposable income and savings. Whist expenditure for most items has increased, particularly for categories such as transport, utilities and communications, total disposable income has fallen markedly by \$43,147 per annum and thus people have saved less with an average fall in net savings of \$83,188.

A similar situation has prevailed in Port Hedland where household expenditure has risen even faster over the period 2011/12 to 2016/17 by 59%. Also, net savings have turned negative with a decline of \$90,878 over the period.

The impact of high prices has the most impact on persons engaged in the non-mining sector. Income disparities in the Pilbara are very high and lower income earners such as those in the NGO sector have to cope with the high prices. A WA Council of Social Service (WACOSS) report in 2017²⁰ notes that in the post-boom Western Australia: "The decline in rental costs has been one of the most visible impacts in the costs, but at the same time we have seen significant job losses. While recent months have seen an improvement in the unemployment rate, it has not been driven by large increases in people securing full-time work. Precarious, intermittent work has almost become the new normal in WA, with even previously secure sectors like the public service facing widespread redundancies and minimal wage growth. Where people are able to secure employment, they find their workplace conditions and wages under sustained attack. Households relying entirely on government income support while renting, are either just breaking even or falling short of meeting their basic living costs.... People on low incomes are spending less everywhere it is possible....Those in financial hardship are continually finding a higher proportion of their expenditure is subsumed by housing and utility costs."

Anecdotal evidence suggests that spending in almost all categories declined significantly with turnover of many retailers falling by up to 40% since 2013. Although the very strong increase in the percentage of households in the upper income brackets is unlikely to be repeated over the medium term it is possible that due to the pick-up in investments by the resources sector, the costs of some categories of labour will need to be increased more than is required to keep pace with regional inflation to attract and retain staff and discussions with stakeholders indicates a small increase in expenditure in the retail commodities sector.

Table 11: Household Expenditure Per Year Comparison for Karratha and Western Australia

Household categories	2016/17				2011/12				Karratha Change \$
	\$/household	% of expenditure	WA \$/ household	WA %	\$/household	%	WA \$/ household	WA %	2011/12 to 2016/17
Food	\$20,735	10.2%	\$9,913	10.2%	\$22,229	13.7%	\$9,735	9.7%	-\$1,494
Alcoholic Beverages & Tobacco	\$11,545	5.7%	\$3,081	3.2%	\$6,913	4.3%	\$4,145	4.1%	+\$4,633
Clothing & Footwear	\$9,086	4.5%	\$3,324	3.4%	\$2,552	1.6%	\$3,513	3.5%	+\$6,534
Furnishings & equipment	\$12,838	6.3%	\$4,689	4.8%	\$11,070	6.8%	\$4,673	4.7%	+\$1,769
Health	\$12,923	6.4%	\$6,956	7.1%	\$9,221	5.7%	\$6,402	6.4%	+\$3,701
Transport	\$36,875	18.2%	\$10,358	10.6%	\$23,968	14.8%	\$11,053	11.0%	+\$12,907
Communications	\$7,330	3.6%	\$2,134	2.2%	\$3,348	2.1%	\$1,633	1.6%	+\$3,982
Recreation & Culture	\$20,357	10.1%	\$8,544	8.8%	\$14,829	9.1%	\$9,377	9.3%	+\$5,528
Education	\$8,155	4.0%	\$4,346	4.5%	\$4,827	3.0%	\$4,403	4.4%	+\$3,328
Hotels, Cafes & Restaurants	\$6,269	3.1%	\$6,240	6.4%	\$5,022	3.1%	\$6,716	6.7%	+\$1,247
Miscellaneous Goods & Services	\$39,882	19.7%	\$14,470	14.8%	\$32,263	19.9%	\$14,489	14.4%	+\$7,619
Housing	\$6,975	3.4%	\$20,759	21.3%	\$19,906	12.3%	\$21,212	21.1%	-\$12,931
Utilities	\$9,498	4.7%	\$2,804	2.9%	\$6,280	3.9%	\$2,959	3.0%	+\$3,218
Total Expenditure	\$202,469	100.0%	\$97,617	100.0%	\$162,427	100.0%	\$100,310	100.0%	+\$40,041
Net Savings	-\$33,747	-20.0%	\$42,386	30.3%	\$49,441	23.3%	\$50,225	33.4%	-\$83,188
Total Disposable Income	\$168,722		\$140,004		\$211,868		\$150,535		-\$43,147

Table 12: Household Expenditure Per Year Comparison for Port Hedland and Western Australia

Household categories	2016/17				2011/12				Port Hedland Change \$
	\$/household	% of expenditure	WA \$/ household	WA %	\$/household	%	WA \$/ household	WA %	2011/12 to 2016/17
Food	\$20,996	11.6%	\$9,913	10.2%	\$11,255	9.9%	\$9,735	9.7%	+\$9,741
Alcoholic Beverages & Tobacco	\$10,899	6.0%	\$3,081	3.2%	\$3,473	3.0%	\$4,145	4.1%	+\$7,426
Clothing & Footwear	\$8,112	4.5%	\$3,324	3.4%	\$3,717	3.3%	\$3,513	3.5%	+\$4,395
Furnishings & equipment	\$13,383	7.4%	\$4,689	4.8%	\$6,453	5.7%	\$4,673	4.7%	+\$6,929
Health	\$10,287	5.7%	\$6,956	7.1%	\$6,418	5.6%	\$6,402	6.4%	+\$3,868
Transport	\$23,850	13.2%	\$10,358	10.6%	\$16,257	14.3%	\$11,053	11.0%	+\$7,593
Communications	\$5,245	2.9%	\$2,134	2.2%	\$2,022	1.8%	\$1,633	1.6%	+\$3,223
Recreation & Culture	\$20,874	11.5%	\$8,544	8.8%	\$10,716	9.4%	\$9,377	9.3%	+\$10,158
Education	\$7,168	4.0%	\$4,346	4.5%	\$2,606	2.3%	\$4,403	4.4%	+\$4,562
Hotels, Cafes & Restaurants	\$7,596	4.2%	\$6,240	6.4%	\$5,312	4.7%	\$6,716	6.7%	+\$2,284
Miscellaneous Goods & Services	\$38,730	21.4%	\$14,470	14.8%	\$22,130	19.4%	\$14,489	14.4%	+\$16,600
Housing	\$7,227	4.0%	\$20,759	21.3%	\$19,286	16.9%	\$21,212	21.1%	-\$12,059
Utilities	\$6,909	3.8%	\$2,804	2.9%	\$4,296	3.8%	\$2,959	3.0%	+\$2,613
Total Expenditure	\$181,276	100.0%	\$97,617	100.0%	\$113,943	100.0%	\$100,310	100.0%	+\$67,334
Net Savings	-\$21,325	-13.3%	\$42,386	30.3%	\$69,553	37.9%	\$50,225	33.4%	-\$90,879
Total Disposable Income	\$159,951		\$140,004		\$183,496		\$150,535		-\$23,545



3.4 RESOURCE SECTOR CASH COSTS AND COMPETITIVENESS²¹

WA resources companies and SMEs need to be cost competitive to ensure sustainable operations. Resource companies need to be able to compete globally for capital and markets. The level of competition faced by Australia, WA and the Pilbara in the resources sector has increased significantly over the last few years. Iron ore and LNG cash costs were analysed by CME research in 2012. The resource sector in the Pilbara has advantages in terms of product quality, proximity to Asia and a very high level of expertise. However, the competitiveness of the Pilbara as a producing region of iron ore and LNG was severely eroded from 2008 to 2012 as costs rose and it was recognised that major price falls of either commodity would place a strain on operating margins.

In the LNG sector Chevron stated in 2012 that resources projects in Australia were 40% more expensive than in the USA and its workforce was 60% less productive than that of the USA²². As pointed out in the 2013 and 2014 reports the high cost structure of the resources sector has an impact on capital and operating costs for all businesses in the Pilbara, small or large. Starting in late 2013 costs for the LNG operators has fallen as resource sector investments started to peak and companies began to focus strongly on increasing efficiency and cutting costs. Illustrating the falling cost trend, the 2017 Annual report of Woodside Petroleum mentions that “since FY2012 we have reduced unit costs across the business by more than 40%. Discipline on costs and capital spending has been maintained and our budget is set to break-even at an oil price of \$35 per barrel of oil equivalent (boe), well below recent pricing”. As shown in Figure 8 production costs for Woodside have been falling since 2013 as have unit costs, with a slight increase in 2017, due to one-off operational issues.

Woodside Production Cost per Unit - RHS (\$/boe)

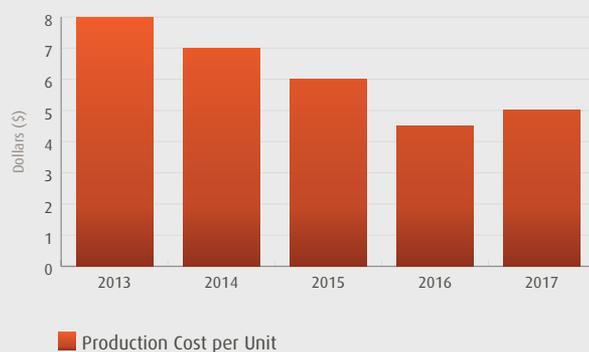


Figure 8: Woodside Production Costs 2013 to 2017

Source: Woodside 2017 Annual Report

In the iron ore sector the reaction to high costs and falling commodity prices has been to cut costs as fast and as far as possible. Considerable reductions in iron ore production costs have been achieved. The higher cost iron ore producers in Australia (BC Iron, Atlas, Arrium, Cliffs, Mt. Gibson and Grange) have cash costs between \$48 and \$53 per tonne, which is a reduction from previous costs of \$60 to \$65 per tonne during the boom years. BHP and Rio have cash costs of \$15 to \$35. FMG costs have recently come out at a record low \$12.08 per wet metric tonne for the December 2017 quarter, with guidance of between \$11 and \$12 a tonne for the 2017/18 financial year. Cash costs for Roy Hill are believed to be in the region of \$30 to \$35 per tonne. Vale, the main competitor to the Australian producers, has also cut costs substantially to well below \$20 at some of its mines in Brazil.

The Australian producers have a transport advantage to Asia of about \$10 per tonne. At these cash costs and current prices in the range of US\$65 to US\$70 per tonne (for 62% fines) and large premiums for higher grade ores, the larger producers are making very good profits. For the longer-term viability of the economy of the Pilbara the decrease in capital and operating costs is a positive development. Lower cash costs in the resources sector are also advantageous to the SME and NGO sectors from a labour cost point of view, as they are partly the result of better productivity and less labour-intensive processes, particularly as automation and technical progress become increasingly beneficial. However, there are signs that skilled labour shortages are on the horizon as investments in the Pilbara and the demand for skilled labour elsewhere in the country may push cash costs higher.

Approvals, Permits and Licences and Environmental Costs²³

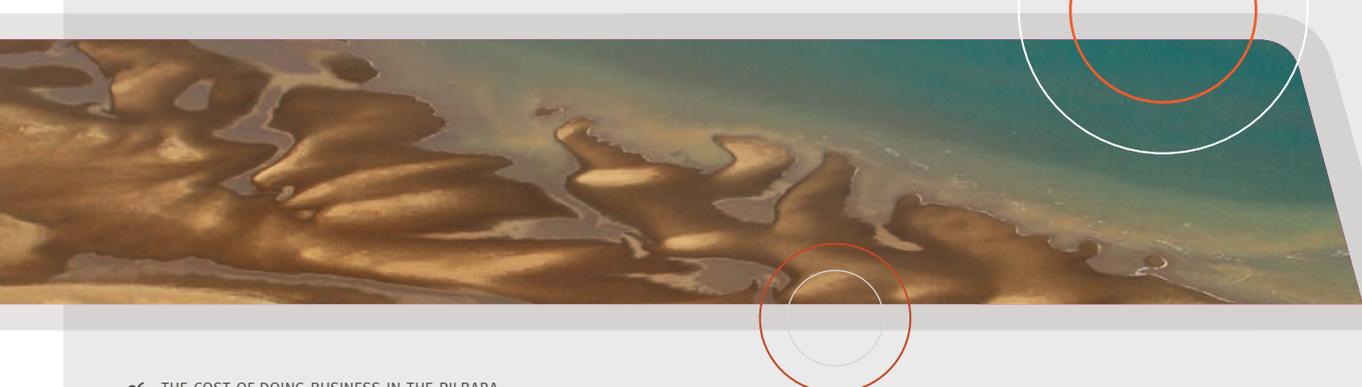
In previous reports on the cost of doing business in the Pilbara it was noted that the high business cost of approvals, permits and licences for development in the mining sector continues to impose a constraint to development and comments by resource companies in this regard have appeared in the press from time to time. There are also the costs associated with operating in a harsh climatic environment that includes extreme heat, cyclones and floods.

Whilst it should always be an aim to reduce the regulatory burden to organisations, the level of regulatory approvals in Australia and the Pilbara needs to be viewed in the context of the need for

protecting the unique, varied, diverse and valuable terrestrial and marine environment. The Pilbara is home to a fragile ecosystem that also contains rare flora and fauna that requires detailed Environmental Impact Assessment (EIA) assessments before any major project development. The Department of Planning, Lands and Heritage manages the Pilbara planning and infrastructure framework that sets out the strategic direction for the future development of the region over the next 25 years. It addresses the scale and distribution of future population growth and housing development, as well as identifying strategies for dealing with economic growth, environmental issues, transport, infrastructure, water resources, tourism and emerging impacts of climate change.

The aims of conservation are spelled out succinctly in the Pilbara Conservation strategy²⁴ “the diverse natural environments and exceptional biodiversity of the Pilbara are enhanced and conserved, through enduring partnerships, for their intrinsic value and for the social, cultural, spiritual and economic wellbeing of the community”. It is worth pointing out that an aim of the strategic planning framework is to “create partnerships between Government, resource companies and Aboriginal communities for shared ownership, responsibility and designing of strategies in relation to promoting and protecting cultural heritage”.

Furthermore, there is a mechanism for offsetting costs for approved projects. In July 2016, the Western Australian Government approved the establishment of the Pilbara Strategic Conservation Initiative, now known as the Pilbara Environmental Offsets Fund, to maximise the value of environmental offsets from major resource and infrastructure projects that are approved for the Pilbara. The Fund provides proponents with a practical mechanism to fulfil their environmental offset requirements and further contribute to significant partnerships between government, industry, landholders, traditional owners, non-government organisations and the broader public. Projects funded will address the priorities outlined in the Pilbara Conservation Strategy and project development will address matters including partnerships, scheduling, procurement, funding arrangements, performance measures and reporting requirements, which will be prepared in consultation with stakeholders. The Minister for Environment approves projects to benefit from the Fund.



3.5 INSURANCE COSTS²⁵

The high costs of insurance and banking in the Pilbara (and Northern Australia) were the subject of an RDA Pilbara Study in 2015. Subsequently there have been two further studies, one by the Northern Australia Insurance Premiums Taskforce and the other by the Australian Consumer and Competition Commission (ACCC). All of these reports clearly illustrate the high insurance costs affecting residential property and business owners in northern Australia in general and the Pilbara in particular.

The ACCC preliminary report notes the following:

- In 2016/17 the average annual premium for combined home and contents insurance in northern Australia was \$2,000, which is nearly double the average for the rest of Australia. Average premiums in North Western Australia were the highest at approximately \$2,700 per year.
- Premiums for home and contents insurance vary significantly across northern Australia. However, premiums and premiums per sum insured, for the vast majority of the region are higher than average for the rest of Australia. The areas with the highest premiums per sum insured are concentrated in the Pilbara, Darwin and central Northern Territory, and far north Queensland.
- In the last decade, average combined home and contents premiums increased between 23% and 67% in Northern Australia and by 16% in the rest of Australia.

High insurance costs in the Pilbara and elsewhere in regional Australia have had a significant negative impact on property markets and business operations, particularly for SMEs. Since 2009/10 insurance costs for both residential property and businesses in the Pilbara have increased rapidly. This has been due mainly to high claims for natural hazards disasters (particularly cyclone damage), principally in North Queensland and in the Northern Territory. In Australia overall insurance costs

for businesses and residential buildings are much higher for cities and towns north of the 26th parallel. Within this geographically defined line across Australia, although costs are higher there are differences between regions and towns.

Indicative data shows that residential household insurance costs in the main centres in the Pilbara (Port Hedland, Karratha, Onslow, Tom Price and Newman) are more than double that of Perth. Moreover, there are very large differences in insurance costs according to the age of the property. For example, in Karratha for properties built between 1970 and 1979 the insurance cost is more than double for a house built since 2012 with the same dimensions. In Port Hedland the insurance cost for properties built between 1970 and 1979 are also nearly double that of properties built since 2012. The highest insurance cost increases in residential property have been for strata title complexes in the Pilbara.

As with residential insurance businesses have been heavily impacted by the very large insurance cost increases that have occurred in the Pilbara. The main reason given as to why the large increases have occurred is the same as for residential insurance in the Pilbara with towns north of the 26th parallel.

Discussions with representative business intermediary organisations, brokers and insurance companies indicated high levels of concern over high insurance costs in the Pilbara. In the Pilbara business insurance costs are very much higher than in Perth (between 290% and 350% in the main centres) with Port Hedland the highest, and with the lowest costs in Newman presumably reflecting the lesser degree of risk from natural hazards. In a survey conducted by the consultants over 90% of SMEs indicated that the main constraint to obtaining insurance was high insurance costs, followed by the risk profile due to natural hazards and excessive bureaucracy.

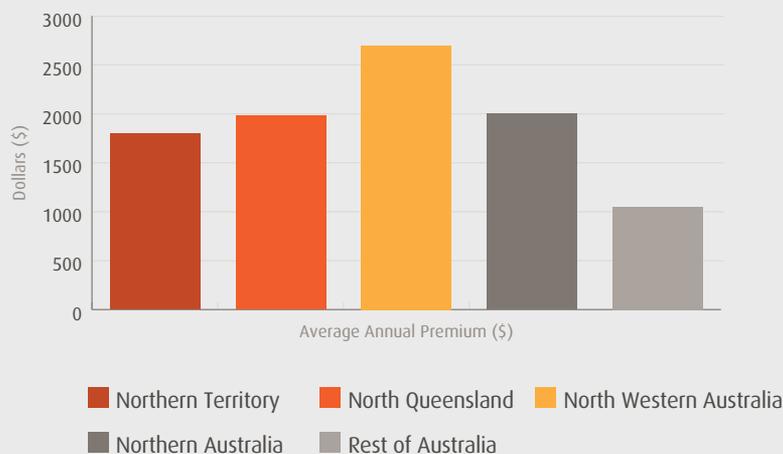


Figure 9: Average Annual Premiums for combined home and contents insurance (2016-17)²⁶

Northern Australia Insurance Premiums Taskforce

The Northern Australia Insurance Premiums Taskforce was established as part of the response to the rapid rise in insurance premiums in areas of northern Australia subject to cyclone risk. The RDA report was submitted to the Task Force, which produced a final report in November 2015. The National Construction Code identifies areas exposed to cyclonic winds. Based on the code and the available data on premiums and affordability, the Taskforce recommended that the region in northern Australia experiencing insurance affordability concerns due to cyclone risk should be defined as the regions north of the Tropic of Capricorn with **some accommodation for regions in Western Australia that are in the top wind zone.**

The Taskforce was asked to consider the feasibility of options to lower insurance premiums in areas subject to high cyclone risk and to make policy recommendations. This report has identified the most feasible options, recognising they achieve different objectives and have distinctly different benefits and risks. The report concluded that there is no simple answer to sustainably reducing premiums in northern Australia. The recommended way forward involves the following components:

1. A sustainable way of reducing premiums over the long run is through mitigation. The reduction in premiums that could be achieved from mitigation will depend on individual circumstances and the mitigation action taken. However, such reductions can only be achieved by household action.
2. Governments can take a range of relatively low cost (compared to other options) measures to promote mitigation. Additional funding could be provided for research to improve mitigation options particularly for roof strengthening and water ingress. In addition, there is the potential for additional education campaigns to encourage and support property owners to undertake mitigation and for public works spending to reduce the risk of some forms of cyclone damage, such as flooding.
3. The insurance industry should develop insurance pricing systems that provide greater recognition of mitigation action and be more proactive in offering a range of policy options that provide increased scope for policyholders to assume more responsibility for risk of cyclone damage in return for lower premiums. For example, policies could exclude cover for certain outdoor items or offer higher cyclone excesses.
4. The insurance industry should engage more effectively with property owners in northern Australia. This requires improved disclosure of risks and greater responsiveness to policyholder concerns. Governments could support these moves by, for example, organising information sessions to bring together insurers and property owners. Potentially, there is also a role for legislating enhanced requirements around the disclosure of risks if industry efforts do not yield meaningful results for consumers.
5. Some property owners may not be able to realise premium reductions from mitigation because they do not have the financial capacity to undertake the necessary work. One option to address this situation is governments directly subsidising the cost of mitigation for low income households. The mitigation action subsidised should be tailored to individual circumstances and could cover such options as protection of windows and doors. The cost of more extensive subsidised mitigation could be substantial. Any mitigation subsidy scheme should be developed in consultation with the state and territory governments, who (supported by local councils) are best suited to deliver such a program. Any scheme would need to be phased in having regard to the ability of industry to meet increased demand.
6. Of the two insurance options the Taskforce was asked to assess, a reinsurance pool represents a more feasible approach than a mutual. In contrast to the mutual, the reinsurance pool could promote competition through new entrants to the northern Australia market. A reinsurance pool which charged premiums to cover the estimated long run cost of claims from cyclones and was supported by a Government guarantee might offer a premium reduction for consumers of 10-15%. It would be difficult, however, to ensure that cost reductions for insurers did in fact flow through to premium reductions for customers. The Government would assume significant risk in order to achieve any reduction in premiums. The cost to the Government would depend on the number and severity of cyclones during the life of the scheme and whether they hit major population centres. While there is greater potential compared with a mutual for the Government to withdraw support for a reinsurance pool, overseas experience demonstrates that it is very difficult for governments to exit from any intervention in insurance arrangements. If the Government did exit the market, any premium reductions would be reversed unless households had undertaken mitigation during this time.





Recent Developments in Insurance Costs

Stakeholders in the Pilbara centres indicated that although insurance costs are still very high they have come down by as much as 15% to 20% since 2015 for commercial property; and by shopping around the cost of insuring residential property can also be reduced considerably. Owners are now more aware of the availability of different vendors of insurance. There also appear to be more service providers located in Karratha and Port Hedland. The ACCC preliminary report highlights this issue where the variation in price offered by insurers was particularly high in the Pilbara, with a range of up to \$3.40 per \$1,000 insured.

3.6 BANKING COSTS

Bank loans are not priced by location, but rather priced on specific characteristics of persons and businesses taking out loans. However, there are insurance and affordability issues in the Pilbara because of the high cost of insuring assets that can be used as collateral for loans and the higher cost of lending rates for SMEs – this was confirmed in the SME survey carried out as part of the RDA Pilbara 2015 Cost of Doing Business Study.

Lending rates are higher for small businesses and there are other barriers to accessing finance such as high compliance costs. The Federal government has taken steps to decrease these barriers. Other issues with gaining access to loans include assessment of risk by lenders in a weakening economy in the Pilbara and the quality of management. With start-ups with no history of

operation, loans are more difficult to secure. The quality of the security being offered to support the loan is also important. In the Pilbara both in the towns and the country home values have been falling rapidly since 2012²⁸. The impact of falling house price values on business lending is that there is less collateral against which to borrow. Although there have been more recent positive economic developments commercial banks and other lenders have implemented more stringent lending standards and therefore access to finance has not really improved to any degree.

3.7 UTILITY COSTS

Water²⁹

Water prices in the Pilbara towns increased quite rapidly over the years 2010/11 to 2014/15 and were overall much higher than those of Perth. The difference in prices for 2014/15 is shown in Figure 10.

Since 2014/15 there are no price differences between Perth and the Pilbara centres for lower amounts of water consumed as the WA Water Corporation adjusted its tariff policies and structure. However, water charges for larger amounts used in the Pilbara centres are more expensive and costs in Onslow for large water users are comparatively very high. Costs for larger water users in Karratha are also higher than the other two centres in the Pilbara (Port Hedland and Newman).

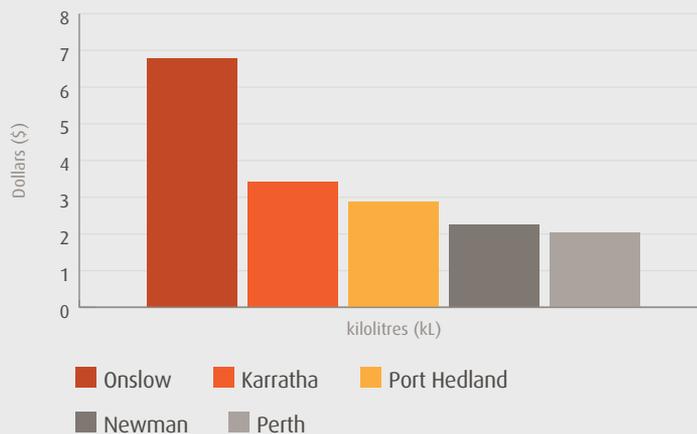
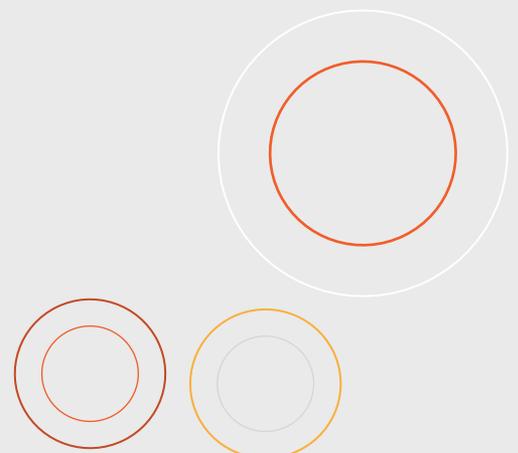


Figure 10: Comparative Costs of Water in 2014/15 Main Pilbara Centres and Perth



City/Town	0 - 150 kL	per kL151 - 500 kL	per kL500+ kL	
Perth	1.681	2.241	3.173	
Pilbara Centres	0 - 350 kL	351 - 500 kL	per kL501 -750 kL	per kL750+ kL
Karratha	1.681	2.241	3.314	4.224
Port Hedland	1.681	2.241	2.487	3.173
Newman	1.681	2.241	2.487	3.173
Onslow	1.681	2.241	4.583	7.880

Table 13: Cost of Water Pilbara towns and Perth 2017/18 (\$)

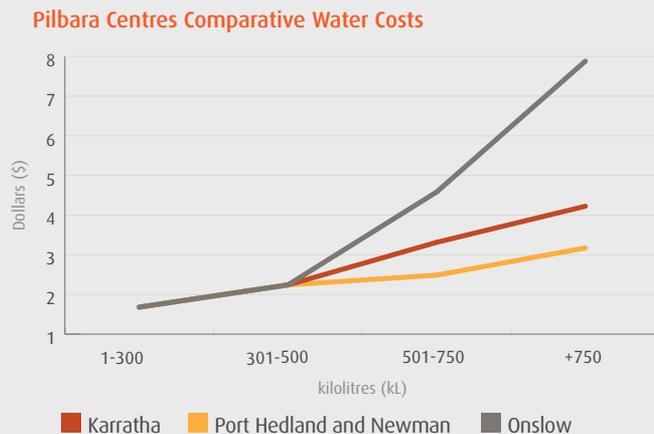


Figure 11: Comparative Water Costs Pilbara Centres 2017/18 (\$ and range of amounts in kL)

The resources sector in the Pilbara region abstracts the most water in WA at some 450 GL per annum. Abstraction of water is expected to increase to 578 GL per annum by 2024, an increase of 29.2%. According to the 2015 to 2025 Resource Sector Outlook of the WA Chamber of Minerals and Energy the forecast for water abstraction in the Pilbara from 2015 to 2025 is as follows:

- Resources sector water abstraction in the Pilbara is forecast to increase from 350 GL in 2013 to 491 GL in 2020, an increase of 141 GL or 40%.
- Groundwater dewatering in the Pilbara is expected to be 404 GL in 2020, an increase of 122 GL on 2013 levels, and will account for 82% of all water abstracted.
- Water abstracted by the resources sector in the Pilbara in 2020 will largely be either reinjected (207 GL) or used in mine operations (193 GL).

Measures to conserve water include reusing and recycling and use of demining water for agricultural uses has been under investigation for some time. Residential and commercial use may increase moderately in the medium term as supporting services expand. Water scarcity will require market mechanisms to efficiently allocate supply, where such markets are possible. The volume of dewatering surplus to mine needs may provide a supply for beneficial purposes but the volatility of supply and water quality are key constraints which will impact the viability of such options. Cumulative effects remain a priority issue, but further work is needed to ensure an appropriate management framework is developed.

Energy

Resource sector energy consumption in WA is expected to remain relatively flat over the next two years and to increase moderately thereafter³⁰, despite increases in efficiency. The mining industry in WA utilises energy in a range of ways for extraction, development and ongoing operations including processing and utilisation. It is a significant cost input for companies in the sector. Prices on new wholesale domestic gas contracts in WA remain at least double those of recent prices in the Eastern states. The increase in costs is expected to only escalate as the resource sector demand for gas is expected to continue to increase.

In the Pilbara resource sector consumption is expected to increase by 2.4% per annum over the next decade from 10,030 GWh in 2015/16 to 12,050 GWh in 2027/28, which is an increase of 27%. As noted in the 2015 report on the cost of doing business electricity costs remain a major concern in the Pilbara. **The quantity of electricity** used by households and businesses is very much higher in the Pilbara than in Perth. Estimates of the ratio vary between 2.5 to 3.5, depending on the extent of usage of air conditioners and other appliances. Therefore, in estimating the impact of energy costs on businesses in the Pilbara high usage rates need to be taken into account.

There are major **coordination and planning** issues in the Pilbara regarding access and efficiency of generation, transmission and supply. The North West Interconnected System (NWIS)³¹ comprises of interconnected electricity generation, transmission and distribution assets in the Pilbara, including the major towns of Port Hedland

and Karratha. It is made up of assets owned by many different parties, under both private and public ownership and is not centrally planned or operated and has developed in an ad hoc manner over several decades, as resources and energy companies made individual investments in generation capacity and network infrastructure to meet their own needs, with government meeting the needs of other users in the major towns of Port Hedland and Karratha through Horizon Power. While the transmission infrastructure is somewhat interconnected, the interconnections are operationally weak, with a range of different voltages, multiple points of transformation and constrained capacity at many points of the system.

Establishing a suitable regulatory framework for the NWIS is likely to enhance the availability, security, and lower the cost of electricity services through better integration of network investment, generation investment and system operation in the NWIS. In turn, a more secure and efficient electricity system will contribute to the future economic development of the Pilbara. To address this need, in August 2017, the Government announced that it would address the ongoing uncertainty by designing

fit-for-purpose regulatory and system operator frameworks for the NWIS, including resolving issues of access to Horizon Power's network. The final Design Report was to have been submitted to Government in March 2018.

Electricity Rates for Small and Medium sized businesses in the Pilbara towns were considerably below those in Perth in 2008/9, but increased by a greater percentage than Perth over the period 2008/9 to 2013/14, however, in 2014/15 they fell slightly. From 2014/15 they rose in line with Perth prices.

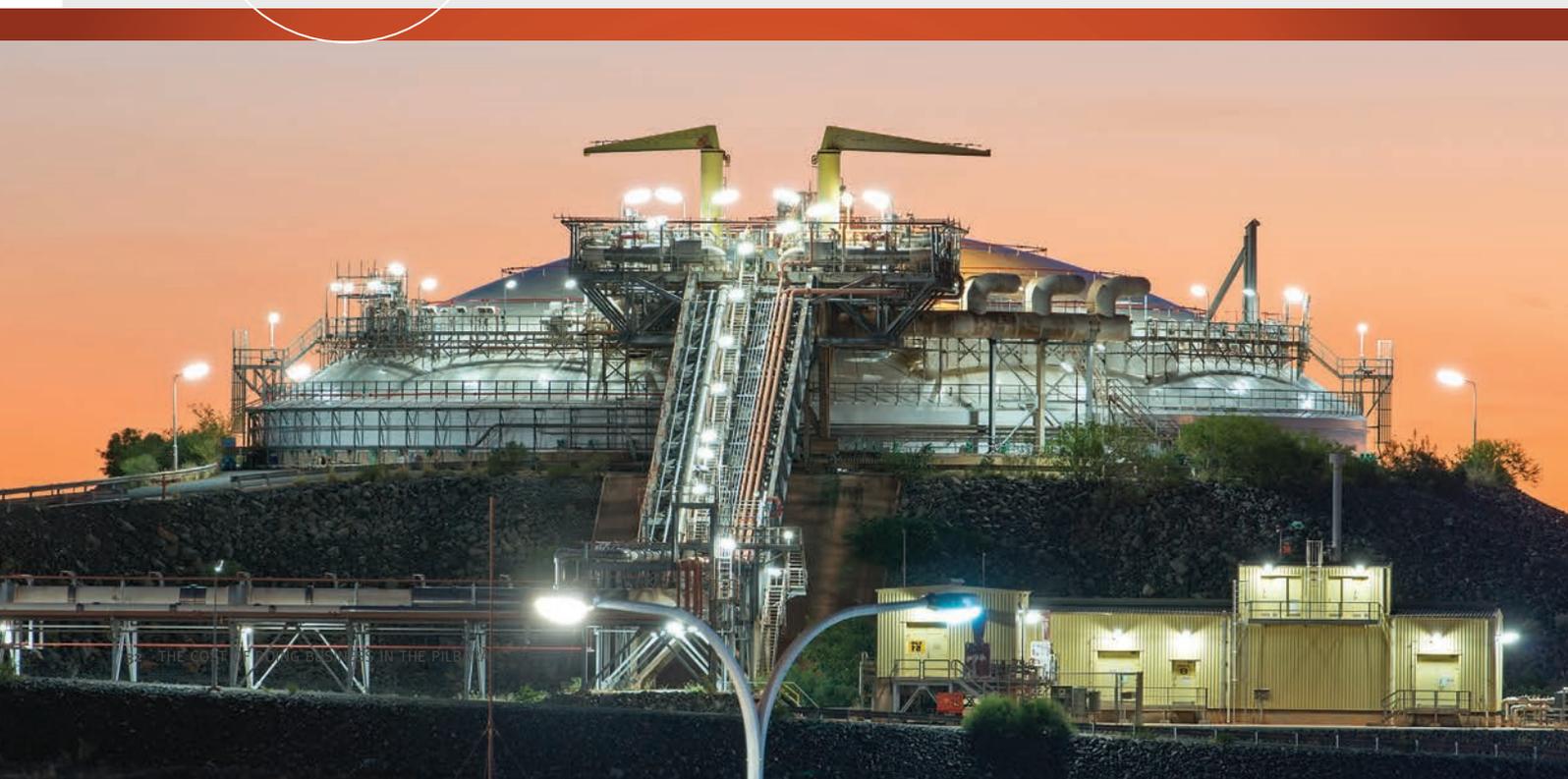
Table 14: Variation in Electricity Prices Pilbara Towns (%) compared to Perth 2011/12 to 2017/18: (Country Non Residential Rates in c/kW – Small and Medium Size Enterprises (SMEs) (L1 or L3))

Year	11/12	12/13	13/14	14/15	17/18
Pilbara All Towns	25.3	28.7	26.68	25.41	30.09
Perth	25.6	n.a.	26.68	26.68	30.09

Electricity Tariffs Perth and Pilbara Towns



Figure 12: Price Changes Pilbara Towns and Perth for SMEs 2011/12 to 2017/18 (C/kW)



A similar trend for Large Businesses exists. Electricity rates for large businesses in the Pilbara towns were considerably below those in Perth in 2008/9, however, they increased by a greater percentage than Perth over the period to 2014/15. By 2017/18 the tariffs in the Pilbara centres and Perth were the same.

Table 15: Variation in Electricity Prices Pilbara Towns compared to Perth 2011/12 to 2017/18: (Country Non Residential Rates in c/kW – Large Businesses (L2 or L4))

Year	11/12	12/13	13/14	14/15	17/18
Pilbara All Towns	32.4	35.14	32.02	32.62	31.87
Perth	31.94	35 Est.	32.02	34.40	31.87

Electricity Tariffs Perth and Pilbara Towns



Figure 13: Price Changes Pilbara Towns and Perth for Large Businesses 2011/12 to 2017/18 (c/kW)

There is increasing activity and investment in solar energy both to increase power availability and to decrease costs. Horizon Power is marketing solar panel systems and batteries to consumers. It is also building the Onslow Power Project, which includes:

- A gas-fired modular power station that is designed to be able to efficiently contract in size as the renewable energy contribution increases, or expand to meet future growth requirements
- A solar farm adjacent the new power station
- A bulk energy storage system at the zone substation
- Distributed solar PV systems across the system
- Distributed batteries across the system.

Gas

The Pilbara gas market is influenced by developments in WA as a whole. The WA domestic gas market continues to evolve, with new production facilities and gas suppliers, and greater pipeline and gas storage capacity³². In the near term, to 2020, the domestic gas market will be well-supplied. Potential gas supply is expected to exceed forecast demand over the entire outlook period, assuming that new reserves are developed. Some uncertainty exists in the medium term, when reserves for domestic-only gas producers are expected to fall and forecast domestic gas prices remain low. If domestic gas prices remain low, new gas reserves may not be developed and supply may not meet demand in the medium to long term.

WA has a Domestic Gas Policy that requires WA liquefied natural gas (LNG) export projects to make gas available to the WA domestic gas market on a long-term basis by setting aside reserves equivalent to 15% of their LNG production. The policy is given effect through long-term contractual agreements between the developers of LNG export projects and the WA Government. These agreements are struck at project inception, give certainty to LNG project developers, and allow for a sustained supply of gas into the domestic gas market.

Although WA is the highest consumer of gas in Australia, domestic gas demand growth remains low. Gas supply to the domestic market is largely dependent on sustained development of gas reserves. The reserves associated with domestic gas production continue to exhibit a natural decline, particularly for domestic-only gas plants. Exploration in 2017 was at the lowest level since 1990, however decisions taken recently by Chevron and Woodside on further investments may reverse the lower production trend over time. Exploration levels should be considered well in advance of potential supply shortfalls, because it can typically take up to five years to develop a conventional petroleum gas field.

In 2016/17, the nominal average WA domestic gas price was \$4.96 a gigajoule (Gj). Average real quarterly WA gas prices were \$5.13/Gj and have increased 19% from 2012/13. Commercial terms of supply, including price and timing, are left to the market to negotiate. Prices in WA over the last few years have increased less than on the East coast. The extent of demand for gas in WA over the next decade shows a substantial increase. If new supplies do not materialise then prices may rise in WA and the Pilbara.



**Comparison WA Average Domestic Price with East Coast Domestic Price
(4th Quarter 2013 to 2016 and 2nd Quarter 2017)**

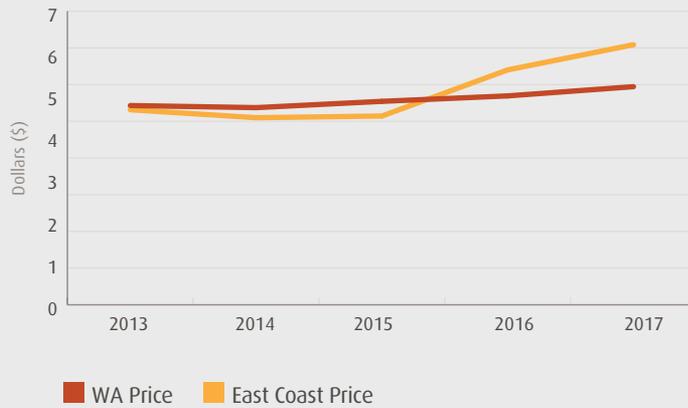


Figure 14: WA and East Coast Domestic Natural Gas Prices (\$ per GJ Real) 2013 to 2017

Source: Department of Mines, Industry Regulation and Safety, Government of WA: Prices are adjusted for Inflation in 2014/15 Australian Dollars using implicit GDP deflators published by ABS

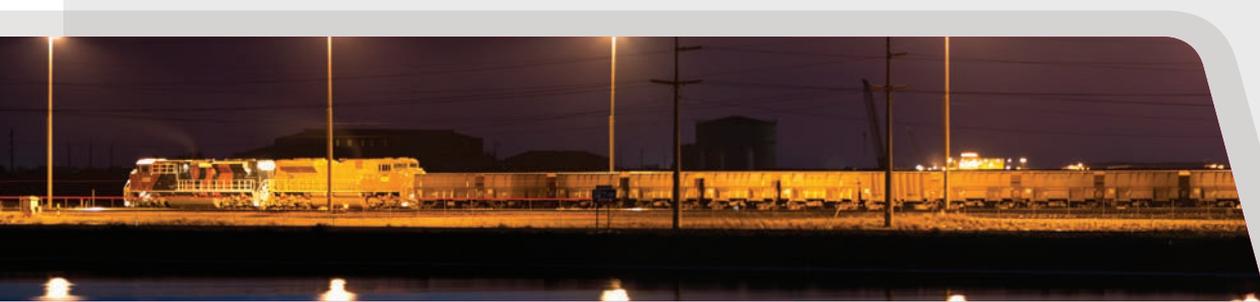
The Pilbara Pipeline System (PPS) comprises three pipelines extending from the North West Shelf Joint Venture’s Karratha Gas Plant to Port Hedland:

- Burrup Extension Pipeline (24 kilometres) links Woodside’s Karratha Gas Plant with the Pilbara Energy Pipeline at DBNGP Mainline Valve 7, 20 kilometres south of Karratha.
- Pilbara Energy Pipeline (216 kilometres) extends from Karratha, along the Pilbara coast to Port Hedland, where it interconnects with the Telfer Gas Pipeline.
- Karratha Lateral (5 kilometres) connects Pilbara Energy Pipeline to the Horizon Power Station at Karratha.
- The PPS is currently a free-flow pipeline system, but its capacity can be increased through compression and/or looping to meet future increases in demand.

There has been no change in the gas situation in the Pilbara over the last few years. It remains unsatisfactory, with no distribution grid or piped supplies and very expensive canisters. For example, prices for a standard 45kg gas cylinder for Karratha and Port Hedland are much higher than Perth with percentage differences of the order of 31% and 41% respectively.

	45kg LPG Gas Cylinder	Percent difference to Perth
Perth	\$ 135.20	
Karratha	\$ 176.50	31%
Port Hedland	\$ 190.00	41%

Table 16: Price comparison Gas Cylinders Perth and Pilbara Centres³³





3.8 TRANSPORT COSTS

Transport cost data for specific items has been sourced for 2018 only. The data is sufficient to show the differences in prices for the towns in the Pilbara with Perth, for selected cost items. The analysis indicates that from 2015 car rental prices in the Pilbara centres have fallen considerably and percentage differences in comparison to Perth have been significantly reduced. In all towns the costs of fuel has remained higher in the Pilbara than Perth³⁴. Truck hire rates in the Pilbara centres have fallen but are still some 10% above Perth.

Another indicator of high comparative costs for the main centres in the Pilbara, with the exception of Onslow, is the cost of a return flight (at the economy Flexi Saver Rate, major airlines) from Perth to each of the Pilbara towns and corresponding airfares to Melbourne, Sydney and Singapore (as of June 2018). Flight

costs from Perth to the Pilbara towns have fallen in comparison to the boom years. In addition, discounts are offered on flights from Perth to the Pilbara towns meaning that cheaper flights are often available. Nonetheless, taking into account the far shorter distances for Perth to Pilbara destinations than to the cities in the Eastern States and Singapore, fares remain relatively expensive.

The regional transport index produced by DPIRD gives an indication of the relative cost of transportation for businesses in regional areas throughout Western Australia. It includes motor vehicles, fuel (diesel and unleaded), tyres, auto parts and maintenance and motoring charges such as drivers licence fees and stamp duty. The Pilbara costs have fallen over the last few years and the data presented above supports the cost index, which shows the Pilbara index to be only 101.5 compared with Perth = 100 in 2017.

Cost Item	Karratha	% above Perth	Port Hedland	% above Perth	Newman	% above Perth	Onslow	% above Perth	Perth
Petrol ULP (c/ltr)	163.9	11%	164	12%	156	6%	164	11%	147
Diesel (c/ltr)	159.9	101%	157.9	1%	159.9	2%	157	104%	156.5
Car Hire - Economy (per 3 days)	182	15%	182	15%	208	31%	201	27%	158

Table 17: Fuel and Car Hire Prices for Pilbara Towns and Perth Metro June 2018 (\$)

Destination	Karratha	Port Hedland	Newman	Onslow	Melbourne	Sydney	Singapore
Pilbara Town to Perth Return	751	732	733	598			
Perth to Melbourne Return					695		
Perth to Sydney Return						724	
Perth to Singapore Return							756

Table 18: Flight Costs Perth/Pilbara Towns and Perth to Melbourne/Sydney June 2018 (\$)



Air Passenger Movements

Passenger movements reflect developments in the economy of the Pilbara. Passenger movements in all centres declined significantly from 2012 to December 2017. In 2018, based on data available from the DPIRD (up to June 2018), and discussions with airport management, it appears that there has been an increase in movements of up to 10% in Karratha, a slight increase in numbers in Newman (about 7% based on monthly comparisons to date) and a slight increase in numbers in Port Hedland. Possible recent increases in passenger numbers are subject to confirmation only after the end of 2018 when official statistics will become available.

Passenger movements at the main airports do not tell the whole story, as the mines and other resource sector organisations fly people direct to their operational sites. There are other indicators related to air travel that provide information on economic activity. For example, in Newman the number of car parking bays at the airport, booked for periods of up to six months and one year, has increased significantly, even though passenger movements appear to be up only slightly month on month in 2018 compared to 2017.

Table 19: Passenger Numbers Karratha, Port Hedland, Newman 2012 to July 2017

	Passengers	% Change 2012-2017
Karratha		
2012	818,415	
2013	770,615	
2014	710,368	
2015	607,586	- 46%
2016	494,894	
2017	439,047	
Port Hedland		
2012	533,163	
2013	483,541	
2014	516,347	
2015	414,539	- 35%
2016	355,503	
2017	346,958	
Newman		
2012	373,504	
2013	450,190	
2014	370,860	
2015	331,248	- 24%
2016	309,360	
2017	285,633	

Passenger Movements Pilbara Centres 2012 to 2017

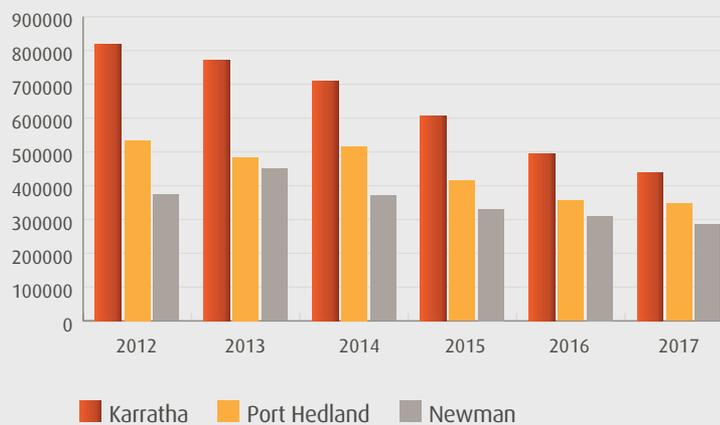


Figure 15: Passenger Movements Karratha, Port Hedland, Newman 2012-2017

3.9 RESIDENTIAL ACCOMMODATION COSTS³⁷

In the period 2013 to about mid-2017 there was a fundamental change in the demand supply balance for residential properties with significant decreases in demand and very large increases in stock levels in the Pilbara. The sharp decline in dwelling purchase prices and rental costs over this period was unrelenting. However, towards the end of 2017 there were signs that the market had bottomed out as the economy started to improve. Positive signs of improvements in the market in the Pilbara have become more evident during 2018.

Despite the prolonged period of falls in accommodation costs in all the major towns this is an area of policy that still requires ongoing attention. Since construction costs in the Pilbara remain high and will be difficult to reduce, and given the need for cyclone rating, transport, costs of materials, and professional and technical service costs. Land availability has decreased in importance as an issue, but is still constrained due to a number of factors including flooding and native title.

Pilbara Residential Purchase Prices and Trends

The half yearly Pilbara Housing and Land Snapshot produced by the Pilbara Development Commission indicates a strengthening of the overall property market in the Pilbara as a whole:

- At the end of June 2018, the total number of listings (houses and multi-residential dwellings) for sale on reiwa.com was 213. This is 29% lower than levels seen at the end of June 2017. Of all dwelling listings on reiwa.com, it took an average of 66 days to sell, which is nine days less than it took during the June 2017 quarter.
- Although sales activity in the Pilbara region experienced a decline over the half year to June 2018 the median sale price of **\$279,000** represents an increase of **21%** compared to the same time last year.

- Similarly REIWA members reported a total of 451 dwellings leased³⁸ throughout the Pilbara region during the June 2018 quarter, a decrease of 0.7% from the June 2017 quarter, however **the overall median** weekly rent in the area was at \$380 per week during the quarter, which is **\$30 higher than the June 2017** quarter and the total number of houses and units for rent on reiwa.com was 317. This is 30% lower than levels seen at the end of June 2017.
- The overall strengthening of the residential market is reinforced by data on vacant land activity with a median sales price of \$97,500 representing an appreciation of 67% in median sale prices against the same quarter last year, despite a 25% fall in sales activity.
- Multi-residential (units/townhouses/apartments/duplexes) sales activity in the Pilbara has experienced increasing trends to June 2018 quarter. A total of 32 multi-residential transactions have settled so far, at a median sale price of \$87,500. This represents a depreciation of 26% in median sale prices compared with June 2017, despite a 68% rise in sales activity. This rise in activity may presage an increase in future prices.

Discussions with stakeholders in the Pilbara centres carried out in late July and August indicates that the market has strengthened further in relation to the June 2018 REIWA data and the latest data from REIWA for September indicates that sharp increases in prices have occurred in some suburbs in Karratha and in Port Hedland. For example, median house prices year on year, have risen in Port Hedland suburb by 28.5% and in the suburbs of Nickol and Bulgarra in Karratha by 36.4% and 17.9% respectively. In Newman prices have risen by 1.7%, which is the first real increase for a number of years and is consistent with the views of stakeholders that the market is strengthening quite quickly.

Figure 16: Dwellings Sales Median Value (\$): Karratha, Port Hedland Newman

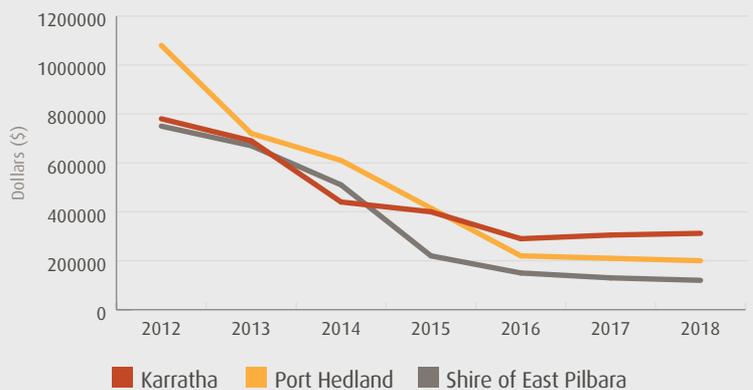
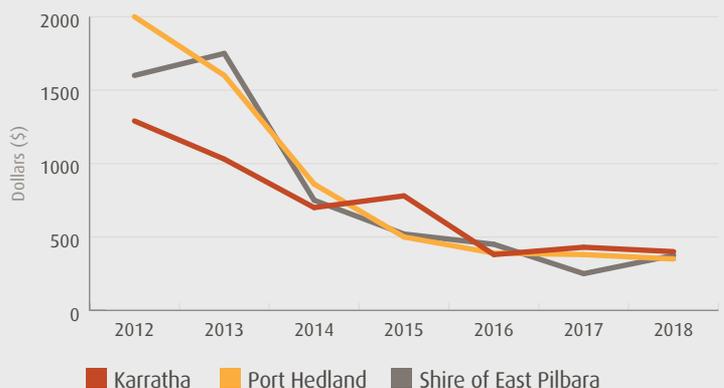


Figure 17: Dwellings Rental Median Value (\$): Karratha, Port Hedland, Newman



Outlook

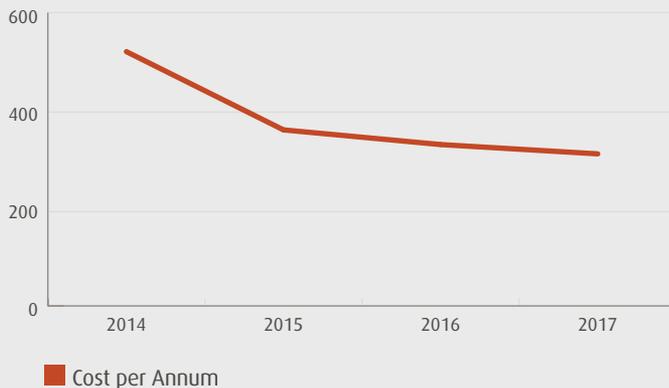
- Given the prospect of a steady outlook for minerals production and investment in replacement of minerals mines, a greater level of interest in non-iron ore exploration and development and a high chance of expansion in the LNG sector it is likely that the bottom of the property market has been reached in the Pilbara and that prices will continue to rise over the medium term.
- It is clear that despite income reductions for persons in the upper brackets of pay this category of workers is still in a strong position to purchase property, whilst in the middle and lower levels of income decreases in remuneration levels means that accommodation purchases are often out of reach and rentals are still likely to consume a large proportion of incomes. There is a higher level of certainty at present regarding employment security, which will have a positive impact. Moreover, continuing efforts to improve the ambience and facilities in the towns may attract an increased resident population.
- Should planned and potential investments in the Pilbara materialise the nascent improvement in the demand for both purchased and rental accommodation is likely to continue and even increase.

3.10 COMMERCIAL PROPERTY MARKET

The commercial property market up to the end of 2017 was still soft. Updated data for 2018 is not yet available at the time of this report. Key findings are as follows³⁹:

- Average lease cost per square metre (m²) per annum for retail properties has decreased slightly from \$312 to \$311/m² per year in the last six months of 2017.
- The average advertised lease cost for office properties decreased from \$357 to \$263/m² per annum in the last 6 months of 2017. The sale price average increased from \$2,411 last reporting period, to \$4,406/m² in December 2017.
- The average lease cost for industrial/warehouse properties has decreased from \$71 to \$64/m² per annum in the last six months. The average sale price decreased from \$234 to \$179/m² in the same period. Significant variations in value, size and location of industrial/warehouse properties are experienced throughout the Pilbara region.
- The average lease cost for vacant land has remained stable at \$22/m² per year over the past six months. The average sale price has increased from \$125 to \$133/m² over four settlements over the same period.

Advertised Retail Properties for Lease (\$/m²)

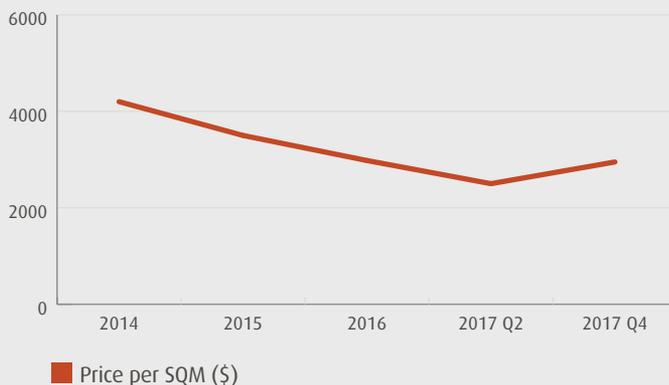


Retail

A slight drop was recorded in advertised average lease costs per square metre per annum, from \$312 to \$311, since June 2017 to December 2017. Karratha recorded the highest number of retail properties advertised for lease, with a total of 13, compared to just four in South Hedland.

There were no recorded settlements for retail properties in the second half of 2017, compared with five in the previous reporting period to June 2017. In the last six months there was a drop in the number of retail properties advertised for sale, from 23 down to 10 listings. An 18% increase in the average advertised cost per square metre was recorded between June 2017 and December 2017, bringing prices close to levels in December 2016.

Advertised Retail Properties for Sale (\$/m² December each year)

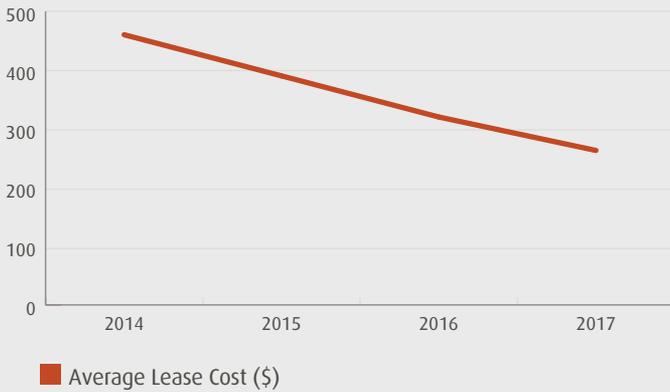


Office

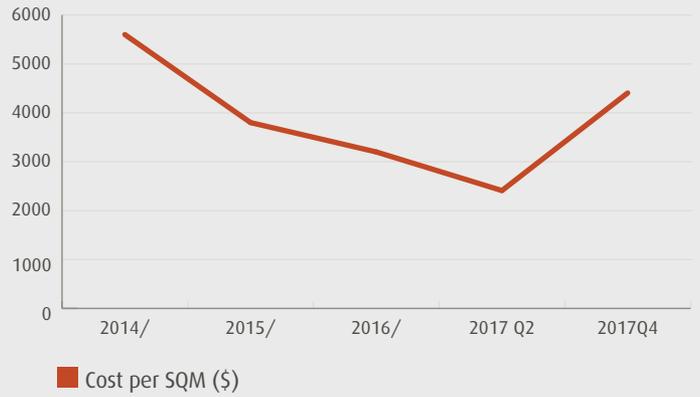
The number of office properties advertised for lease increased from 22 to 25 since June 2017. Office lease costs dropped by 26%, from \$357 to \$263/m² per annum over the same period.

The average advertised cost for office properties for sale increased from \$2,411 to \$4,406/m² between June 2017 and December 2017, an increase of 83%, bringing prices back to levels last seen towards the latter part of 2015.

Advertised Office Properties for Lease (\$/m²)



Advertised Office Properties for Sale (\$/m² December each year)



Industrial/Warehouse

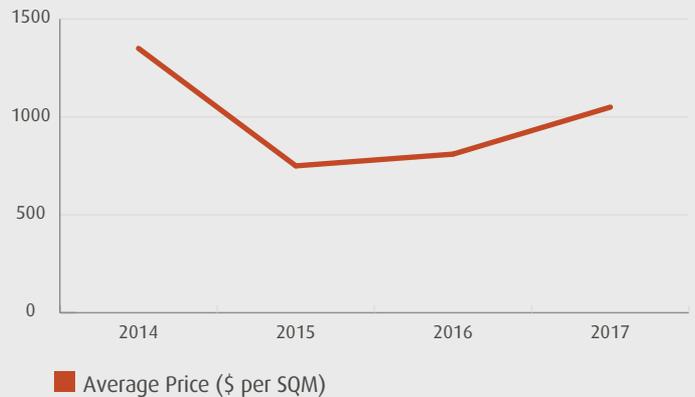
Average industrial/warehouse lease costs have dropped from \$71 to \$64/m² per annum from June 2017 to December 2017.

A 34% increase in advertised average cost for the sale of industrial properties was recorded, from \$774 up to \$1,035/m² in the December 2017 quarter.

Advertised Industrial/Warehouse Properties: Average Lease Cost (\$)



Advertised Industrial/ Warehouse Properties for Sale (\$/m²)



Vacant Land

An average lease cost of \$22/m² per annum was recorded, with no change since the previous reporting period.



The average advertised price of vacant land for sale dropped from \$305 to \$179/m² over the last six months, a 42% decrease. Four vacant land settlements, priced between \$332,750 and \$1,260,000, were recorded, up from two sales in the previous reporting period.

Commercial Buildings Approval Value

There has been growth in the value of non-residential building approvals in the Pilbara region in 2017. Port Hedland recorded a significant increase in approvals, from \$18m in 2016 to the current \$67m, followed by Karratha, with an increase from \$37m to \$79m during 2016/17.

Commercial Property Outlook

The outlook for commercial property in the Pilbara is similar to that of the residential market. It is anticipated that over the medium term there will be some improvement,

Going forward the local councils in the Pilbara will need to take due consideration of their rates policy as it affects businesses if they want to encourage business retention as well as diversification.

3.11 COUNCIL RATES COSTS

There are numerous variables that determine the rates levied by local councils. These can include policy issues such as budget repair, to infrastructure renewal, to equitable charges. The basis for all rates in Western Australia is the Gross Rental Valuation (GRV), which is determined on a periodic basis by Landgate. Councils then apply a Rate In the Dollar (RID) to arrive at the rateable amount for a particular property. The three main categories for determining types of properties are Residential, Commercial and Industrial⁴⁰.

Changes in the RID can have a significant effect on the impact of rates, as can any revaluation of the GRV. For example, in Port Hedland the GRV for properties have been significantly reduced and this has resulted in a rise in the RID to ensure sufficient rates are collected for services and asset renewal.

For comparison purposes the following RID rates apply for 2018:

Local Council	Residential	Commercial	Industrial
Perth CBD	5.74033	5.56344	n/a
Canning	4.537	4.598	4.598
Kalgoorlie	6.5624	6.8901	7.4398
Port Hedland	9.3483	9.3483	9.3483
Karratha	11.5175	9.7836	9.9413
Newman	4.4963	4.4963	1.5901

Table 20: Rate in the Dollar Comparisons (cents in the \$)

3.12 CONSTRUCTION COSTS

Western Australia Outlook⁴¹

Western Australia's building and construction sector fell sharply, across all segments over the last few years. In 2017/18 a modest fall of 5.1% in the value of residential construction was anticipated, non-residential building activity will remain weak and the office market although recovering slightly will not be particularly strong. Retail construction activity will be supported by the construction of the Elizabeth Quay entertainment and leisure precinct, set between the Swan River and Perth CBD, with a cost of \$2.6 billion. Transport construction, particularly in the roads sector is one area of strength worth noting. After a period of moderate growth in 2016/17 of 2.7%, transport investment is projected to increase by 54.8% in 2017/18 to \$4.8 billion.

Rawlinson's Construction Cost Guide 2018 and Other Reports

A range of recent surveys and data on construction costs⁴² were referenced. The estimates indicate:

- Costs in the Pilbara are influenced by costs in Perth. A range of indicators shows that Perth construction costs remained the highest in the nation in 2017. The Rawlinson's Construction Cost Guide 2018 indicates that the construction cost index for Perth for the period 2010 to 2017 increased from 232.9 to 257.85, an increase of some 10.7% and was the highest in the nation. The high cost of construction in Perth is illustrated by the current cost to build an administrative building in Perth (single storey, standard finish) at \$2,350-\$2,535, which is the second highest in the nation.
- In turn the high cost of construction in the Pilbara can be gauged from cost indices for main the towns in the Pilbara compared to Perth (Perth = 100). These costs indices remain at elevated levels:
 - Karratha: 155
 - Port Hedland: 160
 - Newman: 165
 - Although there is no data for Onslow stakeholders have indicated that costs remain very high and in Exmouth they are 60% higher than Perth.

High construction costs are a result of:

- Distance - meaning transport costs for most materials.
- High labour costs – although these have fallen significantly since 2014.
- High accommodation costs, although these have fallen significantly.
- High material costs.
- More rigorous standards to meet flooding and cyclone issues – this adds 30% to structural steel tonnages and 400% to 600% to concrete footing volumes.
- Site visits add 10-20% to costs.

Illustrative of these high costs in the Pilbara is the indicative cost of rebuilding a property using online insurance building calculators. For a single-story residential house of similar construction materials and size the total rebuild costs were as follows:

Location	Total Rebuild Cost (\$)
Perth	\$360,000
Karratha	\$515,000
Port Hedland	\$525,000
Newman	\$595,000

- Interviews with stakeholders indicate that in general construction costs started to fall in 2012. Costs have fallen further in all years until 2018.
- Estimates vary – for example developers indicate that for cost planning and estimating for both Port Hedland and Karratha (including market testing with builders in the region) the estimated cost is 50% above Perth costs for construction and 5-10% for differences in design and construction methodology.

Future Construction Costs

In Perth construction activity may increase slightly and costs are forecast by Rawlinson to increase slightly in 2018 by about 1.5%. In the Pilbara, after lower costs from about 2014 until 2017, prices are expected to remain flat or to increase slightly in Karratha and Onslow. Discussions with Pilbara stakeholders⁴³ confirm that cost pressures subsided until recently due to less demand for services. Prices will not increase much in the future, however, due to an increase in production and investment levels small increases may well occur.

- Employment costs will remain flat overall but may increase for skilled workers as a slight shortage of workers is expected over the next few years.
- Whilst the cost of water may rise only slightly the cost of electricity may well continue to rise.
- The cost of materials is unlikely to fall.
- Environmental considerations mean that costs remain higher in flood prone areas and the requirements of building standards related to cyclones also lead to higher costs than would otherwise be the case.



4. Costs of operating a business in the Pilbara centres

4.0 INDICATIVE BUSINESS COST MULTIPLIERS PILBARA TOWNS COMPARED TO PERTH

The analysis of the major cost items in preceding sections of the report, which compares prices in the Pilbara with prices in Perth, has been used to estimate cost multipliers based on actual prices per unit (for example water, electricity and car rental) or estimates made through stakeholder discussion. The data needs to be treated with caution for some cost items, notably incomes. The ABS Census of 2016 provides a fairly recent and reliable baseline for making estimates of current wage rates, which have been adjusted upwards by 5% to take into account recent trends in labour costs. However, these are broad estimates only and are based on discussions with stakeholders.

The indicative multipliers for major cost items show the additional cost of doing business in the Pilbara compared to Perth where Perth=1⁴⁴. Whilst some multipliers have reduced in 2018 compared to 2015, the data indicates that the overall cost structure in the Pilbara remains higher than Perth.

4.1 ILLUSTRATIVE BUSINESS MODEL (COMPARING COST OF DOING BUSINESS IN THE PILBARA WITH PERTH)

An illustrative model has been compiled for 2018 based on available cost data and estimated differences in costs between the Pilbara Towns and Perth. Where cost data was not available a best estimate of differences has been made. The analysis has been made as simple as possible as was the case with previous reports. A services type business has been modelled to illustrate the high costs of doing business in the Pilbara. Obviously, there is a very wide range of business types and sizes, which would require different models. In particular salaries paid to staff could differ from the adjusted ABS data used.

It has been assumed that there will be no cost to a business for the purchase of a house in Perth or need for subsidised rent. In the Pilbara towns it has been assumed that a 30% rent subsidy is paid for employees, as accommodation still sometimes has to be provided, or partly provided, to attract and retain staff. Only major cost items analysed in this report have been included.

Cost Item	Karratha	Port Hedland	Newman	Onslow
Median Individual Weekly Income	1.85	1.86	2.01	1.69
Median Household Weekly Income	1.6	1.56	1.6	1.3
House Prices	0.6	0.4	0.2	0.5
Rent - Accommodation	1.1	1.0	1.1	1.5
Rent - Commercial	0.8	0.6	0.9	1.0
Rent - Retail	0.6	0.7	0.6	0.6
Rent - Industrial	0.7	0.5	1.7	NA
Construction	1.6	1.6	1.7	1.6
Water	1.0	0.8	0.8	1.4
Electricity SMEs	2.5	2.5	2.5	2.5
Electricity Large Businesses	2.3	2.3	2.3	2.3
Insurance SME Light Industrial	2.0	3.0	1.6	2.0
Insurance SME Services	2.3	2.3	1.1	2.5
Petrol	1.1	1.1	1.1	1.1
Diesel	1.0	1.0	1.0	1.0
Car Hire	1.2	1.2	1.3	1.3
Truck Hire	1.5	1.5	1.7	1.6

Table 21: Business Cost Multipliers (First Quarter 2018): Pilbara Towns compared to Perth

Illustrative Business Model	Perth	Karratha	Port Hedland	Newman	Onslow
Salaries and Wages	800,000	1,480,000	1,488,000	1,608,000	1,352,000
Subsidised Rent & Cost of Living	0	18,900	15,700	19,600	10,100
Rent - Commercial	120,000	96,000	72,000	108,000	120,000
Water	20,000	20,000	16,000	16,000	28,000
Electricity ⁴⁵	10,000	25,000	25,000	25,000	25,000
Business Insurance	10,000	23,000	23,000	21,000	25,000
Vehicle Costs inc. fuel	20,000	24,000	24,000	26,000	26,000
Equipment/maintenance	5,000	9,000	9,500	10,000	8,500
Consumables	10,000	13,000	13,000	13,000	13,000
Services (Accountancy etc.)	12,000	21,000	22,000	24,000	20,000
Total	1,007,000	1,729,900	1,708,200	1,870,600	1,627,600
Percentage above Perth Costs	-	72	70	86	62
House Purchase (median)	520,000	320,000	210,000	120,000	250,000

Table 22: Indicative Cost Comparison Model of an SME Service Business in the Pilbara towns compared to Perth in 2018 (\$ per annum)

The cost of operating a business of this type has declined in the Pilbara towns in comparison with 2013 near the height of the boom. However, it is still comparatively high in all centres. As indicated in the business model, the cost of employment is the single most significant factor driving up the cost of business in the Pilbara.

Town	% above Perth 2013	% above Perth 2018
Karratha	131	72
Port Hedland	94	70
Newman	119	86
Onslow	107	62

Table 23: Comparison of % Costs of Operating a Business in Pilbara Towns with Perth (2013 – 2018)

4.2 FUTURE COSTS

Interviews with stakeholders in Perth, Port Hedland, Karratha and Newman made the following points regarding the cost structure and opportunities in the Pilbara:

- Although costs have fallen considerably the high cost structure of the Pilbara is a constraint to operating a business successfully;
- In all the centres, although cost pressures subsided during the downturn they are now rising and are likely to rise further as the new wave of investments accelerates;
- Employment costs are rising and are likely to continue to rise, particularly for skilled labour;
- House prices and rents are rising and may continue to do so, resulting in higher costs for employers providing accommodation;
- Commercial/retail and industrial rents have started to rise, however, the market is not yet very tight due to a reasonable level of supply;
- Construction costs have remained high and are unlikely to decrease as labour costs are rising;
- Whilst the cost of water may rise only slightly the cost of electricity may well continue to rise quite significantly; and
- Economic diversification is essential in the Pilbara. Whilst some progress has been made much larger investments are required to make a substantial difference.

5. Review of SMEs and business start-ups

5.0 OVERVIEW

The features of the SME sector as described by the Pilbara Development Commission⁴⁶ indicates that there are currently 2,182 businesses in the Pilbara with 96% having less than 20 employees. There are 4 SMEs per 100 people in the Pilbara, which is less than the 6.8 per hundred people in regional WA⁴⁷. Similarly, a limited number of start-ups have started operations in the Pilbara in recent years.

Developing a diverse and competitive SME sector has long been recognised as a necessity to broaden and diversify the economy of the region. At present SME activity tends to be predominantly in construction, rental, real estate, warehousing and logistics. These industries are closely aligned with the resources sector and are subject to its cyclical fluctuations.

A Tale of Two Cities

An interesting comparison of Karratha and Port Hedland has emerged from looking at recent NIEIR data. Two sets of data have been looked at⁴⁸. The first is called Shift Share Analysis, which provides a useful mechanism for better interpreting changes in economic variables between different time periods. It is a way of breaking the growth or decline in an industry into three components to help understand what is driving the change. These three change components are commonly known as:

National/State growth effect - the amount of growth or decline in an industry that could be attributed to the overall growth of a larger area that encompasses the region's economy, usually state or national.

Industry mix effect - the amount of growth or decline in an industry that could be attributed to the performance of the specific industry at the national/state level.

Regional competitive effect - the amount of growth or decline in a specific industry that could be attributed to a local advantage or disadvantage. This is generally the most interesting component as it clearly quantifies the level of advantage or disadvantage an industry has in the local area.

The regional competitive effect for an industry generally indicates how the local industry performed against benchmark trends. An industry with a positive regional competitive effect suggests local characteristics supported above trend growth in that period. For example, if Retail Trade in a region grew by 3%

but at a state/national level it only grew by 2%, some regional specific factors (e.g. new shopping centre, population growth) must have contributed to this above trend growth. A negative effect suggests the opposite.

An industry with a positive regional competitive effect may still have experienced decline, but by less than the state/national trends.

In Port Hedland

Dominant groups

An industry with a positive regional competitive effect suggests local characteristics supported above trend growth in that period. A negative effect suggests local characteristics inhibited growth in that period.

An analysis of employment (Total) change between 2011/12 and 2016/17 in Town of Port Hedland in 2016/17 shows the three industries with the highest regional competitive effect in Town of Port Hedland relative to Western Australia were:

- Mining (+1,233.6)
- Transport, Postal and Warehousing (+168.9)
- Wholesale Trade (+51.9)

The three industries with the lowest regional competitive effect were:

- Construction (-1,764.4)
- Accommodation and Food Services (-197.8)
- Manufacturing (-76.7)

In Karratha

Dominant groups

An analysis of employment (Total) change between 2011/12 and 2016/17 in City of Karratha in 2016/17 shows the three industries with the highest regional competitive effect in City of Karratha relative to Western Australia were:

- Retail Trade (+164.4)
- Rental, Hiring and Real Estate Services (+156.5)
- Public Administration and Safety (+154.6)

The three industries with the lowest regional competitive effect were:

- Construction (-4,897.5)
- Mining (-859.8)
- Professional, Scientific and Technical Services (-312.0)

Businesses by Industry Sector

The second set of data looked at is the number of businesses in each location and the change over the last two years. The findings are as follows:

Total registered businesses Industry	2017			2015			Change
	Number	%	Western Australia %	Number	%	Western Australia %	2015 to 2017
Agriculture, Forestry and Fishing	22	3.1	7.4	22	2.9	7.9	0
Mining	9	1.3	1.2	8	1.1	1.3	+1
Manufacturing	25	3.5	3.8	28	3.6	4.0	-3
Electricity, Gas, Water and Waste Services	0	0.0	0.3	0	0.0	0.3	0
Construction	152	21.0	18.3	189	24.5	18.7	-37
Wholesale Trade	9	1.2	3.0	13	1.7	3.0	-4
Retail Trade	23	3.2	5.5	19	2.5	5.8	+4
Accommodation and Food Services	35	4.9	3.8	28	3.6	3.7	+7
Transport, Postal and Warehousing	72	10.0	7.3	82	10.6	6.4	-10
Information Media and Telecommunications	0	0.0	0.7	0	0.0	0.6	0
Financial and Insurance Services	48	6.6	9.2	36	4.7	8.9	+12
Rental, Hiring and Real Estate Services	106	14.7	10.7	105	13.7	10.8	+1
Professional, Scientific and Technical Services	40	5.5	11.8	40	5.2	11.8	0
Administrative and Support Services	51	7.0	3.6	70	9.1	3.6	-19
Public Administration and Safety	3	0.4	0.3	9	1.2	0.3	-6
Education and Training	6	0.8	1.1	16	2.1	1.1	-10
Health Care and Social Assistance	45	6.2	5.3	36	4.7	4.9	+9
Arts and Recreation Services	6	0.8	1.1	3	0.4	1.0	+3
Other Services	63	8.7	4.4	59	7.7	4.4	+4
Industry not classified	8	1.1	1.2	7	0.9	1.2	+1
Total business	724	100.0	100.0	772	100.0	100.0	-47

Table 24: Town of Port Hedland - Registered businesses by industry⁴⁹

Total registered businesses Industry	2017			2015			Change 2015 to 2017
	Number	%	Western Australia %	Number	%	Western Australia %	
Agriculture, Forestry and Fishing	18	1.9	7.4	30	2.8	7.9	-12
Mining	15	1.6	1.2	16	1.5	1.3	-1
Manufacturing	42	4.5	3.8	37	3.4	4.0	+5
Electricity, Gas, Water and Waste Services	3	0.3	0.3	4	0.4	0.3	-1
Construction	206	21.9	18.3	289	26.8	18.7	-83
Wholesale Trade	15	1.6	3.0	9	0.8	3.0	+6
Retail Trade	49	5.2	5.5	58	5.4	5.8	-9
Accommodation and Food Services	48	5.1	3.8	44	4.1	3.7	+4
Transport, Postal and Warehousing	65	6.9	7.3	85	7.9	6.4	-20
Information Media and Telecommunications	6	0.6	0.7	5	0.5	0.6	+1
Financial and Insurance Services	72	7.7	9.2	61	5.7	8.9	+11
Rental, Hiring and Real Estate Services	130	13.8	10.7	140	13.0	10.8	-10
Professional, Scientific and Technical Services	64	6.8	11.8	72	6.7	11.8	-8
Administrative and Support Services	57	6.1	3.6	56	5.2	3.6	+1
Public Administration and Safety	0	0.0	0.3	0	0.0	0.3	0
Education and Training	7	0.7	1.1	14	1.3	1.1	-7
Health Care and Social Assistance	40	4.3	5.3	43	4.0	4.9	-3
Arts and Recreation Services	8	0.9	1.1	9	0.8	1.0	-1
Other Services	71	7.6	4.4	75	7.0	4.4	-4
Industry not classified	24	2.6	1.2	30	2.8	1.2	-6
Total business	941	100.0	100.0	1,078	100.0	100.0	-137

Table 25: City of Karratha - Registered businesses by industry⁵⁰

Key Indications:

- Port Hedland had a net loss of 47 businesses between 2015 and 2017 with the biggest losses in construction, and administration & support services. The biggest gains were in financial & insurance services, and health care & social assistance.
- Karratha had a net loss of 137 businesses in the same period with the biggest losses in construction, and transport, postal & warehousing. The biggest gains were in financial & insurance services, and wholesale trade.
- Using slightly different metrics the ABS also records a significant decline in the number of businesses in Karratha and Port Hedland over the same period. In June 2015 there were 1046 registered businesses in Karratha, but this fell to 920 in June 2017. For Port Hedland the figures were 770 in June 2015 and 722 in June 2017.

5.1 CONSTRAINTS AND OPPORTUNITIES

Constraints

High costs of doing business, small internal markets, distance and isolation are the main constraints to the development of the SME sector and start-ups.

There are a number of other cost factors that have been raised by stakeholders in the Pilbara and are worth noting.

• Retail Sector

Some stakeholders in the centers have indicated that apart from food the retail trade is not strong. Rents are too high, populations are small and have decreased in recent years and there is on-line shopping competition, which is a favoured method for purchasing many consumer items. As a result, a number of closures have occurred over the last few years. However, discussions with shopping centre managers indicate that in fact retail turnover is showing small increases and there is more through consumer

traffic in the centres. Furthermore, rents are not being kept static when leases come up for renewal, they are being reduced in line with market conditions and although there have been closures more demand for short term leases is compensating for losses in longer term occupancy of retail space.

• **Online Shopping**

Pilbara towns have some of the highest prevalence of online shopping in Western Australia and in some products groups for all Australian. This is a trend that continues to grow (online shopping grew by 11.5% Australia-wide in 2017 compared to 2016). Lower prices, more choice, and convenience are key motivators. The entrance of Amazon into the domestic market will only drive demand for online shopping higher.

• **Office Supplies**

The cost of office supplies in the Pilbara can be considerably higher than in Perth. Price differences are in the range of 10% to 50% higher, depending on the item. A few examples are presented below:

Item	Approximate price difference between Pilbara and Perth (%)
Standard ream of A4 printer paper	40-50
A3 Double Ring Binder file	40
Petty Cash book	50
Epson black printer ink cartridge	30
Canon Pixma colour printer ink cartridge	10

• **Day Care**

Day care costs in the Pilbara centers are fairly similar but tend to be in the upper end of the Western Australia fee scale with the same provider charging \$126 per day (before government subsidy) for long day care in Karratha and Port Hedland and \$118 in Newman. There are other providers in the range of \$100 to \$110 in these locations.

In Perth there is considerable choice and fee variation with about \$120 per day at the upper end and \$90 at the lower end.

However, Pilbara day care centers have difficulties in accessing qualified staff and according to stakeholders it was not easy to secure services during the boom though the pressure has eased somewhat recently.

Opportunities

There are significant opportunities appearing for SMEs and start-ups, particularly over the next few years.

The diversification within the resources sector, defined as minerals, oil and gas, marine resources and rare earths opens up new opportunities on a potentially large scale. In solar power, fertiliser and salt production, greenhouse crop production, aquaculture, and in services for the lithium industry, there is great potential. In addition, due to greater liveability in the Pilbara centres and a broader economic base more families are settling in the region, which translates into larger local markets.

Regarding costs no business is the same and many micro-businesses can get started for as little as \$3,000 or less. These businesses are often home-based sole proprietorships with low upfront investments. Another relatively low-cost option is a franchise. While the average “big brand” franchise may require a larger investment, home-based franchises can be started with as little as \$1,000 - \$5,000.

Over the last few years, the costs of operating a business in the Pilbara have moderated and commercial space has become more readily available. At the same time SMEs and start-ups can take advantage of the enormous investments made by a more diversified resources sector over the last decade and the significant new investments that have been approved for implementation over the medium term.

5.2 SUPPORT INITIATIVES

Over the last few years, working in partnership several government agencies, the private sector and NGOs have been working together to strengthen the enabling environment for the SME sector and start-up businesses. Start-ups in the Pilbara can take advantage of services offered by the various support initiatives in place at very low fees of \$160 to \$450 per annum. Packages include co-working, access to Wi-Fi and online communities, newsletters, promoting events through networks, attending community events, free meeting space and booking meeting rooms online, mail processing, use of postal address, storage and mentoring networks.

The initiatives available in the different centres are at different stages of development and although there is a common thread regarding constraints and opportunities there are also significant differences. The models under development also differ somewhat



in terms of governance and the architecture for assistance. The enterprise centres, in combination, are seeking regional outcomes and a significant degree of cooperation has been achieved by the various initiatives in the Pilbara.

The development of the various initiatives, which have been progressively expanded and improved, present start-ups and existing SMEs every opportunity to access training, planning, mentoring, monitoring, finance, networking, cost reductions, innovative co-working environments and market penetration in the Pilbara. The enabling environment has improved as a result of the initiatives and the prospects for starting new and successful businesses has increased. The level of opportunity does vary according to local circumstances, notably differences in populations and thus local markets and investments in the areas surrounding the centres, which are different in terms of commodities, scale, proximity, levels and diversification. Overall though the economy of the Pilbara has widened and deepened and therefore there are greater opportunities for developing value chains and diversification.

Many Rivers

Many Rivers is a not-for-profit organisation with an office in Port Hedland, which also provides business services to SMEs and start-ups in Karratha, Newman and smaller centres. Many Rivers' Microenterprise Development Managers (MEDMs) live and work in the region that they serve. MEDMs are responsible for providing micro and small business development support to people wanting to establish and develop their own businesses. Clients in the Pilbara consist of both indigenous and non-indigenous groups with an approximate 50:50 split. Business clients have different magnitudes of turnover in a range of \$60,000 to \$1 million.

The Many Rivers approach has been highly successful. It consists of hands on training, the preparation of comprehensive business plans, mentoring and ongoing monitoring and support once enterprises have commenced business operations. In addition, MEDMs are able to recommend the approval of micro and small business loans to provide a capital injection, if this is required, to enable clients to establish and grow their businesses. Loans are provided following a successful evidence-based assessment, taking into account the individual's character, capacity and cash flow. Collateral, as loan security, is not required. The organisation believes that contributing factors to success include passion and commitment.

The organisation believes that there are substantial diversification opportunities, such as aboriginal tourism, beef processing for export, transport, handling of bulk goods and home-based enterprises providing services such as accountancy and beauty products.

The Pilbara Development Commission (PDC)

The PDC "is working in partnership with government, industry and business to achieve a number of strategic objectives that aim to unlock the Pilbara's SME potential and make the 2050 vision a reality". The Commission has a dedicated Local Content Officer whose role is to develop, promote and maximise opportunities for local suppliers, contractors and jobseekers in the Pilbara by connecting to relevant government, industry, businesses, Aboriginal Corporations, employment and training stakeholders.

Newman Activation Programme

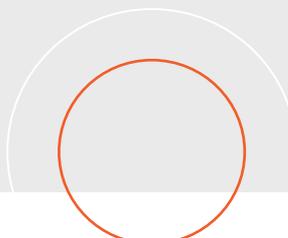
Run by the Shire of East Pilbara, the programme will activate the new co-working spaces delivered as part of the Newman Town Square project completed in July 2017. The flexible module facility, known as The Edge, has shared office space, a large commercial kitchen, an events area and retail pop-up space located in the heart of Newman. The intention of the programme is to ensure The Edge is a sustainable and well-used space that fosters growth in small businesses through networking events, business support and virtual business platforms. However, to date there has not been much demand for the services overall, although the events facility has attracted some interest. The possibility of the CCI taking over the purpose-built facility is under discussion.

Stakeholders in Newman indicated that the usual constraints to starting up businesses in the Pilbara, including isolation, a small local market and high costs. The resident population of Newman is very small, and this is a major drawback for starting a new business. As a result, there has been limited interest in start-ups, although the number registered in July 2018 was 32 compared to 16 in 2017. These businesses are often started by females, initially using their homes for commercial activities, such as beauty treatments.

East Pilbara Co-Working and Innovation Centre (EPIC)

Managed by the Port Hedland Chamber of Commerce, the aim of EPIC is to increase the productive capacity of the region and economic and business development for existing small businesses and start-ups, by facilitating support through professional development, networking, a collaborative working space, creativity, motivation, multifunctional areas, meeting rooms and a kitchen.

The Centre is housed in a newly constructed building funded by Royalties for Regions and the Pilbara Development Commission, which will house the Chamber of Commerce and Industry, the enterprise hub, SMEs and start-ups. The design of the building is practical, attractive and fit for purpose. Substantial progress has been made in renting space to a wide range of SMEs and a University has expressed interest in office space, with the aim of carrying out socio-economic research. Links with enterprise hubs in other countries are being sought to foster international collaboration, synergies and trade opportunities.



It is clear that the incipient success of the Centre results from adequate consultation with stakeholders, a clear vision, an attractive and functional design of the facility, an in-depth knowledge of the SME and start-up sectors, low costs for utilisation of the facilities, and proactive and effective management. Given the impetus in the local economy further progress in effectively encouraging SMEs and start-ups can be expected.

Karratha Business Enterprise Hub

The Karratha Enterprise Hub is managed by the Business Centre Pilbara. The project aims to expand and diversify businesses in the West Pilbara through enhanced support services and infrastructure for start-ups. A building has been purchased in the city centre using funds of \$2.75 million. It is currently under alteration and renovation to make it fit for purpose for housing both the Business Centre and the enterprise hub itself. SME enterprises will also locate in the hub and SME and start-up support will be given in situ. It will provide capacity for up to 25 businesses, including co-working areas, incubation suites, meeting rooms, space for business and community events, a media centre and will have National Broadband Network fibre-to-the-premises technology. There is also ongoing dialogue with a University in Perth that may want an office in the hub.

The Business Centre has been active in the past in providing training and mentoring SMEs and start-ups with some success. A number of prominent conferences have been and are to be held in the future, using the facilities of the hub and the Business Centre has a contract to provide training in Newman to SMEs and start-ups. Apart from the range of traditional services supplied to SMEs and start-ups by the Business Centre, such as training, practical assistance has been given to several new businesses, for example to a business producing products from native plants and another involved in tourism. The Business Centre has also been active with a number of other initiatives, including exploring greater links with the Jakarta Tourism Alliance that recently visited Karratha and expressed interest in opening up air links with Indonesia. Further, the Business Centre has been involved in the exploration of a solar plant partnership with KPMG for co-energy production.

5.3 OTHER REGIONAL INITIATIVES

There are a number of other regional initiatives offering support to existing SMEs and start-ups. These include:

- The Onslow Chamber of Commerce and Industry (OCCI) Business Support Program supplying services similar to the other centres mentioned above.
- The Roebourne Victoria Hotel project will incorporate commercial office space, a visitor information centre, an eatery and a multi-purpose function space once renovations are completed.
- The Form project, based in Port Hedland, is an innovative two-year funding agreement that aims to deliver economic diversification and capacity building through tourism, small businesses, creative industries and Aboriginal business development. So far, the series has resulted in 14 new micro businesses and 80% of participants are now using social media to market their products and services.
- Business Local and the Small Business Development Corporation

(SBDC) streamline the delivery of small business advisory services across Western Australia. Business Local services are available free of charge to all businesses, at all stages of development. The SBDC takes smaller companies through the Business Life Cycle for potential investors through the various stages of a small business's development, from pre-start to starting, managing and growing a business or, should the need arise, how to cease business operations. It also offers workshops and networking opportunities.

- RSM Australia Support Services is a provider of Business Local in the Pilbara, which is a Small Business Development Corporation service funded by the Government of Western Australia. Team members live and work in WA regional areas, so they understand the unique challenges and opportunities small business owners face.
- The REMPLAN Economic and Investment Profile is a software package of online analytical tools and information resources for economic development and planning practitioners in local, state and federal government agencies and researchers.

Conclusions

In recent years considerable attention has been given to the need for diversification of the Pilbara economy by both public and private sector stakeholders. The first fruits of these efforts are beginning to show. However, there is also a need for greater attention to be paid to trying to retain businesses that have already been operating in the region and to reverse the trend of declining business operators in certain sectors.

In addition, attention needs to be given to developing the value chains around the resource industries and the ports – which are the cornerstones of the Pilbara economy. This would require collaboration between producers and service providers to share infrastructure, develop supply hubs and increase the level of competitiveness of local small businesses.

With regard to start-ups and micro businesses, there needs to be a very clear understanding of their different needs and a one-size fits all approach is unlikely to work. Home based businesses fill a particular market niche as well as the aspirations of the operator, and in most cases an enabling regulatory environment is the key requirement.

For innovators and entrepreneurial participants in the business incubators, a whole range of factors is critical to success, not only of the business but also of the incubator itself. A clear business model for the service provider is essential. The success of an incubator cannot be decided based on a single parameter, there are a narrow but diverse set of metrics such number of start-ups incubated, percentage of successful exits, financial sustainability of the incubator, engagement with mentors, faculty and investors, funding support, infrastructure support and employment generation that determine the success of an incubator. The Pilbara region adds some additional risks with its distance from sizeable markets, relatively high cost structure and low penetration of tertiary education providers. These constraints can be overcome by a high level of collaborative effort by all the key stakeholders.

References

- 1 See Economic Annex to this report available from RDA Pilbara
- 2 Based on DPRID CPI reports for 2017
- 3 For example if a product cost \$1 in Perth and the multiplier is 1.2 then the same product will cost \$1.20 in the Pilbara
- 4 In 2012 the consultant participated in the preparation of the Pilbara Plan Report for RDA , which included an analysis of the economy of the Pilbara. This analysis was updated (2013), as part of a Study on future retail and commercial space needs for the Shire of Roebourne and in 2014 additional analysis was carried out as part of a study on the revitalisation of the three older suburbs in Karratha . In 2016 further analysis of the economy was undertaken in the preparation of an Investment Prospectus for the Pilbara, the Kimberley and the Gascoyne regions for Regional Development Australia Pilbara by the consultant.
- 5 Cost of Doing Business for the WA Resource Sector-The Chamber of Minerals and Energy of Western Australia (CME) - 2018
- 6 Regional Development Australia Pilbara – Study on Banking and Insurance in the Pilbara – Imani Development Austral – July 2015
- 7 Department of Department of Primary Industries and Regional Development
- 8 Western Australia Treasury Corporation – Economic Analysis CPI March Quarter 2018
- 9 Australia Bureau of Statistics – 2016 Census
- 10 Pilbara Development Commission
- 11 Pilbara Development Commission: economyprofile.com.au/pilbara/trends/population#population
- 12 KPMG-The Chamber of Minerals and Energy – Western Australia Resources Sector Outlook 2018 to 2028- April 2018
- 13 communityprofile.com.au/pilbara/wellbeing/weekly-income
- 14 Series, No.10 December 2017
- 15 A working week of 40 hours has been used to convert hourly rates to full time equivalents
- 16 Care should be taken in using the survey data which was based on a relatively small sample size – but nonetheless was
- 17 Care should be taken in using the survey data which is based on a relatively small sample size – but nonetheless was in line with official data in line with official data
- 18 Bankwest Curtin Economics Centre: Focus on Western Australia Report Series, No.10 December 2017
- 19 Data compiled by id.consulting and the National Institute for Economic and Industrial Research (NIEIR)
- 20 WACOSS Cost of Living 2017
- 21 CME Research
- 22 Zone conference: Perth November 2012 – Chevron MD
- 23 CME Report December 2012 on the Cost of Doing Business in WA
- 24 dpaw.wa.gov.au/images/documents/conservation-management/pilbara/pilbara_conservation_strategy.pdf
- 25 RDA Pilbara – Insurance and Banking Study – 2015 – Imani Development Austral
- 26 ACCC analysis based on data provided by Insurers
- 27 treasury.gov.au/PolicyTopics/Economy/G20/~/_media/Treasury/Policy%20Topics/Economy/G20/Downloads/PDF/G20-SME-Conference.ashx
- 28 pdc.wa.gov.au/files/7014/1828/1146/2014Q3_Housing_and_Land_Snapshot.pdf
- 29 Data sourced from Water Corporation
- 30 Chamber of Minerals and Energy 2018 Resource Sector Outlook Report
- 31 Improving access to, and operation of, the Pilbara electricity network – the North West Interconnected System Issues Paper Department of Treasury | Public Utilities Office 14 November 2017
- 32 The WA Gas Statement of Opportunities (G500) 2017 Annual report published by the Australian Energy Market Operator (AEMO)
- 33 Prices supplied by a WA gas supplier
- 34 Data sources for fuel: Fuel Watch. The costs for vehicle hire are based on the hire of an intermediate sized car (Hyundai Accent) for a period of 3 days and for a pickup truck for 3 days in each town, and in Perth
- 35 Fuel Watch: fuelwatch.wa.gov.au/fuelwatch/pages/home.jsp
- 36 Department of Infrastructure, Regional Development and Cities
- 37 Data Sources: Pilbara Development Commission - December 2017 SNAPSHOT, REIWA and ABS
- 38 Note: graphs derived from the PDC Housing and Land Snapshot graphical presentations
- 39 It should be noted that data is gathered from a relatively small number of transactions, which can affect the trend from one quarter to the next. Trends over the 4 - year period are more reliable.
- 40 Depending on the location there can be various other categories such as mining or unimproved land etc.
- 41 Master Builders Association WA
- 42 Master Builders WA; Stakeholder interviews; Rawlinson's Cost Guide 2018; 19th Annual Demographic International Housing Affordability Survey; RDA Study on Cost of Doing Business in the Pilbara – Imani Development Austral
- 43 Mirvac; Landcorp; Estate Agents; Finbar; Karratha Chamber of Commerce and Industry
- 44 Care should be taken in using these multipliers. They are based on averages or medians and do not necessarily indicate the precise costs for different types of business
- 45 Stakeholders have indicated that electricity use in the Pilbara centres is between two and three times Perth usage
- 46 pdc.wa.gov.au/our-focus/strategicinitiatives/small-business
- 47 pdc.wa.gov.au/our-focus/strategicinitiatives/small-business
- 48 The source of the data is NIEIR and ABS with the analysis coming from .id the population experts
- 49 Source: Australian Bureau of Statistics, Counts of Australian Businesses, including Entries and Exits, 2015 to 2017 Cat. No. 8165.0. Courtesy of .id the population experts.
- 50 Ibid.
- 51 Inside Australian Shopping 2017, Australia Post



