

# Project Haber forecast to deliver huge carbon abatement and billions in Australian GDP

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- Project Haber estimated to reduce Australia's urea fertiliser CO<sub>2</sub>e footprint by 50-60% from a 2019 base, equivalent to 650-795,000 tonnes of CO<sub>2</sub>e p.a.
  - Project Haber on success will position Australia as one of the lowest carbon urea producing regions globally.
  - Leading advisory firm ACIL Allen have completed an Economic Impact Assessment which estimates that Project Haber's economic impact on the Mid-West region alone is larger than the impact of a major LNG project across the whole of Western Australia.
  - The report estimates that over the life of Project Haber it may deliver:
    - \$8.4 billion of Gross Domestic Product (GDP).
    - Average Gross Regional Product – in the Mid-West – of \$230 million per annum, equivalent to a 3.8% p.a. boost to the local economy.
    - Approximately 1,135 full time jobs during the construction phase and an average of 283 jobs in the Mid-West region for 30 years.
    - Commonwealth taxation revenue of \$144 million per year of operations.
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Strike Energy Limited (Strike - ASX: STX) is pleased to provide an update on its proposed urea development, Project Haber based in Geraldton, W.A.

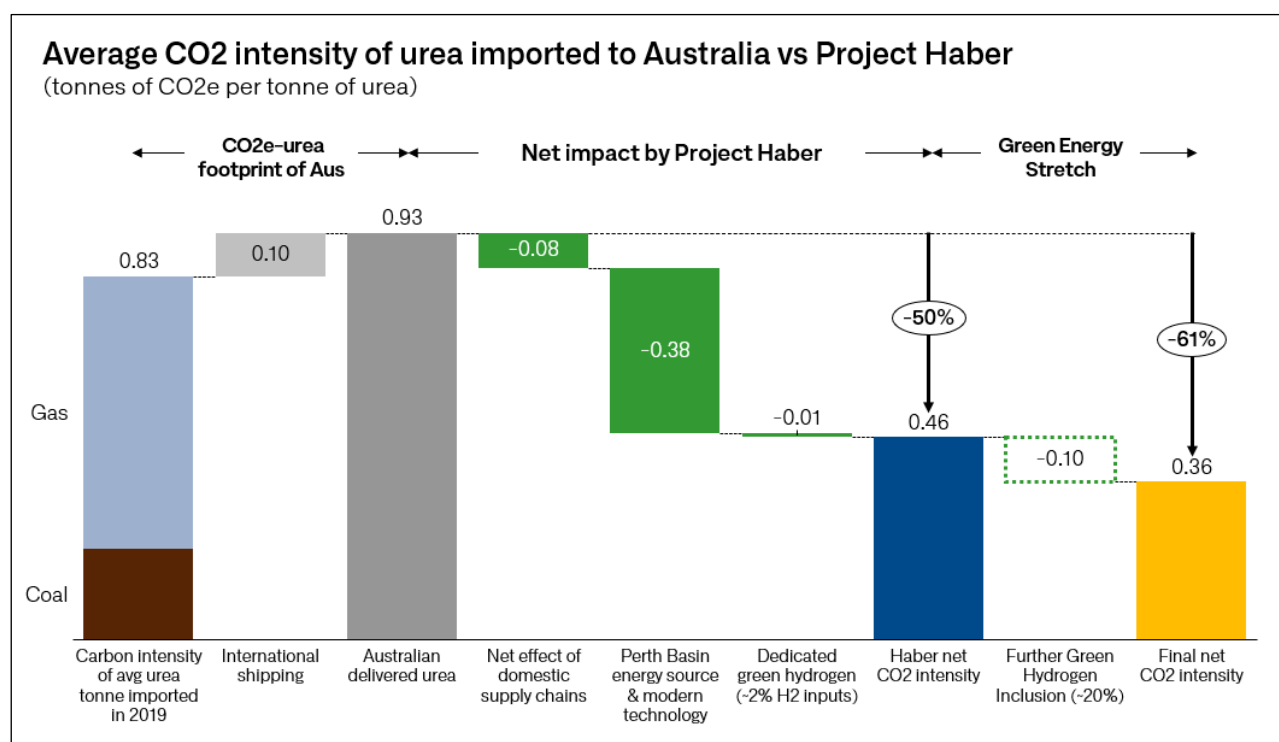
## World Class Carbon Performance

Australia currently imports more than 95% of the urea it consumes for agricultural uses every year. This urea comes from various global sources, predominantly Saudi Arabia, Qatar, and China. This urea is produced using older ammonia and urea technologies and poor-quality energy feedstocks such as high impurity gas or in China's case, coal via gasification. The net result of Australia's reliance on these imports is a high carbon intensive product where Australian consumers have little control over the carbon footprint of the resultant commodity. This high carbon intensity is only further exacerbated by the long international supply chains and shipping distances that accompany the imports.

Through the use of modern ammonia and gas processing technology, high quality nearby conventional gas, domestic supply chains and dedicated green hydrogen inputs, Project Haber has the potential to deliver significant carbon reduction to Australia's urea consumption. The net result of the commencement of Project Haber operations is, based on feasibility and pre-FEED studies completed by TechnipFMC, expected to result in the abatement of between 650,000 and 795,000 tonnes of CO<sub>2</sub>e per year. This is a 50-60% reduction in the carbon footprint of Australian urea fertilisers based lined against 2019, and would equate to some 16 million tonnes of CO<sub>2</sub>e over the first 20 years of the project life.

This relatively low level of carbon intensity would position Australia in the top quartile of global regions with respect to carbon performance in the manufacturing of urea fertiliser.

Below is a visualisation which shows the current CO<sub>2</sub>e production associated with the international supplies of Australia's imported urea consumption (0.93 t of CO<sub>2</sub>e per urea tonne). This visualisation then steps down through the key advantages of Project Haber to show that the Project has the potential to produce urea with a complete carbon footprint of 0.46t of CO<sub>2</sub>e per urea tonne. This excellent carbon performance can be further improved over time via the use of additional green hydrogen, which could be sourced from either Strike's proposed integrated renewable geothermal energy<sup>1</sup> or from the various green hydrogen projects positioned throughout the immediate Mid-West region.



The sources used in this analysis are detailed in the back of this announcement.

## ACIL Allen Economic Impact Assessment

Strike commissioned leading economic advisory firm ACIL Allen to compose an Economic Impact Assessment of Project Haber. The results detailed a very compelling narrative and overview of the significant economic benefits that could be realised from the development of Project Haber in terms of its contribution to the Mid-West, Western Australian and the national economy. Project Haber's economic impact on the Mid-West region was estimated to be larger than the impact of a major LNG project across the whole of Western Australia.

ACIL Allen estimates Project Haber will provide an \$8.4 billion boost to Australia's economy during construction and over the operational life of the Project, with an average increase in GDP of \$246 million per annum between 2022 and 2056. Project Haber is also estimated to drive significant benefits to the Mid-West region economy, with 94% of the boost to Australia's GDP

<sup>1</sup> Strike has entered into a non-binding term sheet for the acquisition of 100% of the existing geothermal rights in the Perth Basin via the acquisition of all the issued shares in Mid West Geothermal Power Pty Ltd. Acquisition remains subject to execution of definitive documentation and completion of the acquisition. Refer ASX announcement dated 1 April 2021 titled "Strike moves to integrate gas, renewables and manufacturing" for further details. Use of green hydrogen from Strike's proposed integrated renewable geothermal energy is subject to, among other things, exploration and appraisal success and proof of commercial concept.

within the region. The remaining benefits of the Project accrue to the rest of Australia as result of the increased income and taxation payments on economic activity.

Once operational, Project Haber will be a major industry for the Mid-West region, with Gross Regional Product (GRP) estimated by ACIL Allen to grow by \$230 million per annum. To put this into perspective, the increase in GRP is equivalent to a 3.8% boost to the Mid-West region's economy every year. ACIL Allen estimates Project Haber will generate \$10.3 billion of real income benefits across Australia, or \$303 million per annum between 2022-56.

The significant real income gains (over and above the real output impacts) reflect the economic benefits from the import substitution effects, as less intermediate industry supply (i.e. fertiliser purchases by the agriculture industry) flows offshore.

ACIL Allen estimates Project Haber will support approximately 1,135 full time equivalent (FTE) jobs per annum during the construction phase across Western Australia, with a peak workforce of 1,573 FTE jobs in 2024-25. Once operational, ACIL Allen estimates an average of 274 FTE jobs will be supported in the Mid-West region every year and with the strong desire for a local operational workforce to service the Project, Project Haber has the potential to draw in up to an additional 712 residents into the Mid-West region.

Project Haber is expected to generate significant taxation benefits to the Commonwealth and State Governments over the project life. The tax payments resulting from the Project are likely to accrue to the Commonwealth Government are estimated by ACIL Allen to be \$144 million in Commonwealth taxes per annum between 2022-56.

#### **CEO & Managing Director, Stuart Nicholls said:**

*"Project Haber is fast becoming a project of national significance as Strike continues to identify additional economic and environmental benefits.*

*"Project Haber personifies the intensions of the 'gas led recovery' and shows how the development of low-cost gas in partnership with green hydrogen and other renewable energy can transition Australia to a sustainable and viable lower carbon future.*

*"Reducing the carbon intensity of Australia's agriculture will be complemented by a structural reduction in the costs of urea in Australia. This is a huge benefit for Australian farmers as they will be able to reduce their CO2 exposure in parallel to supporting the domestic economy."*

This announcement is authorised for release by the Managing Director and Chief Executive Officer in accordance with the Company's Continuous Disclosure Policy.

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## Sources:

Element	Description	Source(s)
Australian imported urea (Blended CO2 intensity)	Represents volume weighted CO2 intensity of urea imported into Australia.  Calculation is DFAT import data (tonnes) multiplied by carbon footprint of urea production by region divided by total imported volume	DFAT 2019 import data  International Fertiliser Society – ‘The Carbon Footprint of Fertiliser Production: Regional Reference Values – Table 10
International Shipping	Carbon emissions from importing 30,000 tons of bulk dry cargo from Saudi Arabia (used as Gulf region as origin) to Geraldton, WA	<a href="http://www.sustainablefreight.com.au/tools-and-programs/emission-calculators/ship-type-carbon-emissions-calculator">http://www.sustainablefreight.com.au/tools-and-programs/emission-calculators/ship-type-carbon-emissions-calculator</a>
Onshoring Supply Chains	Removal of CO2 from international shipping supply chain above  (Assumes all Urea is consumed in Geraldton – need refining to consider ultimate destination)	<a href="http://www.sustainablefreight.com.au/tools-and-programs/emission-calculators/ship-type-carbon-emissions-calculator">http://www.sustainablefreight.com.au/tools-and-programs/emission-calculators/ship-type-carbon-emissions-calculator</a>
Perth basin resource	Perth basin gas resource has a lower carbon intensity measured by upstream analysis of the West Erregulla field. Calculation = Australian imported urea blended intensity (0.83)	International Fertiliser Society – ‘The Carbon Footprint of Fertiliser Production: Regional Reference Values – Table 10 Company data
Green Hydrogen	Project Haber is utilising 1.25% green hydrogen for input to produce 1.4mtpa of urea. Current estimates based on Technip feasibilities studies is Haber will emit 655ktpa of CO2. Backing out emissions without 1.25% green hydrogen input = 663ktpa CO2. Difference amounts to 0.01 reduction in CO2 per ton urea	TechnipFMC Feasibility Study – Project Haber
New processing efficiencies	This represents a ‘bucket’. Difference between Australian imported Urea (0.83) and the 0.47 CO2 per ton urea Haber will emit (655ktpa CO2/1.4mtpa urea) less ‘Perth basin resource’ less ‘green hydrogen’	TechnipFMC Feasibility Study – Project Haber

## Future Statements

Statements contained in this release are or may be forward looking statements. All statements in this release regarding the outcomes of preliminary and definitive feasibility studies, projections and estimates are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance. These statements relate to future events and expectations and as such involve known and unknown risks and significant uncertainties, many of which are outside the control of Strike. Actual results, performance, actions and developments of Strike Energy may differ materially from those expressed or implied by the forward-looking statements in this release. Such forward-looking statements speak only as of the date of this release. Refer to the ‘Summary of Key Risks’ section of the release titled “Equity Raising and Corporate Update April 2021” released to ASX on 15 April 2021 for a summary of certain general, Strike specific and acquisition specific risk factors that may affect Strike. There can be no assurance that actual outcomes will not differ materially from these statements. A number of important factors could cause actual results or performance to differ materially from the forward looking statements, including the risk factors set out in the aforementioned ASX release. Investors should consider the forward looking statements contained in this release in light of those disclosures. To the maximum extent permitted by law (including the ASX Listing Rules), Strike and any of its affiliates and their directors, officers, employees, agents, associates and advisers disclaim any obligations or undertaking to release any updates or revisions to the information in this document to reflect any change in expectations or assumptions; do not make any representation or warranty, express or implied, as to the accuracy, reliability or completeness of the information in this document, or likelihood of fulfilment of any forward-looking statement or any event or results expressed or implied in any forward-looking statement; and disclaim all responsibility and liability for these forward-looking statements (including, without limitation, liability for negligence). Nothing in this document will under any circumstances create an implication that there has been no change in the affairs of Strike since the date of this release.

## Project Haber Studies

The concept, feasibility and pre-FEED study prepared by TechnipFMC referred to in this document has been undertaken to determine the potential viability of Project Haber and to reach a decision to proceed with more definitive studies, and as such are indicative in nature only. The study is based on low-level technical and economic assessments and is insufficient to provide assurance of an economic development case at this stage or provide certainty that the conclusions of the study will be realised.



5 May 2021

# The Economic Impact of Strike Energy's Project Haber

Final Report

**ACIL ALLEN**



# Report Summary and Key Findings

## Report Summary

In April 2021, Strike Energy commissioned ACIL Allen to undertake an independent economic impact assessment of its proposed urea fertiliser production facility, Project Haber. The commissioning of this report follows Strike Energy's announcement on 11 January 2021 that it was progressing with the development of a low cost urea project using its Perth Basin gas resources, and then its 9 April 2021 announcement that Project Haber had entered pre-FEED.

This report provides an overview of the significant economic benefits that could be realised from the development of Project Haber in terms of its contribution to the Mid West, Western Australian and national economy.

Overall ACIL Allen finds Project Haber will have a significant economic impact on the local, State and National economies in different ways. The project will provide a significant boost to the Mid West region's economic output and employment, in part due to the desire for a local resident operational workforce.

Meanwhile, Project Haber will have positive impacts on real incomes across jurisdictions due to the returns associated with the project as well as the displacement of fertiliser imports. The latter impact results in more intermediate purchases across the agriculture industry remaining in Australia, generating a positive impact on the overall supply chain.

Finally, the project delivers significant taxation revenue across both the WA and Commonwealth Governments, helping support essential services across the country.

Note: MW = Mid West region, WA = Western Australia, AU = Australia

## Key Findings



**Impact results**  
MW: \$7.8bn (\$230m p.a.)  
WA: \$7.8bn (\$230m p.a.)  
AU: \$8.4bn (\$246m p.a.)

Project Haber's economic impact on the Mid West region is larger than the impact of a major LNG project across Western Australia.



**Impact results**  
MW: \$1.2bn (\$36m p.a.)  
WA: \$4.9bn (\$145m p.a.)  
AU: \$10.3bn (\$302m p.a.)

Project Haber delivers an income boost of \$664 for every resident of the Mid West region every year during operations.



**Impact results**  
MW: 274 FTE p.a.  
WA: 242 FTE p.a.  
AU: 210 FTE p.a.

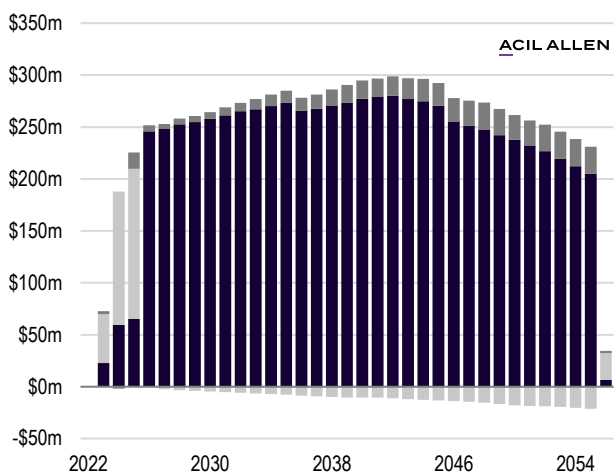
Project Haber's strong desire for a local operational workforce will draw in up to an additional 712 residents into the Mid West region.



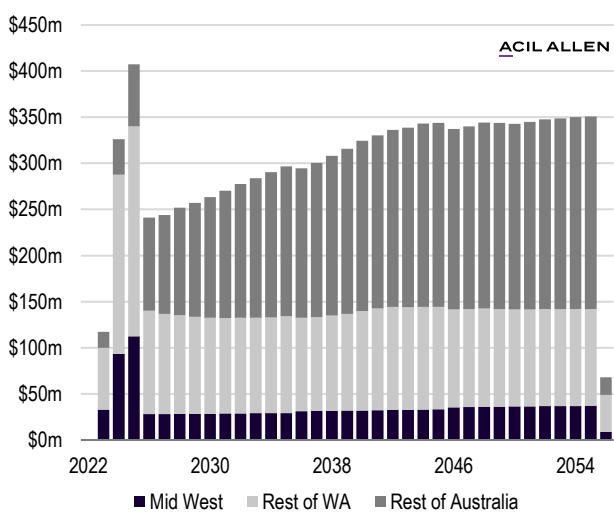
**Impact results**  
MW: N/A  
WA: \$1.0bn (\$30.5m p.a.)  
AU: \$4.4bn (\$128m p.a.)

Project Haber's contribution to WA payroll tax, port dues and GST receipts provide funding equivalent to a new high school every year.

Project Haber Gross Output Impact, \$m p.a.

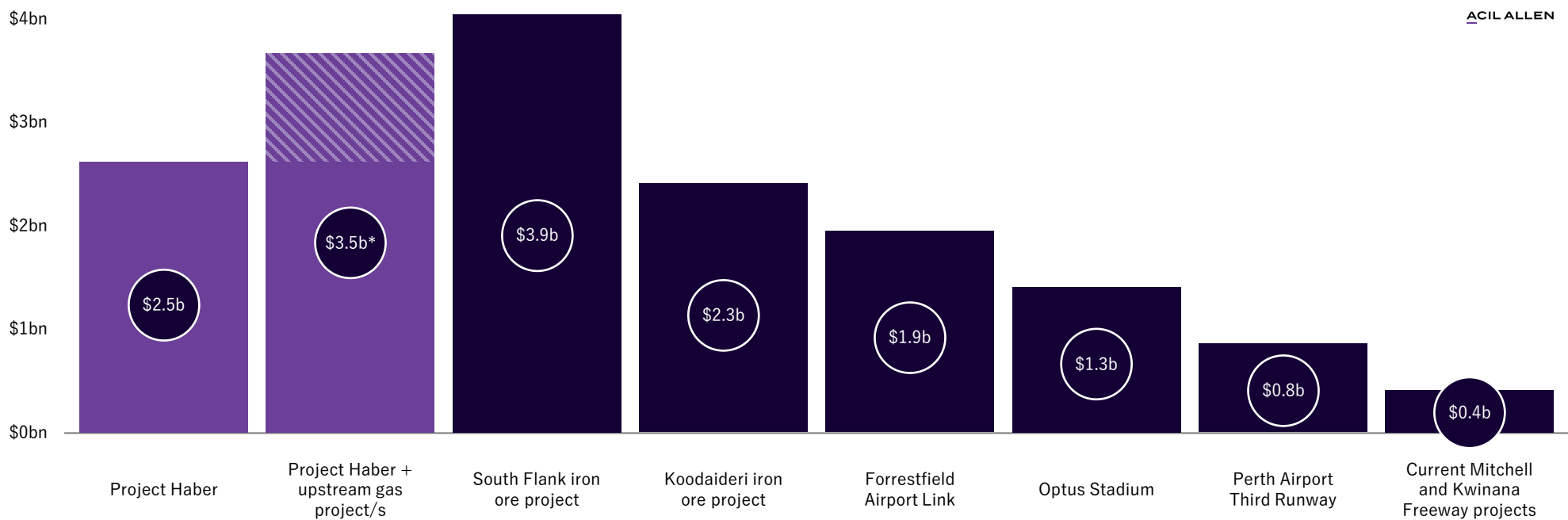


Project Haber Real Income Impact, \$m p.a.



# Project Haber's capital expenditure in context

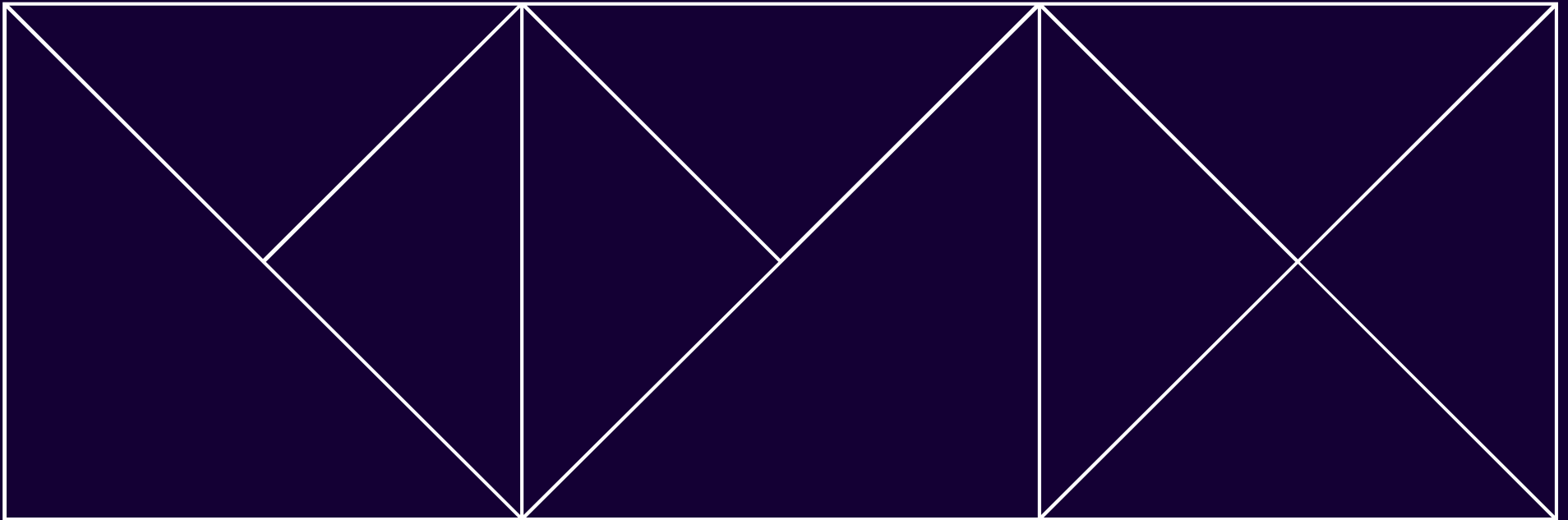
Major active and historic public and private sector investment projects, by capital expenditure, \$bn



To provide a further sense of the scale and scope of Project Haber, ACIL Allen has compared the current anticipated initial capital expenditure required to develop the plant infrastructure of Project Haber. As illustrated, Project Haber is a project of similar scale to a range of major public and private sector capital investment projects which are currently active in Western Australia, including the Koodaideri iron ore project and Forrestfield Airport Link rail project. With an anticipated capital expenditure of approximately \$2.5 billion Project Haber is equivalent to twice the value of the Perth Stadium and associated public transport linkages, three times the value of the proposed Perth Airport third runway, and over six times the current value of capital investment projects associated with the Kwinana and Mitchell Freeways in Perth. When combined with a notional upstream gas supply capital investment – required to produce the feedstock for Project Haber – the total value of the project approaches the value of the South Flank iron ore project in the Pilbara region, which is the largest capital investment project undertaken in Western Australia since the resources investment boom ended in the mid 2010s.

Source: ACIL Allen from various sources (\*Note: ACIL Allen has assumed associated upstream supply requires a capital expenditure of ~\$1 billion. This figure is illustrative only and is not included in the impact assessment, nor does it represent an anticipated capital cost – attributable or total – for upstream gas supply requirements for Project Haber).

# Report Overview and Methodology





# Report Overview

## Strike Energy and Project Haber

Strike Energy ('Strike') is an independent oil and gas exploration company, which was founded in 1997 and listed on the Australian Stock Exchange in 2004. Strike holds a dominant Perth Basin acreage position and is committed to the timely development of the Greater Erregulla gas province that includes both South Erregulla and Walyering (beyond West Erregulla).

Strike believes that the Greater Erregulla discovery has the potential to produce some of the lowest cost gas in Australia. With its joint venture partner, Warrego Energy, Strike Energy plans to develop Greater Erregulla into a domestic gas supply operation.

Since this discovery, Strike has been progressing the potential to use this gas resource to develop a 1.4mtpa urea fertiliser production facility to be built near Geraldton in Western Australia's Mid West Region.

According to Strike, the Project will supply competitively priced fertiliser to Australia's agricultural industries by processing Strike's gas resources in the Perth Basin. A feasibility study, conducted by TechnipFMC, has been completed on the facility, which will convert natural gas to ammonia, and manufacture urea from a blended input of blue and green hydrogen. Strike has now progressed Project Haber to FEED, while seeking offtake and project/equity partners.

The project will be located in the Narngulu Industrial Area, where Strike has secured an option to lease 60 hectares of strategically located land. The location takes advantage of proximity to both Strike's low-cost gas resources in the Perth Basin, and Western Australia's key grain growing region, as well as access to port, rail and road infrastructure and the local skilled workforce.

Urea production will consume the majority of the carbon from the gas stream, and will enable partial chemical sequestration of the project's carbon output.

## About this report

In April 2021, Strike Energy commissioned ACIL Allen<sup>1</sup> to undertake an independent economic impact assessment of its proposed urea fertiliser production facility, Project Haber.

The commissioning of this report follows Strike's initial announcement on 11 January 2021 that it was progressing with the development of a low cost urea project using its Perth Basin gas resources, and then its 9 April 2021 announcement that Project Haber had entered pre-FEED.

ACIL Allen has prepared this assessment based on detailed project financial information obtained from Strike Energy on a confidential basis. To protect the confidentiality of this information, ACIL Allen has not represented any financial information in this report, with only the overall economic impact results presented.

An overview of ACIL Allen's methodology and key assumptions used for this assessment is presented on the next page. This report provides an overview of the significant economic benefits that could be realised from the development of Project Haber in terms of its contribution to the Mid West, Western Australian and national economy in the following ways:

- Output (Gross Regional Product, Gross State Product and Gross Domestic Product at a regional, State and national level)
- Income (the additional local wages and salaries and profits created by the project)
- Employment (full time equivalent job years, on both a direct and indirect basis)

- Taxation (by heads of taxation, including local government where this is available / applicable)

It should be noted that Greater Erregulla gas projects, which will supply gas to the proposed urea fertiliser development, has been specifically excluded from the economic impact assessment of Project Haber. If both the upstream and downstream projects were assessed as one integrated development, the overall impact would be significantly higher as it would not only incorporate the capital and operating costs of the gas project, but also the additional sales of gas to the domestic market.

Outside of the economic benefits, it is expected that the proposed development of Project Haber will also be strongly aligned with a number of core economic and social development policies of the WA Government:

1. **Economic diversification**— once developed, Project Haber will be the first major downstream gas project in WA for 15 years, which is a specific objective of the WA Government's Diversify WA economic development framework. The Project will also provide a domestic source for fertiliser, rather than importing from overseas.
2. **Regional Development**— Project Haber will provide a significant economic boost to the Mid West region of WA, which has traditionally relied on primary industries to driver economic opportunities for its residents.
3. **State Climate Policy**— Urea production consumes the majority of the carbon from the gas stream, and will enable partial chemical sequestration of the project's carbon output.
4. **Domestic Gas Policy**— The Project demonstrates Strike Energy's commitment to the policy, with gas sourced from West Erregulla on-shore development.

The quantification of these benefits would further enhance the economic value of such a project to Western Australia.

1. For more information about ACIL Allen, please see Appendix B.

# Methodology and Key Assumptions

## Methodology

To estimate the economic impact of Project Haber, ACIL Allen will take the production, employment, purchasing and other financial data associated with the project, and transform this financial information into a set of modelling inputs which are then run through ACIL Allen’s computable general equilibrium (CGE) model, Tasman Global. Tasman Global is a powerful tool for undertaking economic impact analysis at the regional, state, national and global levels. Tasman Global is designed to account for all sectors within an economy and all economies across the world. ACIL Allen uses this modelling platform to undertake industry, project, scenario and policy analyses. The model is able to analyse issues at the industry, global, national, state and regional levels and to determine the impacts of various economic changes on production, consumption and trade at the macroeconomic and industry levels. Further details on Tasman Global are presented in Appendix C of this report.

ACIL Allen will estimate the economic impact of Project Haber using the following indicators:

- **Real output** (Gross Domestic Product (GDP), Gross State Product (GSP) and Gross Regional Product (GRP)): Real output represents the total dollar value of all finalised goods and services produced over a specific time period and is considered as a measure of the size of the economy.
- **Real income** (Gross Real Income): Real income measures the income available for final consumption and saving after adjusting for inflation. An increase in real income means that there has been a rise in the

capacity for consumption as well as a rise in the ability to accumulate wealth in the form of financial and other assets. The change in real income from a development is a measure of the change in the economic welfare of residents within an economy. For this reason, real income is ACIL Allen’s preferred measure of economic impact.

- **Employment:** Labour market impacts are typically produced on an annual FTE basis.
- **Real taxation:** Taxation results are completed by major heads of taxation. This typically includes royalties, payroll tax and GST at a State level, and company tax (both directly paid by the project and by others as a result of changes in economic activity), personal income tax, and other Commonwealth taxes like excise.

The results for each indicator will be presented in terms of the direct impacts (for example, the workforce directly employed by the Project, or the direct taxation payments made) and the indirect impacts (this will be the primary output of the economic modelling, highlighting the flow on impacts of Project Haber’s operations across the economy and industry). These results will be presented at a national, state and regional level.

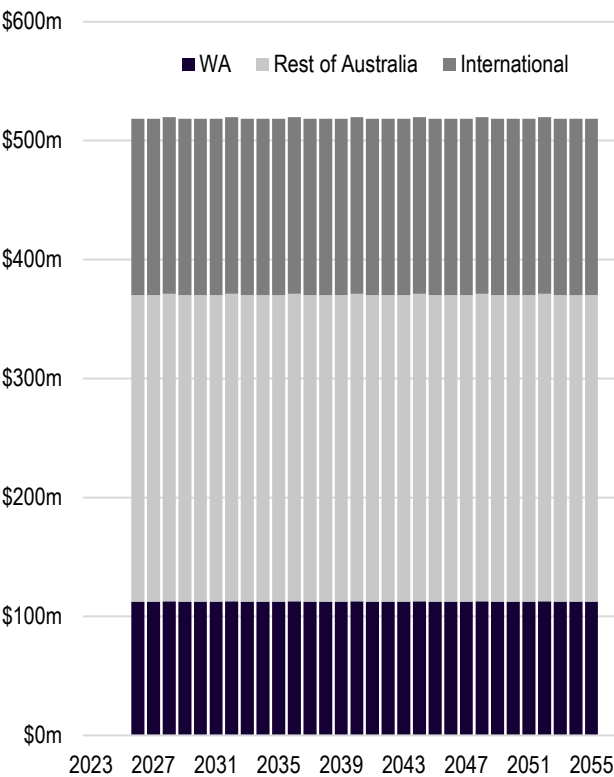
To support the economic impact modelling, a number of high levels assumptions have been used, which are detailed in Figure 1. A presentation of the key financial information that has been used as an input into this study is presented on the following page.

Figure 1: Project Haber Modelling Assumptions

Assumption	Value
Study Period	2022-23 – 2055-56
Construction Period	3 years (2022-23 – 2025-26)
Operations Period	30 years (2026-27 – 2055-56)
Financial results	All results are presented in real 2021 Australian dollar terms
Production estimates	Developed in conjunction with Strike using information provided in the Technip Energies Feasibility Study.
Capital expenditure estimates	
Operational expenditure estimates	
Capital and operational employment estimates	
Direct taxation estimates	Estimated by ACIL Allen using Strike capital and operating projections and ACIL Allen project financing assumptions.

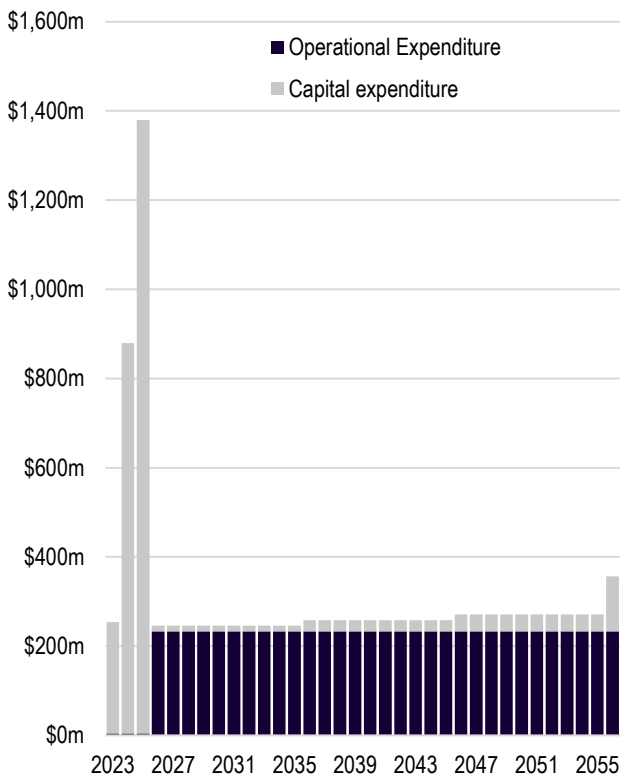
# Project Haber Financial Estimates – High Level Summary Results

Figure 2: Production Estimates, \$m



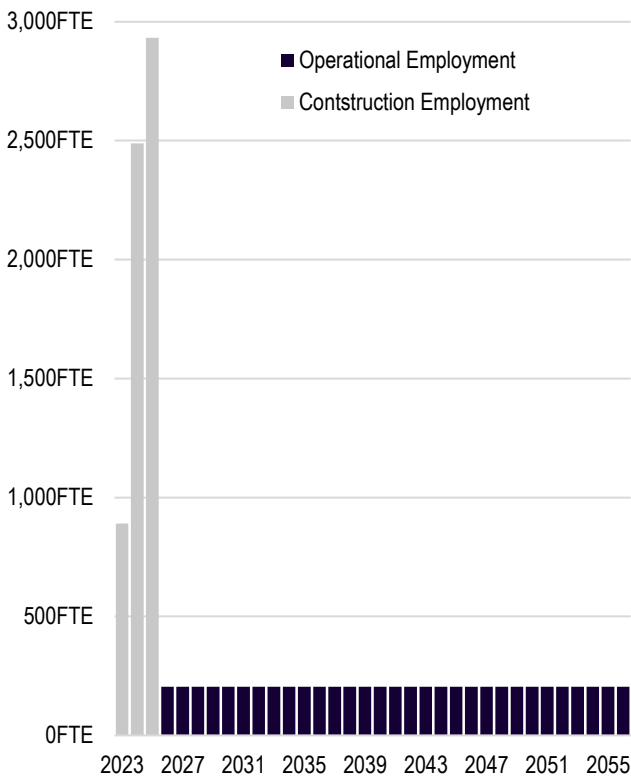
Based on the assumed plateau production, contracted sales and prices, it is estimated that Project Haber will generate sales of approximately \$518.6 million per annum on average over its operational life. It is assumed that the primary markets for urea produced from Project Haber will be Western Australia (22%, the rest of Australia (50%) and international markets (29%).

Figure 3: Expenditure Estimates, \$m



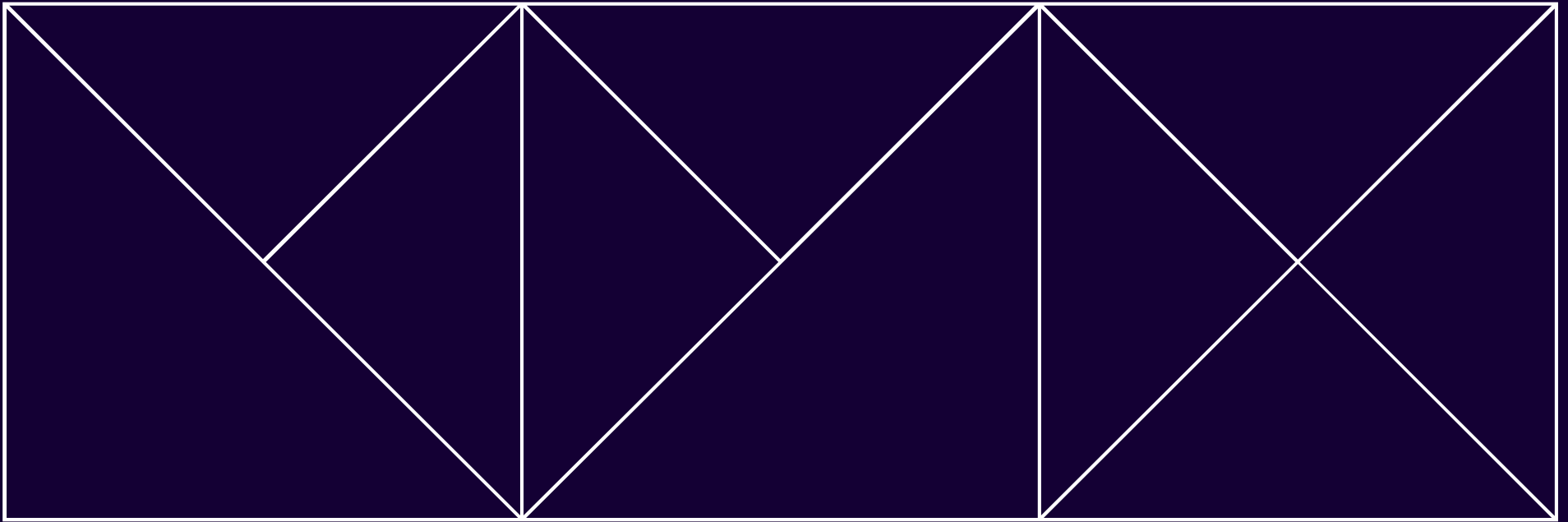
The estimated capital expenditure required to deliver Project Haber (including utilities and port infrastructure) of \$2.5 billion over a three year construction period, with maintenance capital also included over the operational life of the project. It is estimated that Project Haber's operational expenditure will average \$233.4 million per annum over the operational life of the Project.

Figure 4: Employment Estimates, FTE terms



During construction, ACIL Allen estimates the construction workforce on Project Haber will increase from 888FTE jobs in the first year, with a peak construction workforce of just under 3,000FTE jobs in the final year of construction. The ongoing operational workforce is expected to average 205FTE jobs over the operational life of the Project, both on-site and off-site.

# Economic Impact Results





## Impact on Real Output<sup>2</sup>

ACIL Allen estimates Project Haber will provide an **\$8.4 billion boost to Australia's economy during construction and over the operational life of the Project**, with an average increase in GDP of \$246 million per annum between 2022-23 and 2055-56.

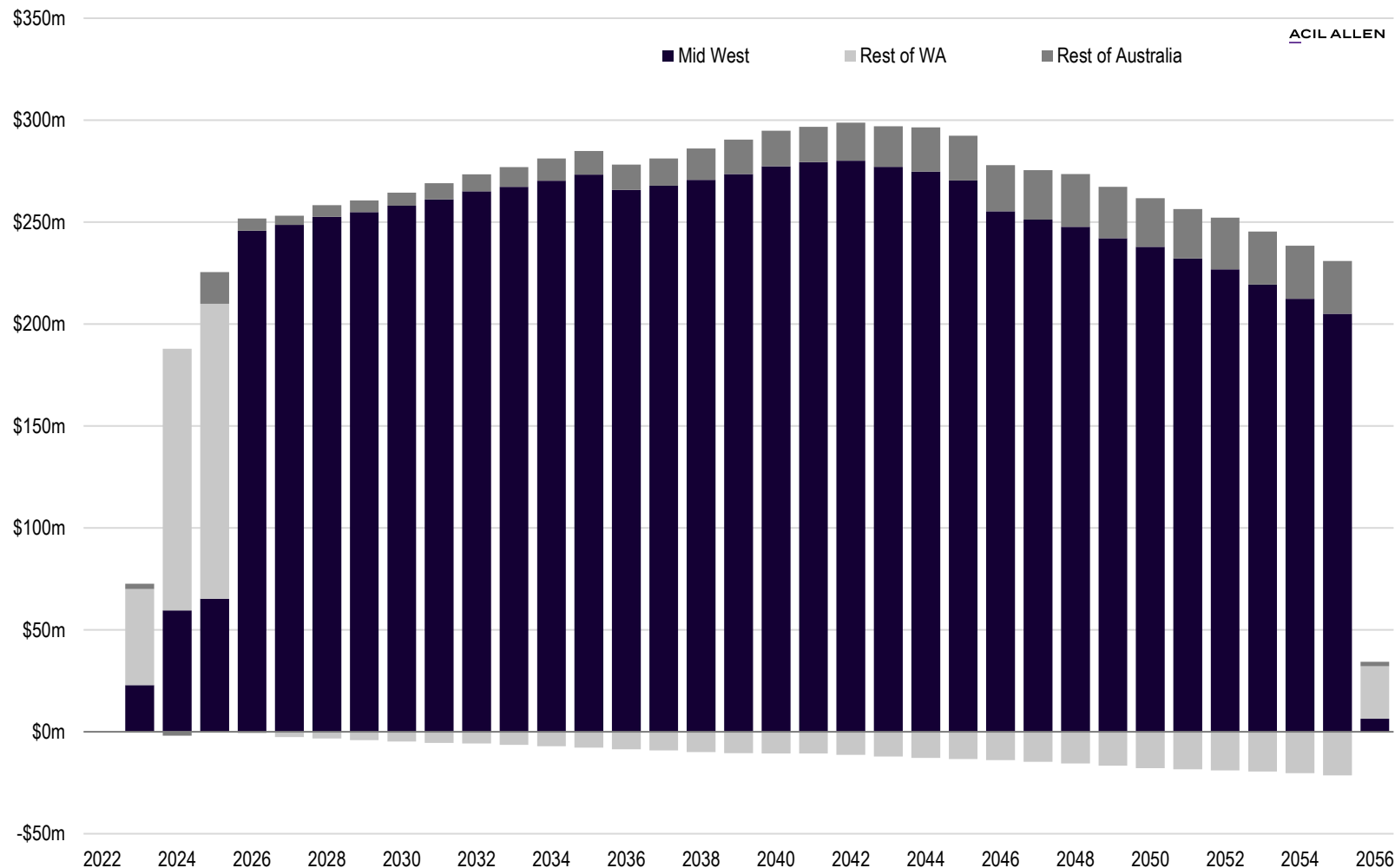
Project Haber will drive significant benefits to the Mid West region economy, with **94% of the boost to Australia's GDP within the region**.

The remaining benefits of the Project accrue to the Rest of Australia as a result of the increased income and taxation payments on economic activity.

Notably, during the Project's **construction the economic benefits largely accrue to the Rest of WA (97%) where the critical inputs and supplies are located**.

Once operational, Project Haber will be a major industry for the Mid West region, with Gross Regional Product (GRP) estimated to grow by \$230 million per annum. To put this into perspective, the **increase in GRP is equivalent to a 3.8% boost to the Mid West region's economy every year**.

Figure 5: Impact on Real Output, by Region, \$m



1. Real Output is the broadest measure of economic activity. It represents the total dollar value of all finalised goods and services produced over a specific time period and is considered as a measure of the size of the economy. At a national level, it is referred to as Gross Domestic Product (GDP); at the state level, Gross State Product (GSP); while at a regional level, Gross Regional Product (GRP).





## Impact on Real Incomes<sup>3</sup>

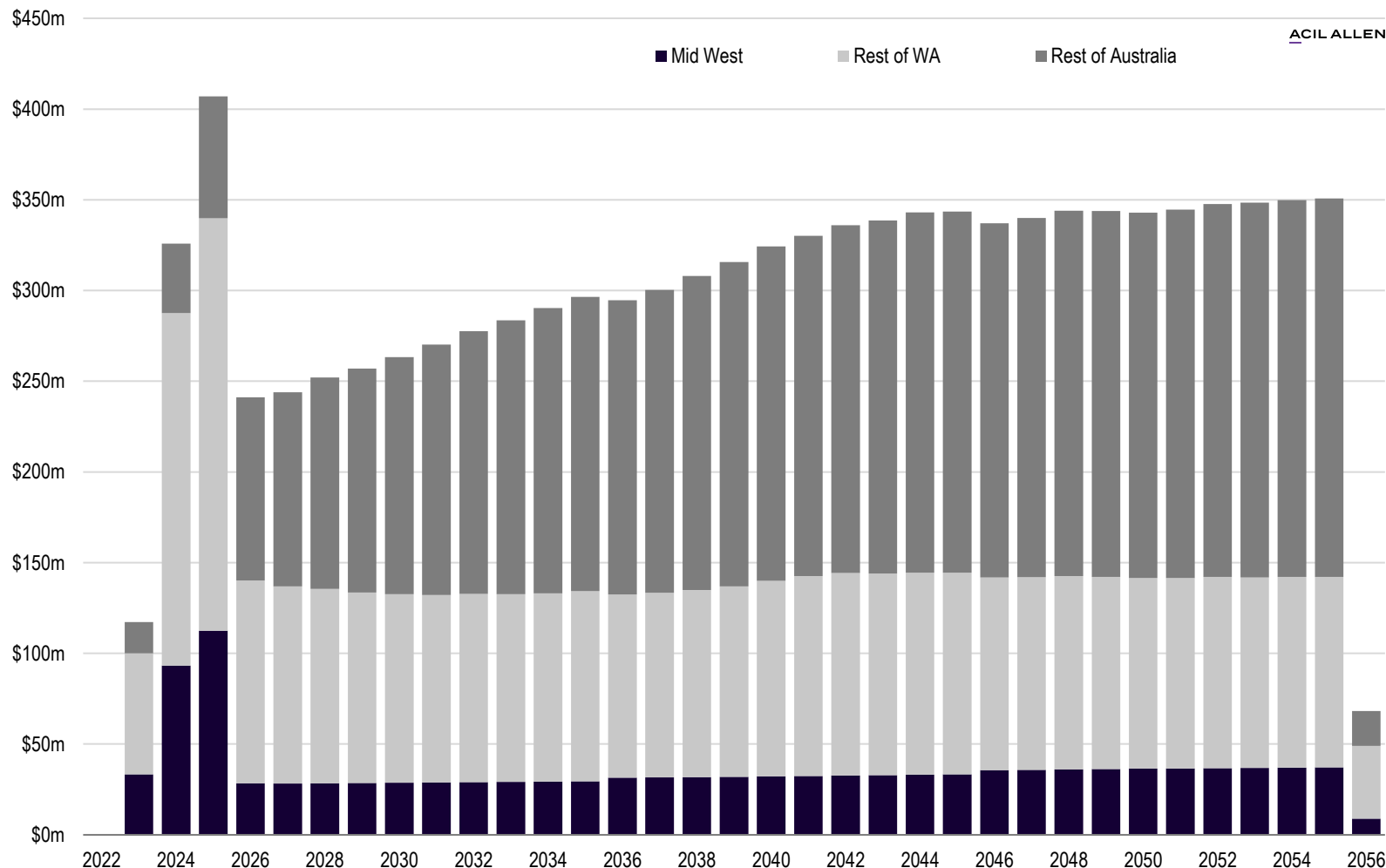
ACIL Allen estimates Project Haber will generate **\$10.3 billion of real income benefits across Australia**, or \$302.8 million per annum between 2022-23 and 2055-56.

The significant real income gains (over and above the real output impacts) reflects the economic benefits from the import substitution effects, as less intermediate industry supply (ie fertiliser purchases by the agriculture industry) flows offshore.

Unlike the real output impacts, the real income benefits will largely accrue outside the Mid West region, reflecting the flow of incomes in the form of profits generated by the Project and its suppliers, and the taxation payments to the Commonwealth and State Governments.

**During construction, the income benefits from Project Haber are expected to flow primarily to the Mid West Region (28%) and the Rest of WA (57%)** in the form of wages and salaries paid during the labour-intensive construction phase. Once operational, the real income benefits are expected to primarily accrue to the Rest of Australia (55%) and the Rest of WA (34%).

**Figure 6: Impact on Real Incomes, by Region, \$m**



3. Real income is a measure of the welfare of residents in an economy through their ability to purchase goods and services and to accumulate wealth. The change in real income from a development is a measure of the change in the economic welfare of residents within an economy.



## Impact on Employment<sup>4</sup>

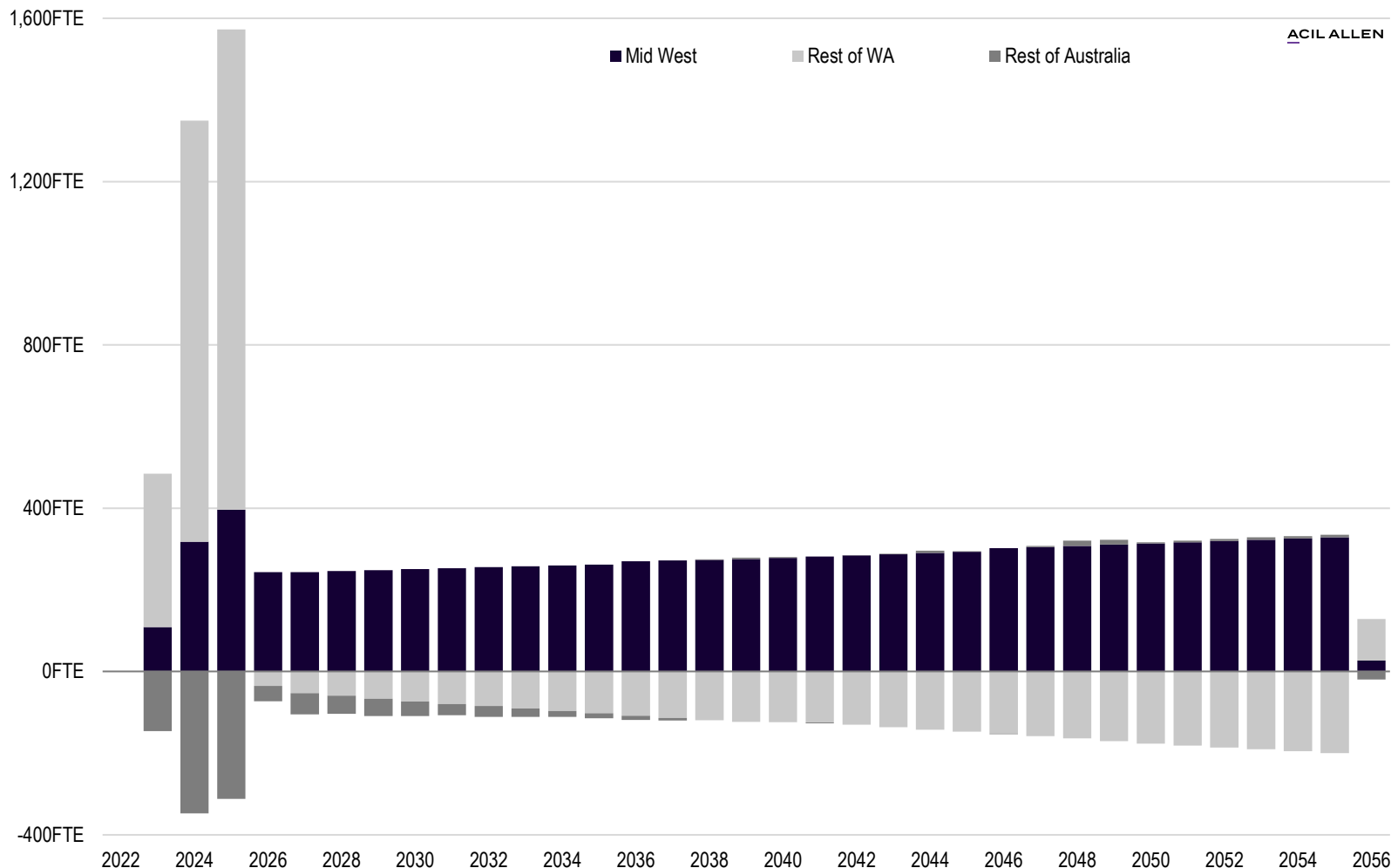
ACIL Allen estimates Project Haber will **support approximately 1,135 FTE jobs per annum during the construction phase across Western Australia, with a peak workforce of 1,573 FTE jobs in 2024-25.**

Once operational, ACIL Allen estimates an **average of 274 FTE jobs will be supported in the Mid West region every year between 2025-26 and 2055-56.**

Across the rest of Western Australia and Australia, there is expected to be a modest negative impact on employment. This reflects the continuation of tight labour market conditions, which when modelled is expected to see **labour drawn from other parts of Australia to take up the opportunities arising from the Project in the Mid West region.**

This employment pull effect demonstrates the important role of major economic development projects in regional Western Australia. Project Haber's strong desire to foster a residential workforce for the operations of this project will have a material impact on the Mid West region's population levels.

Figure 7: Impact on Employment, by Region, FTE job years



4. Real employment is measured in job years. A job year is employment of one full time equivalent (FTE) person for one year.



# Impact on Taxation Payments

Project Haber is expected to generate significant taxation benefits to the Commonwealth and State Governments over the project life.

As detailed in Figure 8, the majority of the tax payments resulting from the Project are likely to accrue to the Commonwealth Government. Over its operational life, the **Project is estimated will generate \$144.4 million in Commonwealth taxes per annum between 2022-23 and 2055-56**. Of this amount, an average of \$49.1 million per annum in company taxes is expected to be raised, \$49.4 million per annum in indirect taxes, \$11.1 million per annum in personal income taxes, and \$34.9 million per annum in other Commonwealth taxes.

The WA Government is expected to see its **payroll tax receipts increase significantly over the 3 year construction phase of the Project, amounting to \$79.5 million**. Once operational, it is estimated that an average of \$3.6 million in payroll tax payments will be made each year. Port charges, which flow to the State Government via its ownership of Mid West Ports, are projected to total \$292.6 million. Indirectly, Western Australians can expect to see around \$16.3 million per annum in GST receipts and attributable Commonwealth income taxes (Figure 9).

Figure 8: Taxation Payments by Head of Tax, \$m

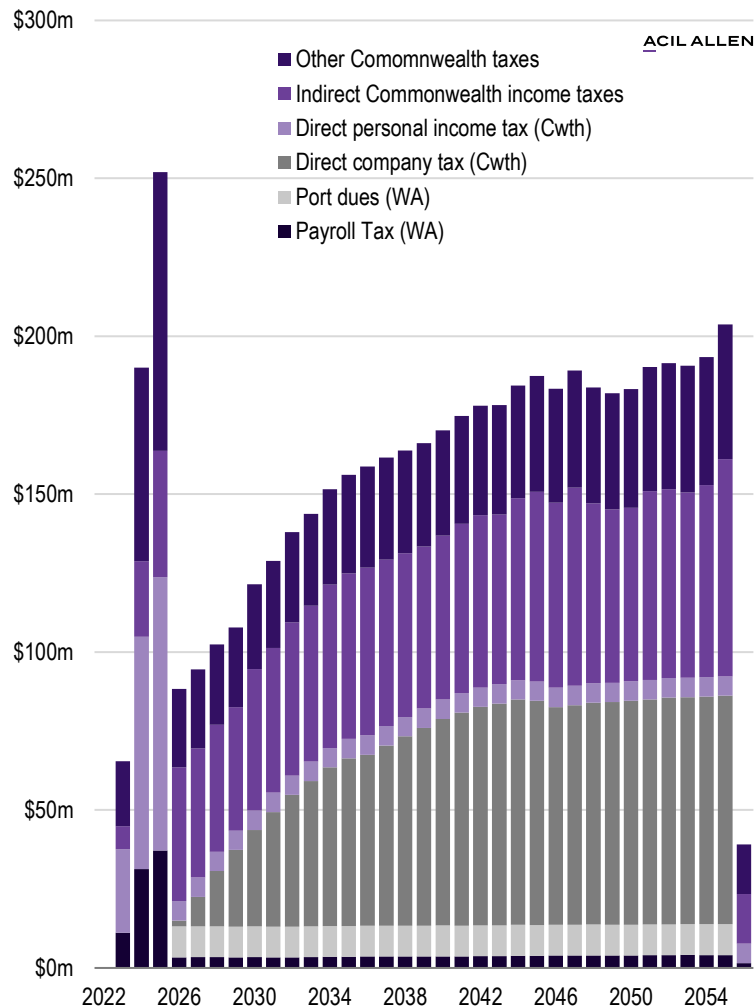
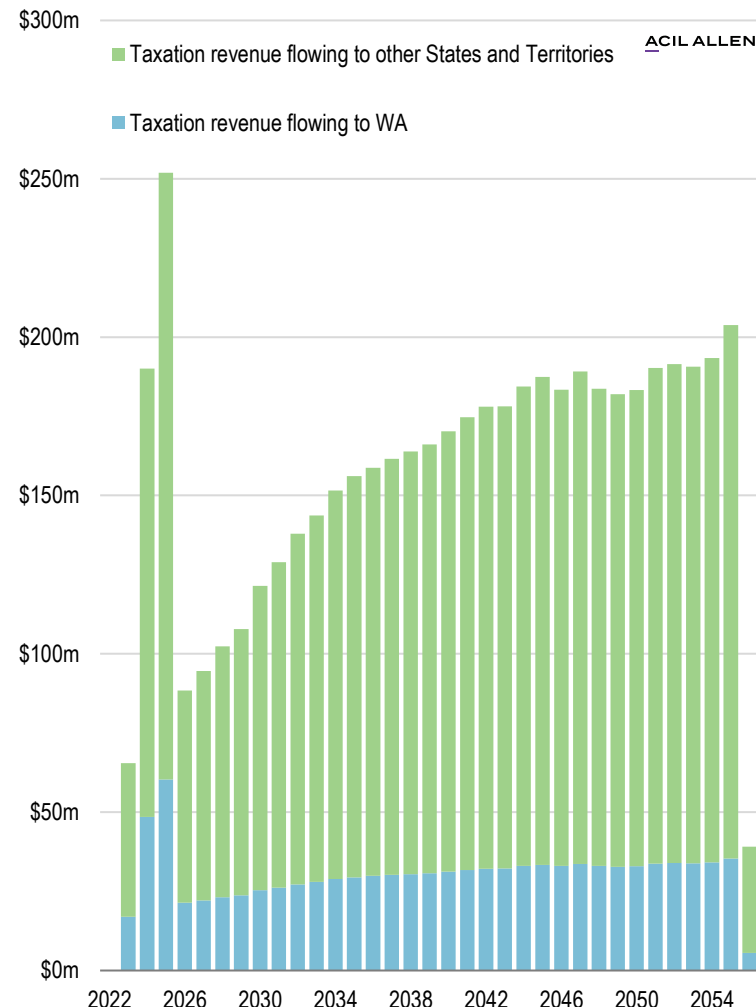
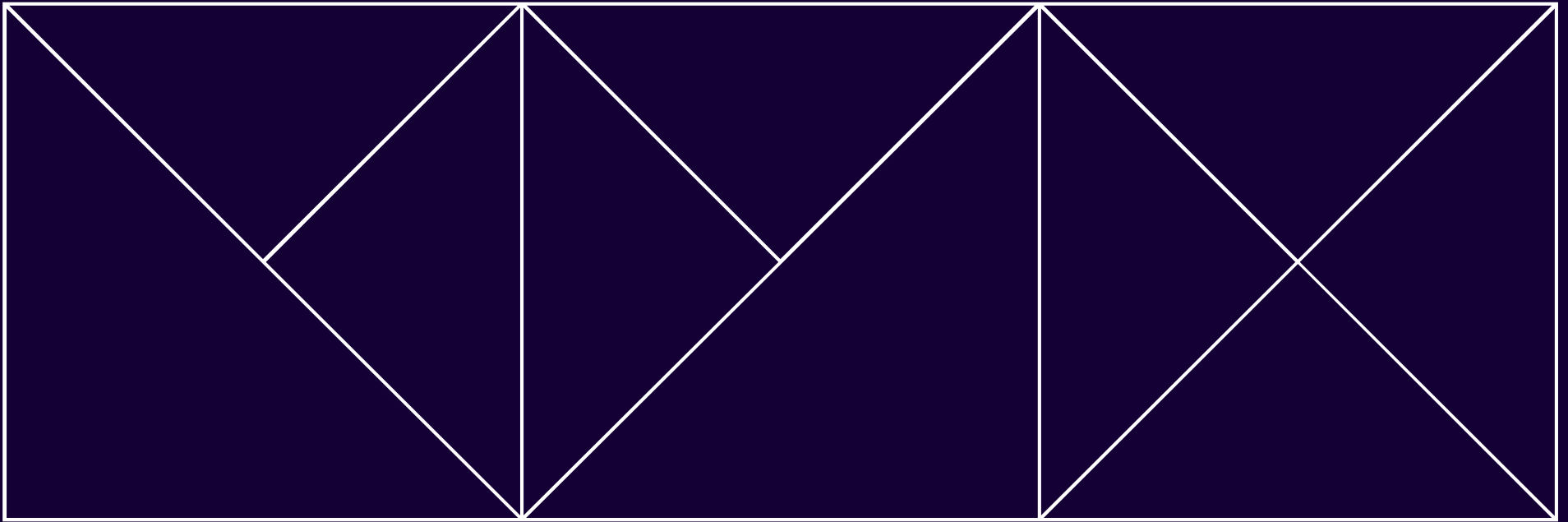


Figure 9: Taxation Payments by Region, \$m



# Appendices



# Appendix A: Summary of results

Figure A1: Summary of results (totals and annual averages)

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OUTPUT	Total	Average
Mid West	\$7,819.0m	\$230.0m
Rest of WA	\$12.2m	\$0.4m
Rest of Australia	\$519.7m	\$15.3m
INCOME	Total	Average
Mid West	\$1,223.1m	\$36.0m
Rest of WA	\$3,713.7m	\$109.2m
Rest of Australia	\$5,340.3m	\$157.1m
EMPLOYMENT	Average	
Mid West	274.3 FTE	
Rest of WA	-32.6 FTE	
Rest of Australia	-31.9 FTE	
TAXATION	Total	Average
Payroll Tax (WA)	\$191.1m	\$5.6m
Port dues (WA)	\$292.6m	\$8.6m
Direct company tax (Cwth)	\$1,668.6m	\$49.1m
Direct personal income tax (Cwth)	\$377.1m	\$11.1m
Indirect Commonwealth income taxes	\$1,678.6m	\$49.4m
Other Commonwealth taxes	\$1,185.4m	\$34.9m

Source: ACIL Allen (Note 1: WACC is not utilised in the financial modelling as pricing is assumed top down)

Figure A2: Summary of key assumptions

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Assumption	Value	Source
Annual plateau production	1,331,458 tonnes per annum	Strike Project Haber financial model
Offtake price	US\$275 flat real	Strike Project Haber financial model
Inflation	2.5% p.a.	RBA target band
Funding mix	65% gearing	ACIL Allen assumption
Interest rate	4% p.a.	ACIL Allen assumption
Project WACC <sup>1</sup>	8% real post-tax	Strike Project Haber financial model
Exchange rate	1AUD = 0.7USD	Strike Project Haber financial model
Company income tax	30%	ATO
Tax depreciation	20 year straight line	ACIL Allen assumption
Sustaining CAPX	As per Technip	Strike Project Haber financial model
Abandonment CAPX	As per Technip	Strike Project Haber financial model
Port dues (charge per T)	AU\$7 flat real	ACIL Allen, from Project Haber financial model
Distributable profit policy	100% after-tax profit distributed to owners	ACIL Allen assumption
Equity ownership	50% WA, 30% AU, 20% World	ACIL Allen assumption
Distributable profit policy	100% after-tax profit distributed to owners	ACIL Allen assumption



# Appendix B: About ACIL Allen

ACIL Allen is Australia's largest independent economics, public policy and strategy advisory firm. As a firm, we specialise in economic analysis, and in understanding how policy decisions can translate into socio-economic outcomes. ACIL Allen has significant resources upon which it can draw. We employ around 60 consultants located in Adelaide, Brisbane, Canberra, Melbourne, Perth, and Sydney.

The firm has built a reputation for quality research, credible analysis, and innovative advice on economic, policy and strategic matters over a period of more than twenty years. ACIL Allen operates across a select range of industries including energy, mineable resources, water and other infrastructure, education, tourism, health and human services policy and provides specialist advice to companies, governments, regulators and industry associations.

ACIL Allen has been at the forefront of analysis of changes and policy issues in these sectors. We have helped governments to develop a number of policy mechanisms applied in response to these changes and policy issues. We have also helped many private corporations to develop responsive business strategies in this dynamic environment.



Our analytical and modelling skills enable us to provide robust quantitative estimates of the impacts of market and regulatory risk. We often use risk-based decision tools such as real options frameworks to advise clients on risk management strategies and opportunities. In part, our experience in these roles relates to major infrastructure assets, supporting feasibility assessments, equity raisings, sale and acquisition processes and funding of infrastructure assets, including natural gas and electricity transmission and distribution systems, power stations, roads, railways, airports and ports.

Our consultants are drawn from a wide variety of disciplines including economics, finance, statistics, geology, physics, environmental science, engineering and mathematics. We also offer a diverse range of professional backgrounds in State and Commonwealth Government, academia and business.

Our suite of services include:

- developing or evaluating programs and projects for a range of clients;
- stakeholder consultation, which includes undertaking surveys, interviews and focus groups;
- policy analysis and formulation for government agencies and private sector organisations;
- strategy development for government, private sector organisations and sectors;
- economic impact analysis of specific markets and sectors;
- economic and financial analyses for companies and government agencies, including benefit-cost analysis;
- feasibility studies and project evaluation;
- regional/spatial modelling and mapping;
- projections of demand with respect to particular assets or supply systems;
- risk and investment analysis; and
- analysis of regulatory processes governing industries, assets and other infrastructure including the establishment of third-party access arrangements and reference tariffs.

Further information can be found on ACIL Allen's website at [www.acilallen.com.au](http://www.acilallen.com.au).

## Appendix C: *Tasman Global*

*Tasman Global* is a dynamic, global computable general equilibrium (CGE) model that has been developed by ACIL Allen for the purpose of undertaking economic impact analysis at the regional, state, national and global level.

A CGE model captures the interlinkages between the markets of all commodities and factors, taking into account resource constraints, to find a simultaneous equilibrium in all markets. A global CGE model extends this interdependence of the markets across world regions and finds simultaneous equilibrium globally. A dynamic model adds onto this the interconnection of equilibrium economies across time periods. For example, investments made today are going to determine the capital stocks of tomorrow and hence future equilibrium outcomes depend on today's equilibrium outcome, and so on.

A dynamic global CGE model, such as *Tasman Global*, has the capability of addressing total, sectoral, spatial and temporal efficiency of resource allocation as it connects markets globally and over time. Being a recursively dynamic model, however, its ability to address temporal issues is limited. In particular, *Tasman Global* cannot typically address issues requiring partial or perfect foresight, however, as documented in Jakeman et al (2001), it is possible to introduce partial or perfect foresight in certain markets using algorithmic approaches. Notwithstanding this, the model does have the capability to project the economic impacts over time of given changes in policies, tastes and technologies in any region of the world economy on all sectors and agents of all regions of the world economy.

*Tasman Global* was developed out of the 2001 version of the Global Trade and Environment Model (GTEM) developed by ABARE (Pant 2001) and has been evolving ever since. In turn,

GTEM was developed out of the MEGABARE model (ABARE 1996), which contained significant advancements over the GTAP model of that time (Hertel 1997).

*Tasman Global* is a model that estimates relationships between variables at different points in time. This is in contrast to comparative static models, which compare two equilibriums (one before a policy change and one following). A dynamic model such as *Tasman Global* is beneficial when analysing issues where both the timing of and the adjustment path that economies follow are relevant in the analysis.

A key advantage of *Tasman Global* is the level of detail in the database underpinning the model. The database is derived from the Global Trade Analysis Project (GTAP) database. This database is a fully documented, publicly available global data base which contains complete bilateral trade information, transport and protection linkages among regions for all GTAP commodities. It is the detailed database of its type in the world.

*Tasman Global* builds on the GTAP database by adding the following important features:

- a detailed population and labour market database
- detailed technology representation within key industries (such as electricity generation and iron and steel production)
- disaggregation of a range of major commodities including iron ore, bauxite, alumina, primary aluminium, brown coal, black coal and LNG
- the ability to repatriate labour and capital income

- explicit representation of the states and territories of Australia
- the capacity to represent multiple regions within states and territories of Australia explicitly.

Nominally, version 9.1 of the *Tasman Global* database divides the world economy into 150 regions (142 international regions plus the 8 states and territories of Australia) although in reality the regions are frequently disaggregated further. ACIL Allen regularly models Australian or international projects or policies at the regional level including at the provincial level for Papua New Guinea and Canada.

The *Tasman Global* database also contains a wealth of sectoral detail currently identifying up to 72 industries.

The other key feature of the database is that the cost structure of each industry is also represented in detail. Each industry purchases intermediate inputs (from domestic and imported sources) primary factors (labour, capital, land and natural resources) as well as paying taxes or receiving subsidies.

*Tasman Global* has a detailed representation of the Australian labour market, recognising 97 different occupations within Australia, and producing results in terms of impacts on labour supply, participation rates and unemployment rates.

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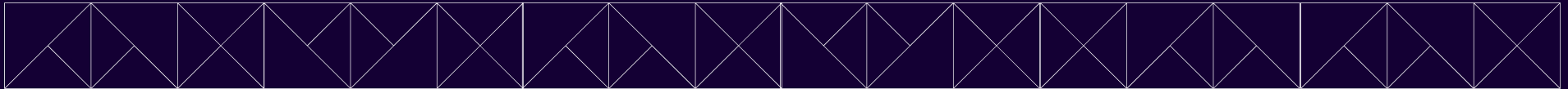
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