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WA'S RESOURCES SECTOR IN TRANSITION

Securing long term value in a changing world

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Use of Artificial Intelligence

Artificial intelligence (AI) tools were used throughout the preparation of this report to support activities including information discovery, data collection and processing, coding, analysis support, drafting and editing. AI-assisted methods also contributed to the development of the Mining Industry Data and Scenario Simulator (MIDAS), including the identification, extraction and organisation of information from a range of publicly available sources. Responsibility for the accuracy, integrity and conclusions of the report rests solely with the authors.

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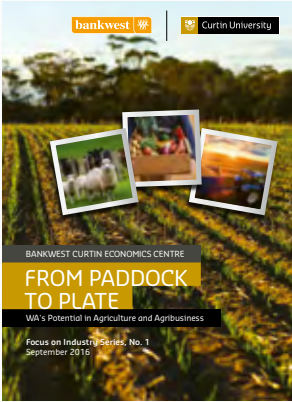
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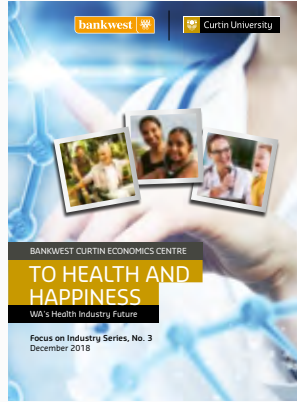


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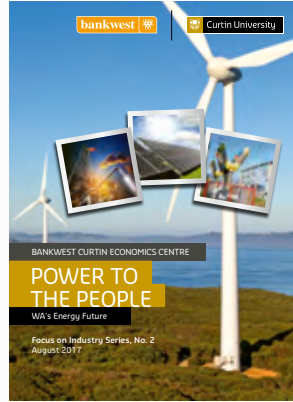
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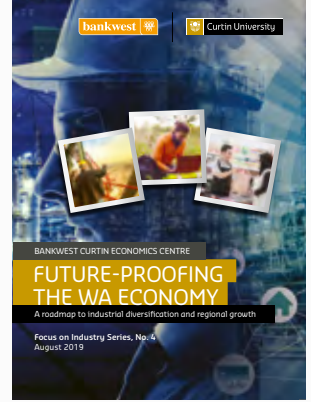
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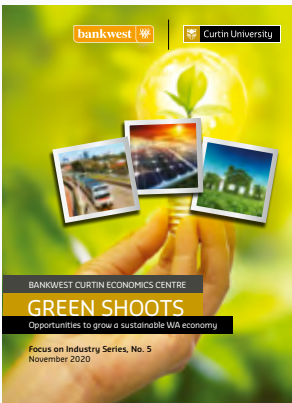
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2019



2020



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2022



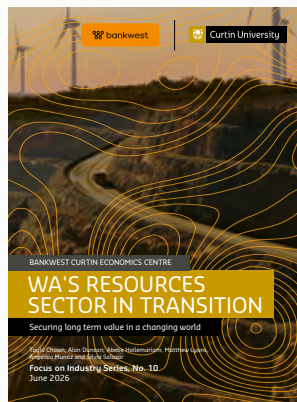
2023



2024



2026



FOREWORD

Western Australia is one of the most resource-rich jurisdictions in the world. For generations, its mineral and energy wealth has underpinned economic growth, rising living standards and public prosperity. The resources sector remains the state's largest industry, the foundation of its export performance, and a major source of public revenue for both Western Australia and the Commonwealth.

The benefits of this success extend far beyond the mine gate. Resources support jobs, businesses and communities across the state and nation, helping position Western Australia as a globally significant supplier of the minerals and energy that power modern economies.

Yet, resource wealth alone does not guarantee future prosperity.

The global environment in which Western Australia's resources sector operates is changing rapidly. Decarbonisation, technological change and geopolitical fragmentation are reshaping commodity markets, investment patterns and global supply chains. At the same time, new opportunities are emerging in critical minerals, downstream processing and the industries needed to support the energy transition. These developments create both opportunities and risks for Western Australia.

How resilient is the state's economic model to these changes? How can Western Australia capture emerging opportunities while managing growing uncertainty? And how can the benefits generated from finite public resources continue to support future generations long after those resources have been extracted?

These questions sit at the heart of this report.

Drawing on new modelling and analysis undertaken by the Bankwest Curtin Economics Centre, the report examines the contemporary contribution of Western Australia's resources sector, explores the forces shaping its future, and considers how different approaches to public value capture may influence long-term economic and fiscal outcomes. Rather than predicting a single future, the report adopts a scenario-based approach to better understand the range of possible outcomes and their implications for industry, governments and communities.

A clear theme emerges throughout the analysis. The future challenge is not whether resources will remain important to Western Australia's economy. They undoubtedly will. The challenge is how effectively the state adapts to a changing world and converts resource wealth into enduring economic capability, fiscal resilience and long-term public value.

It is our hope that this report contributes to that conversation.



Professor Alan Duncan
Director, Bankwest Curtin Economics Centre
Curtin Business School, Curtin University

EXECUTIVE SUMMARY

Overview

Western Australia's prosperity has been shaped by one of the most remarkable resource endowments in the world.

Over the past several decades, the state's resources sector has transformed it into a global economic powerhouse. Resources now contribute around \$195 billion to the state economy, account for almost 44 per cent of economic activity, support hundreds of thousands of jobs across Australia and generate billions of dollars in public revenues each year. The sector underpins exports, wages, regional development, public services and living standards, and provides substantial economic benefits well beyond WA's borders.

Yet the environment that delivered this prosperity is changing.

The global economy is entering a period of profound structural transformation. Decarbonisation, technological disruption, geopolitical fragmentation, changing trade relationships and intensifying competition for investment are reshaping resource markets and industrial strategies around the world.

Governments are intervening more than ever to secure critical supply chains. New technologies are shifting demand for commodities. Traditional sources of competitive advantage are being challenged.

For Western Australia, these developments present both opportunity and risk.

The state is exceptionally well positioned to benefit from growing demand for critical minerals, decarbonisation and renewable technologies and lower-emissions industrial products.

Western Australia possesses globally significant reserves of lithium, rare earth elements and other minerals central to the energy transition. It has world-class mining expertise, strong institutional capability, abundant renewable energy resources and deep connections into global commodity markets.

At the same time, the state's prosperity remains highly concentrated.

Iron ore continues to dominate exports and public revenues. Resource activity remains heavily exposed to global commodity cycles, Chinese demand and international trade conditions.

And public finances at both state and federal level remain closely linked to resource-derived revenues through royalties, payroll tax, company tax and petroleum taxation. The same forces that have generated extraordinary prosperity have also created significant economic and fiscal exposure.

This report examines how WA can capitalise on these opportunities, while at the same time mitigate risks.

Drawing on new modelling, scenario analysis and evidence from Australia and abroad, the report explores the contribution that WA's resources sector makes to the economy, the structural forces reshaping its future and the policy choices available to strengthen resilience and secure long-term value.

A central message emerges.

The greatest challenge facing Western Australia is not resource depletion. Nor is it whether resources will remain important to the economy.

The challenge is ensuring that finite natural resources continue to generate enduring economic, social and fiscal value in a changing world.

Future prosperity will depend increasingly on how effectively Western Australia converts resource wealth into broader economic capability, industrial competitiveness, innovation, public value and intergenerational prosperity.

The next phase of prosperity will depend less on what the state extracts from the ground and more on how much value it creates from what it extracts.

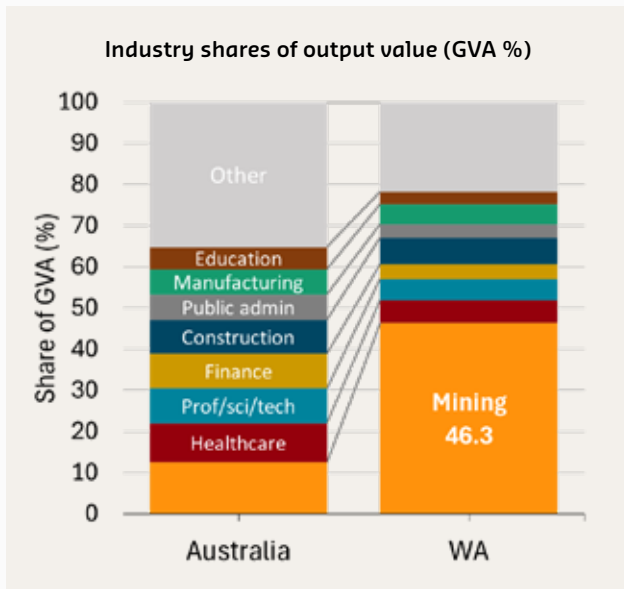
#1

A GLOBAL RESOURCES POWERHOUSE IN A CHANGING WORLD

Western Australia's resources sector has been one of the defining drivers of modern Australian prosperity.

The resources sector contributes around **\$195 billion** to the Western Australian economy, accounting for **46.3 per cent of total economic activity**. It is also the dominant contributor to Australia's resource production, generating around **67 per cent of national output** and underpinning the state's prosperity, exports and public finances.

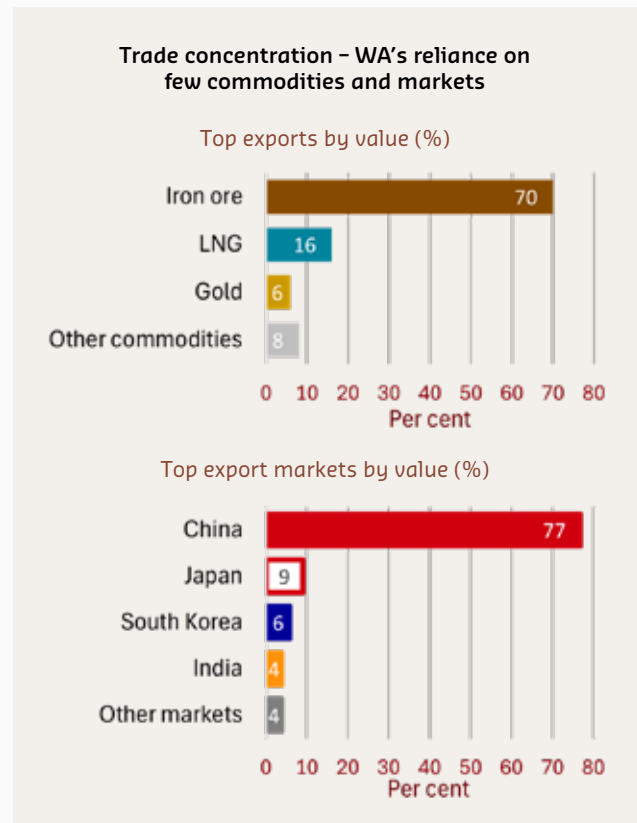
The sector underpins exports, regional development, public revenues and living standards, helping make Western Australia one of the highest-income jurisdictions in the world.



The foundations of this success have become **increasingly concentrated**. The resources sector now accounts for a larger share of economic activity than a decade ago, while exports remain heavily reliant on a **relatively small number of commodities and trading partners**.

This concentration has delivered substantial economic benefits, but it also increases exposure to shifts in global demand, technology, geopolitics and investment flows.

The conditions shaping global resource markets are evolving. Markets are becoming more uncertain, competition for investment is intensifying, and powerful structural forces - including decarbonisation, technological change and geopolitical fragmentation - are reshaping resource economies.



Maintaining Western Australia's position as a globally competitive resources powerhouse will require continued adaptation, investment, innovation and strategic planning.

The challenge for government and industry is not simply to preserve the success of the past, but to build on it - ensuring that Western Australia's resource wealth continues to generate prosperity, opportunity and public value for decades to come.

#2

THE RESOURCES SECTOR GENERATES BENEFITS FAR BEYOND THE MINE GATE

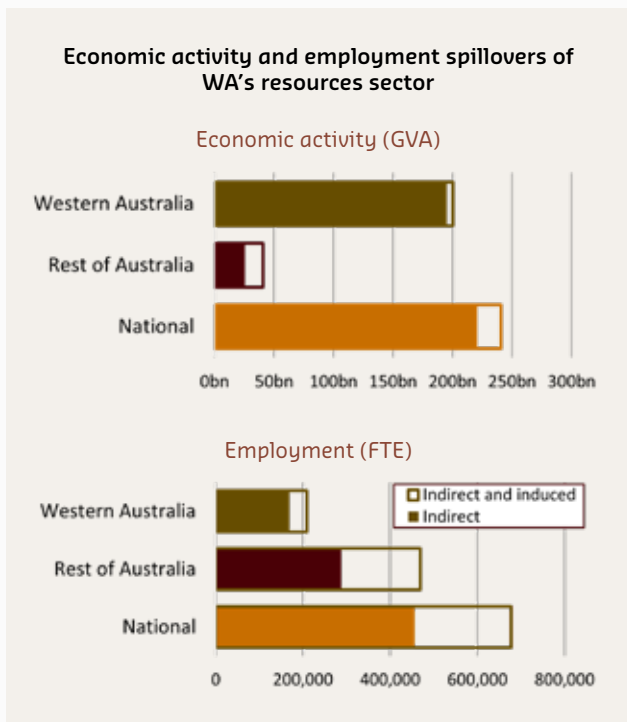
The contribution of the resources sector extends well beyond direct production and employment. Through supply chains, investment, innovation and household spending, the sector supports economic activity across Western Australia and the broader national economy.

Direct employment now stands at more than 143,000 workers. Mining workers remain among the highest paid in Australia.

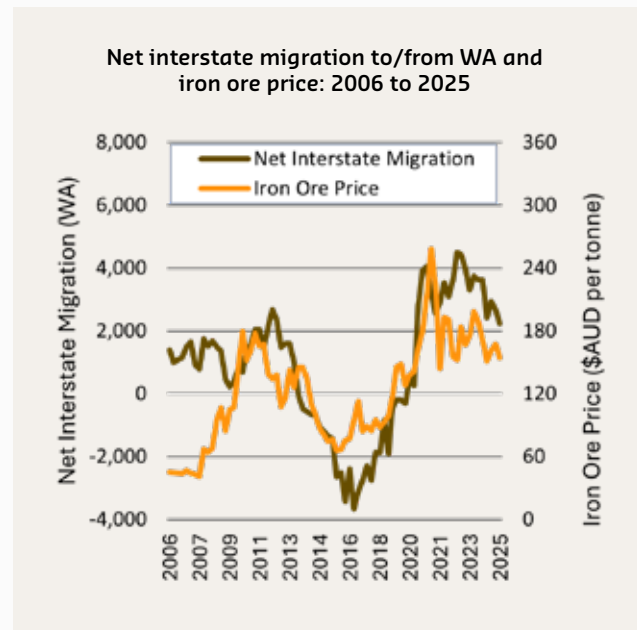
But the benefits of resource development are shared much more broadly than is commonly recognised.

New BCEC modelling estimates WA's resources sector supports around **\$241 billion in economic activity** and up to **677,000 jobs nationally**.

And we have seen how much the state's mining sector drives population change through strong labour demand and broader economic activity.



Changes in the sector affect businesses, workers and communities throughout Australia, including many industries that sit well beyond mining and energy. Professional services, engineering, manufacturing and transport are major beneficiaries.



These economic signals are reflected in migration patterns that strengthen after periods of elevated commodity prices and resource-sector growth.

The strong relationship between iron ore prices and net interstate migration underscores the sector's central role in shaping population growth, labour market conditions and broader economic performance in Western Australia.

The future performance of the resources sector matters not only for Western Australia, but for economic growth, employment and public revenues across the nation.

Mining powers more than mining

143,000 direct mining jobs →
Up to 677,000 jobs supported nationally



#3

THE TRANSITION IS ALREADY UNDERWAY

The resources sector is being shaped by powerful structural forces, including decarbonisation, technological change, geopolitical fragmentation and evolving investor and consumer expectations.

These changes present both opportunities and risks. Western Australia is exceptionally well placed to benefit from growing demand for critical minerals, electrification technologies and lower-emissions supply chains.

At the same time, uncertainty surrounding future LNG demand, changing steelmaking technologies and increasing international competition means that historical sources of prosperity cannot be assumed to deliver the same outcomes indefinitely.

The future is likely to be characterised by greater complexity, not less.



Four powerful structural forces are shaping the future of the resources sector.

1

The first is the global transition toward lower-emissions energy systems. Demand for some commodities is expected to grow strongly as electrification, battery technologies and renewable energy infrastructure expand. At the same time, uncertainty surrounds the long-term outlook for traditional energy commodities and emissions-intensive production systems.

2

The second is technological change. Advances in automation, artificial intelligence, digital systems and industrial processes are transforming both the production of resources and the commodities demanded by global markets.

3

The third is geopolitical fragmentation. Governments are increasingly prioritising supply-chain security, strategic autonomy and industrial policy. Investment decisions are being shaped not only by commercial considerations but also by geopolitical relationships and national security objectives.

4

The fourth is growing pressure for environmental accountability. Investors, consumers and governments are placing greater emphasis on emissions performance, environmental stewardship and social licence to operate.

Together, these forces are reshaping commodity demand, investment patterns and competitive advantage.

The transition is not a future possibility. It is already underway.

The challenge for Western Australia is not adapting to a single future, but positioning for success across multiple possible futures.

#4

PROSPERITY BRINGS EXPOSURE

Western Australia's resources sector has been an extraordinary source of economic prosperity. It has delivered jobs, wages, exports, investment and public revenues on a scale unmatched elsewhere in Australia. The sector underpins almost half of the state's economic activity, supports hundreds of thousands of jobs across the nation and generates substantial revenues through royalties, payroll tax, company tax and petroleum taxation.

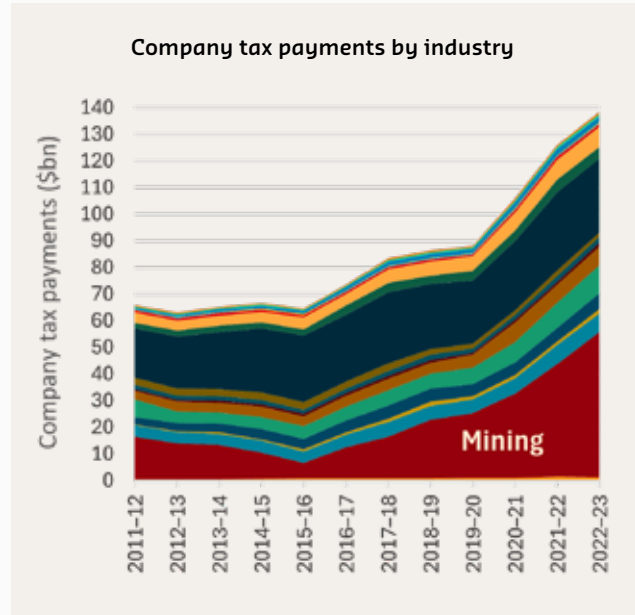
Yet the same forces that have created prosperity have also created exposure.

Western Australia has become one of the most economically specialised jurisdictions in the world, with almost half of economic activity linked directly to the resources sector. Iron ore alone accounts for more than 80 per cent of royalty revenues, while China remains the destination for the majority of the state's merchandise exports.



Public finances have benefited enormously from strong commodity prices and production growth, but this has also left governments increasingly exposed to movements in global demand, trade relationships and resource markets

The challenge is not unique to Western Australia. Resource-rich economies around the world face a common question: how do they maintain the benefits of resource wealth while reducing their vulnerability to the risks that accompany it?



The global transition now underway adds further complexity.

Changes in commodity demand, evolving technologies, geopolitical tensions and growing competition for investment are reshaping the environment in which Western Australia's resources sector operates.

“Today's prosperity does not guarantee tomorrow's revenues.”

Future revenue streams may not look like those of the past. Royalties, company tax, payroll tax and GST arrangements will all come under increasing pressure as markets evolve and governments respond to changing economic conditions.

These risks should not be viewed as a reason for caution or retreat. Rather, they reinforce the importance of planning ahead while conditions remain favourable. Western Australia has a rare opportunity to leverage today's resource wealth to build a more diversified, resilient and productive economy.

The imperative for government and industry is clear: **recognise the state's exposure, plan for a range of possible futures, and act now to ensure that future prosperity is built on more than commodity prices alone.**

#5

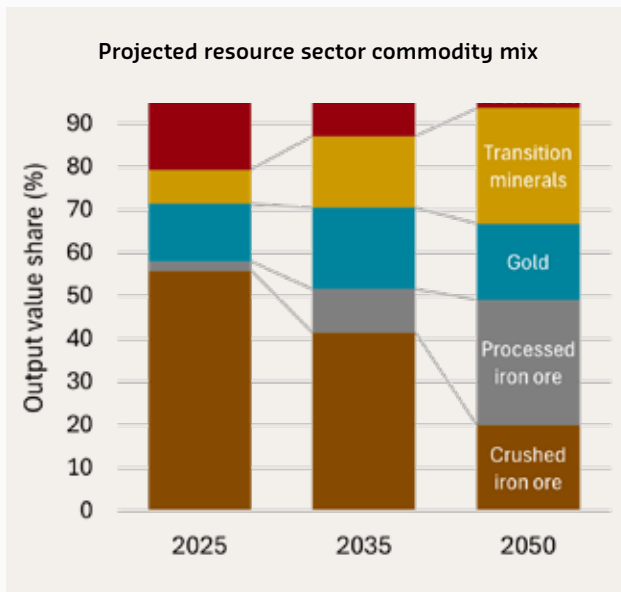
THE NEXT PHASE OF PROSPERITY WILL DEPEND ON VALUE, NOT VOLUME

The global transition is reshaping the composition of WA's resources sector. While the sector remains a major contributor to economic activity under all scenarios, the sources of growth change significantly over time.

The resources sector is changing

Future growth increasingly comes from transition material, higher-value commodities, processing and downstream activities.

The value of transition minerals and processed materials could grow to more than \$100 billion by 2050 under feasible future scenarios, more than three times its level in the mid-2030s. And fossil fuel exports could decline from around \$39 billion today to around \$11 billion by 2050 under an accelerated transition pathway.



Crushed iron ore remains a cornerstone of the economy but accounts for a declining share of total output as growth increasingly comes from beneficiated, processed and metallic products.

The gap between the BCEC's baseline and accelerated transition scenarios reaches around \$26 billion in annual resource output by 2050, highlighting the growing importance of competitiveness, innovation and value creation. The difference between future scenarios is driven less by the volume of resources produced and more by the extent to which Western Australia successfully develops higher-value industries around its resource endowment.

From bulk commodities to higher value products

2025

- Iron ore dominant
- Fossil fuels \$39bn
- Transition minerals \$20bn



2050

- Transition minerals \$100bn+
- Larger share of beneficiated and processed products
- More diversified export base

Crushed iron ore remains a cornerstone of the sector but accounts for a declining share of total output as growth increasingly comes from beneficiated, processed and metallic products.

The opportunity is clear. Western Australia possesses globally significant mineral resources, deep technical expertise, world-class mining capabilities and growing renewable energy advantages. The challenge is to translate these strengths into new sources of value creation through processing, technology, skills, innovation and industrial capability.

The next phase of prosperity for WA's resources sector will depend less on expanding production volumes and more on capturing a greater share of the value embedded within the state's resource endowment - and its evolution into a more diversified, higher-value, and prospectively more resilient source of economic prosperity.

#6

FUTURE WEALTH MUST BE CONVERTED INTO LONG-TERM PUBLIC VALUE

Resource wealth has underpinned public services, infrastructure and living standards for generations. However, the same forces reshaping the resources sector are also reshaping the fiscal position of both Western Australia and the Commonwealth.

But as commodity markets evolve, governments will face important questions about how best to capture, manage and invest the benefits generated by finite public resources.

Future prosperity will depend not only on economic growth, but on how effectively that growth is converted into enduring public value. Migration continues to play a central role in sustaining workforce capacity, but the composition of that migration is shifting in line with evolving industry needs.

Future revenue streams become increasingly sensitive to commodity mix and profitability, which emphasises the reality that alternative policy settings can materially alter long-term public value capture.

The future fiscal challenge extends beyond Western Australia and increasingly affects the resilience of both state and Commonwealth revenues.

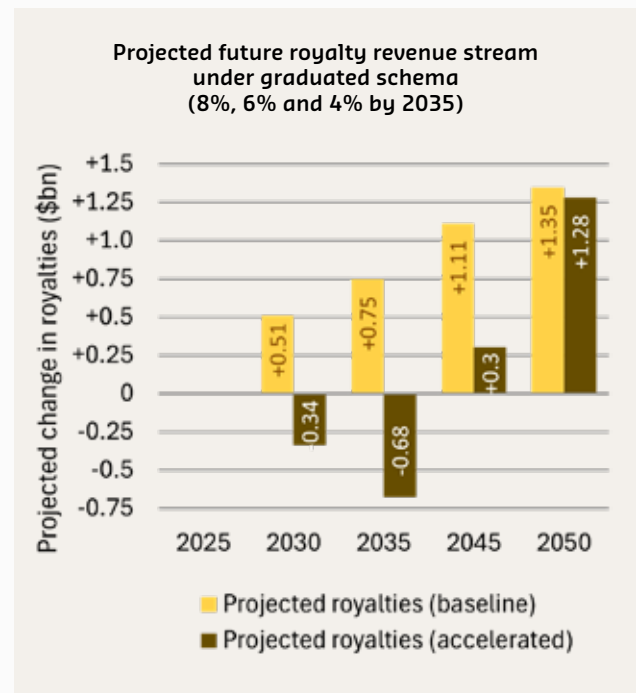
The long-term challenge is not simply generating resource wealth but ensuring that resource wealth continues to deliver lasting economic, social and fiscal benefits.

Policy settings and institutional structures will materially influence public value capture

The value returned to the community from WA's resources sector depends not only on what is produced, but also on how it is taxed and managed. Alternative royalty structures can encourage greater downstream processing while maintaining government revenues, helping align fiscal settings with a future in which transition minerals exceed **\$100 billion in annual export value by 2050** and processed products account for a growing share of sector activity.

BCEC modelling shows that even modest changes to royalty rates can generate **billions of dollars in additional public revenue** over coming decades. Because resource projects are large, capital intensive and operate over long time horizons, relatively small adjustments to policy settings can compound into substantial fiscal outcomes.

This matters because the resources sector remains a cornerstone of public finances, contributing almost **\$10 billion in royalty revenue to WA in 2024-25**, while the mining industry accounted for around **39 per cent of Commonwealth company tax revenue in 2022-23**, up from around 25 per cent a decade earlier.



Individual projects also matter. The development - or non-development - of major projects such as Browse has multibillion dollar implications for future royalty, company tax and Petroleum Resources Rent Tax (PRRT) revenues. Alternative approaches such as public equity participation can further alter the timing and distribution of returns, potentially transforming temporary resource wealth into an enduring income stream through a future fund.

“Resource endowments are fixed, but the public value captured from them is not. Small policy changes today can have billion dollar consequences for future state and Commonwealth revenues.”

WA'S RESOURCE SECTOR IN TRANSITION - AT A GLANCE



THE RESOURCES SECTOR IS THE FOUNDATION OF WA'S ECONOMY

- **46.3%** of WA economic activity
- **\$195bn** in gross value
- **143,000** directly employed

up to

4.4

jobs to 1

BENEFITS EXTEND BEYOND THE MINE GATE

Resources sector activity adds around **677,600 full-time equivalent jobs to the broader national economy**. For every resources job in WA, **up to 4.4 jobs are supported across Australia**. The resources sector generates around **\$241 billion in economic activity nationally**.

RESOURCES SECTOR FOOTPRINT EXTENDS BEYOND ECONOMICS....

The future of the sector will be judged as much on environmental and social performance as economic performance.

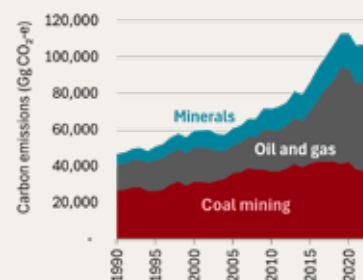
WA produced **35% of Australia's** greenhouse gas emissions.

Around **85% of WA's land area** is subject to Native Title interests.

More than **188,000 hectares** of land is currently disturbed by mining activity.

Around **44,000 hectares** has been rehabilitated.

The Mining Rehabilitation Fund now covers approximately **65 million hectares** of tenements.

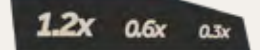


PROJECTED CHANGE IN COMMODITY MIX FROM 2025 TO 2050 BY NET ZERO SCENARIO

Transition minerals



Fossil fuels



Baseline Sustained Accelerated

STRUCTURAL FORCES ARE CHANGING WA'S COMMODITY MIX

Decarbonisation, geopolitics, technological change and environmental expectations are reshaping global commodity demand and shifting value towards critical minerals and processing.

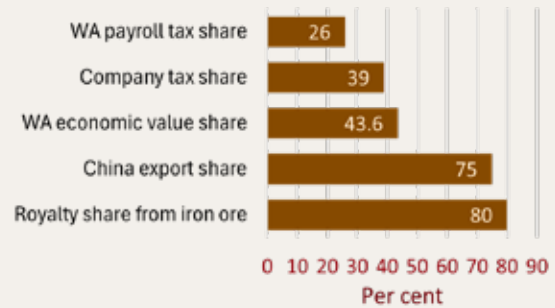
The future of WA's resources sector will be increasingly about value-added processing, not simply volume.

Iron ore and fossil fuels remain important but face long-term decline.

PUBLIC FINANCES REMAIN HEAVILY EXPOSED TO THE RESOURCES SECTOR

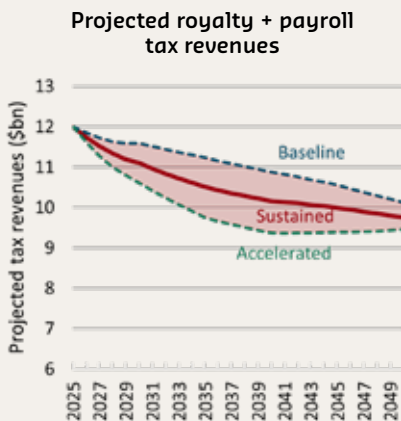
- Royalties generated almost **\$10 billion** in state revenues in 2024-25, four fifths of which was from iron ore production. **Total royalty receipts account for 20% of total state revenues.**
- And WA's resources sector contributes a **quarter of the state's payroll tax receipts.**
- Resource companies contributed **39% of total company tax revenue** in 2022-23, up from around 25% a decade earlier.

Resource sector contributions (%)



POLICY SETTINGS CAN MATERIALLY INFLUENCE PUBLIC VALUE CAPTURE

Maintaining current tax settings runs a significant risk that WA will face a future revenue squeeze.



Alternative royalty structures can maintain revenues without discouraging downstream processing. Modest royalty rate changes can generate billions of dollars in additional long-term revenue.

And new projects such as Browse will have a consequential effect on future state and Federal revenue security.

“Small policy changes today can have billion dollar consequences tomorrow”.

FISCAL PRESSURES EMERGE AS THE RESOURCES SECTOR EVOLVES

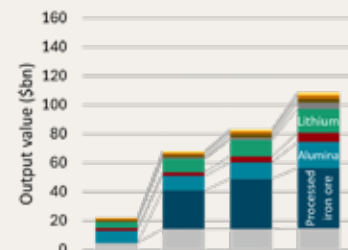
Traditional output value from crushed iron ore and LNG could weaken over time, whether under baseline, sustained or accelerated transition scenarios.

And this will erode the royalty tax base. Higher-value processed products generate more payroll and company tax but **do not fully replace lost royalty revenue.**

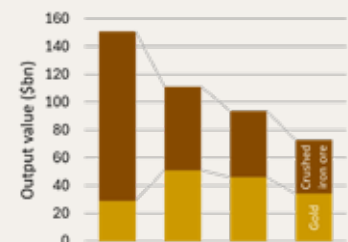
The composition of government revenues could change significantly over time as a result.

“The challenge is not whether the resources sector remains large, but whether public revenues evolve with its changing scale and composition”.

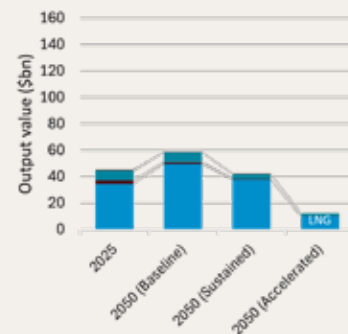
Transition materials



Cornerstone commodities



Fossil fuels



POLICY INSIGHTS

Western Australia has been hugely successful at extracting value from its resource endowment. The challenge now is converting that success into enduring prosperity in a rapidly changing world.

- 1. Move deliberately up the value chain and strengthen productivity**
Support downstream processing and industrial capability in areas of sustainable competitive advantages. Future prosperity will depend more on the value created from resources than the volume extracted. Building internationally competitive downstream industries will require sustained investment in skills, R&D and next-generation technologies. Together these investments can strengthen productivity, economic resilience and long-term value creation, while capitalising on WA's comparative advantages.
- 2. Invest in enabling infrastructure**
Prioritise common-user infrastructure, energy, water, logistics and industrial precincts to unlock private investment. Strategic investment in enabling infrastructure is critical to attract investment, reduce project costs and support new industrial opportunities. Coordinated planning of energy, transport, water and industrial land will unlock future growth while strengthening regional development and competitiveness.
- 3. Build resilience through diversification**
Pursue a deliberate strategy to diversify Western Australia's industrial base and trade partnerships. Supporting new industries, downstream value-adding and stronger trade and investment alliances with a broader range of international partners can expand growth opportunities and strengthen economic resilience and long-term prosperity.
- 4. Build globally competitive transition industries**
Position WA as a trusted supplier of critical minerals, green metals and low-emissions industrial products. WA is well placed to benefit from growing demand for critical minerals and emerging low-emissions industries. Capturing these opportunities will require deliberate efforts to build globally competitive value chains that attract investment and integrate into evolving international markets.
- 5. Adopt long-term fiscal planning**
Recognise the state's continued exposure to resource revenues and explore contingencies now to mitigate future revenue pressures. Resource revenues have delivered substantial benefits but remain exposed to commodity prices, production volumes and global market conditions. Governments should plan now for a range of future revenue outcomes, recognising that resource revenues, commodity markets and GST arrangements may not provide the same fiscal support in future as they do today.
- 6. Review public value capture mechanisms**
Assess royalties, PRRT settings, company taxation and other resource revenue instruments against principles of efficiency, competitiveness and intergenerational equity. As resource markets and technologies evolve, governments should periodically review value-capture arrangements to ensure they remain fit for purpose. The objective should be to balance investment competitiveness with fair and sustainable returns to the broader and future generations.
- 7. Establish a long-term resource wealth strategy**
Explore options for converting a share of finite resource wealth into enduring public assets, including future fund style mechanisms. WA's resource endowment is finite, but the benefits it generates need not be. Governments should consider mechanisms that convert temporary resource wealth into lasting economic, financial and social assets that support future generations and strengthen fiscal resilience.
- 8. Plan for resilience, not a single future**
Embed scenario analysis into infrastructure, industry and fiscal planning. The future of the resources sector is inherently uncertain. Governments and industry should adopt scenario-based planning approaches that test decisions against a range of possible futures, helping ensure resilience and prosperity under changing economic, technological and geopolitical conditions.

INTRODUCTION

INTRODUCTION

Western Australia's economy remains deeply anchored in its resources sector. Iron ore continues to underpin the state's exports, public revenues, employment and living standards, while the broader resources sector remains WA's largest industry, largest exporter and a major contributor to public finances. The sector has profoundly shaped the character of WA's economy and communities and has long been a source of civic pride and prosperity.

This success has delivered substantial economic benefits, but it has also heightened WA's exposure to global structural forces. As the sector has grown and become more deeply integrated into global markets, its long-term resilience increasingly depends on how it responds to energy transition, decarbonisation, technological disruption and geopolitical fragmentation. As these forces continue to reshape resource-based economies around the world, important questions emerge about the future of Western Australia's largest industry and how the state can best position itself to navigate a changing global landscape.

This *Focus on Industry* report examines how WA's resources sector is adapting to these pressures and what this means for economic diversification, fiscal sustainability and long-term prosperity. The report first examines the sector's contribution to the Western Australian economy and society, detailing its role in output, exports, employment, government revenue and living standards, while also exploring its broader economic, social and environmental impacts and providing spotlights on the state's major commodities.

It then considers the structural forces reshaping the future of the sector, including decarbonisation, technological change and geopolitical fragmentation, and uses scenario analysis to assess how

different global pathways could influence industry competitiveness, investment and commodity demand. Finally, it examines how Western Australia captures value from its resource endowment through royalties, taxation and other revenue mechanisms, and explores how these arrangements may need to evolve to support fiscal sustainability and long-term prosperity in a changing global environment.

Drawing on new analysis and industry engagement, the report highlights the opportunities, risks and trade-offs facing Western Australia's resources sector as global economic and technological conditions evolve. It recognises that the future of the sector will be shaped by factors both within and beyond the state's control, including shifts in global demand, technological change, geopolitical developments and the pace of decarbonisation. Understanding these uncertainties is critical for governments, businesses and communities seeking to strengthen resilience and maintain prosperity over the long term.

By combining evidence on the sector's current contribution, analysis of future structural forces and consideration of how value is captured and shared, the report provides a forward-looking framework to support more strategic decision making. Its findings are intended to help policymakers, industry leaders and communities navigate the balance between growth, resilience and diversification in a period of heightened uncertainty.



ECONOMIC CONTRIBUTION OF THE RESOURCES SECTOR

INTRODUCTION



The WA resources sector is a significant source of wealth and prosperity for the state and the nation. It drives economic growth, employment, terms of trade, innovation and is one of the primary sources of revenue for both state and federal governments.

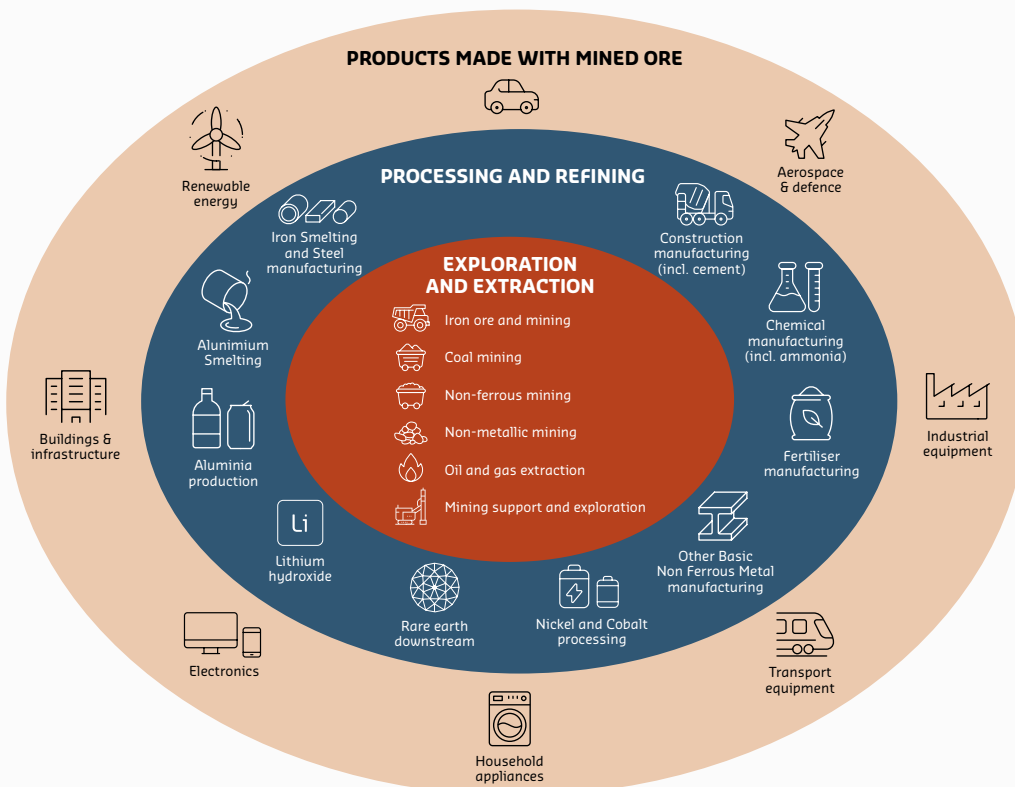
This chapter examines the contributions of the resources sector detailing its economic and employment contributions to the state and nation. It then reveals some analysis of the supply chain and economy wide spillovers considering how WA's resources sector touches industries and regions across Australia. It introduces the contribution of the sector

to the public purse before delving into more detail in chapter 3.

The impact of the resources sector goes well beyond measures of economic activity and employment. It impacts innovation, trade, the environment, culture and society. This chapter touches on all of these elements with a particular focus on the role that the resources sector has on innovation. We then take a spotlight to three key minerals. Iron ore - the most important mineral in the state - examining its contribution and outlook. Liquefied Natural Gas (LNG) – an important bridging fuel and large state and national export. Lithium, a mineral that provides WA with a competitive advantage and one that has significant future growth potential as the sector transitions.

The resources sector can be defined narrowly as mining, extraction and exploration. The broader definition of the sector includes downstream processing such as refining, smelting and processing of minerals. The definition does not include products made with the mined ore. This chapter focuses on the narrower definition of the resources sector.

FIGURE 1
Resources sector in Western Australia



Source: Bankwest Curtin Economics Centre | Centre's graphic design.

ECONOMIC ACTIVITY AND INDUSTRY CONCENTRATION

The resources sector remains the dominant industry in Western Australia’s economic landscape and a cornerstone of the national economy.



Resources are an important source of the state’s exports, regional development, employment and fiscal generation.

As a sector in transition, it is important to understand the broad contribution of the resources sector and what any changes to the sector will mean for the state and national economy.

This section provides an overview of the economic context of the resources sector within Western Australia and the national economy. It begins by

examining the sector’s economic contribution in terms of Gross Value Added (GVA), from here described as ‘economic activity’, and its relative importance across Australia’s states and territories. It details how specialised Western Australia has become in iron ore mining and considers what this means for the prosperity and resilience of the state.

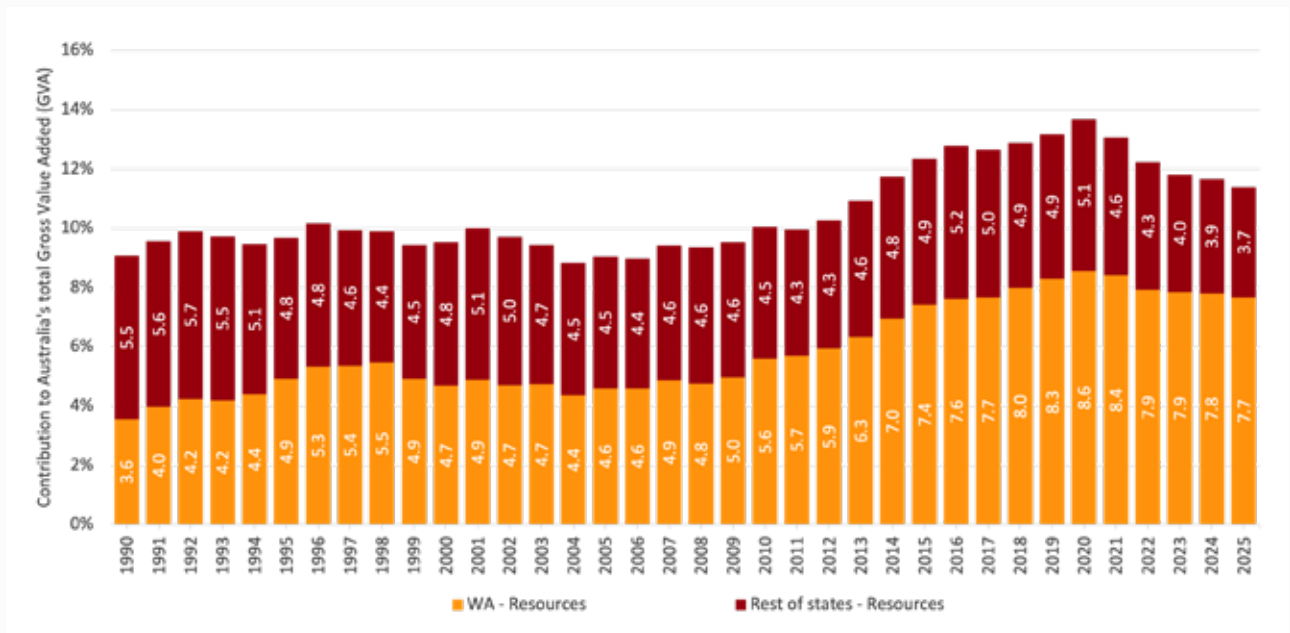
The resources sector makes up 11.4 per cent (\$290 billion¹) of Australia’s economic activity, with WA’s share representing around 7.7 per cent (Figure 2).



Around 67 per cent (\$195 billion) of all resources sector activity comes from Western Australia, principally from its iron ore mining and oil and gas sectors.

FIGURE 2

Resources sector contribution to national economic activity



Source: Bankwest Curtin Economics Centre | Authors’ calculations based on ABS 5220 table 6 and 10.

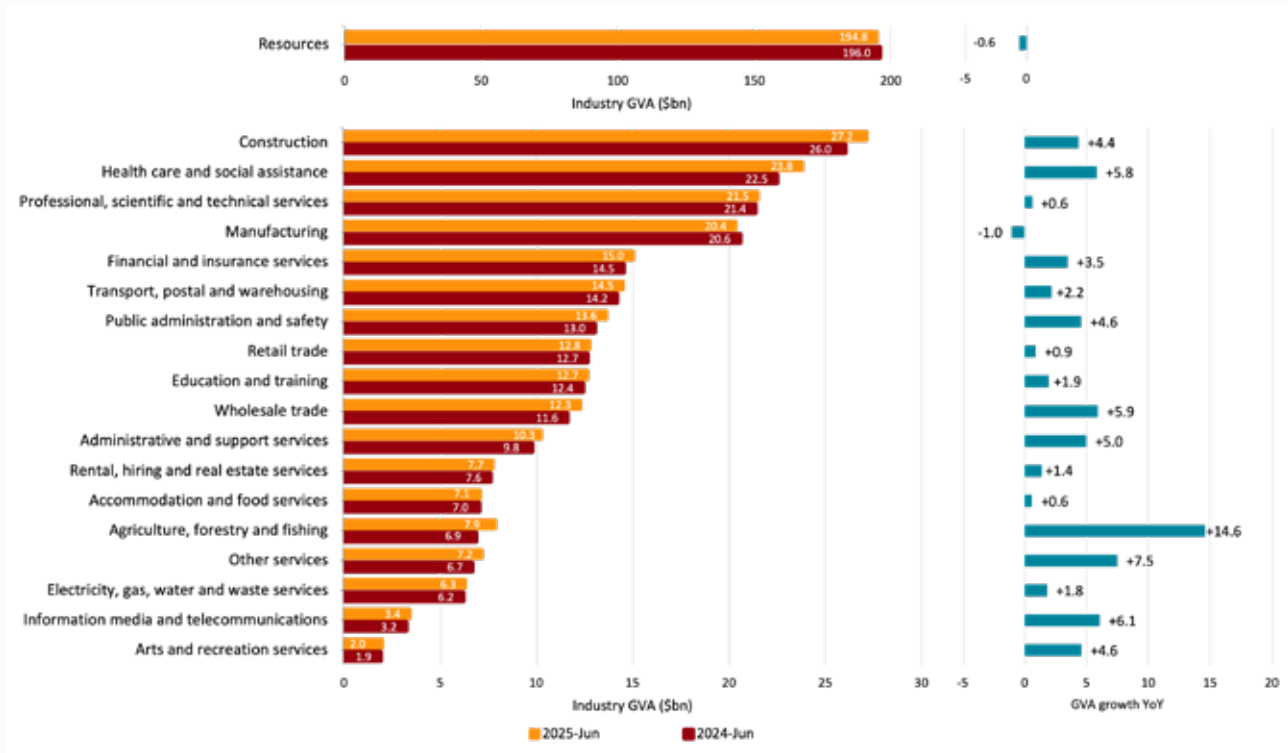
¹ Unless otherwise specified all dollar values are in Australian Dollars.

Western Australia's resources sector contributed \$195 billion representing 46.3 per cent of the state's economic activity in 2025 (Figure 3). Construction is

the second largest sector, followed by health care and social assistance, contributing around 6.1 and 5.3 per cent to the state's economy in 2025.

FIGURE 3

WA Industry Gross Value Added, \$billions and per cent growth, 2024FY and 2025FY



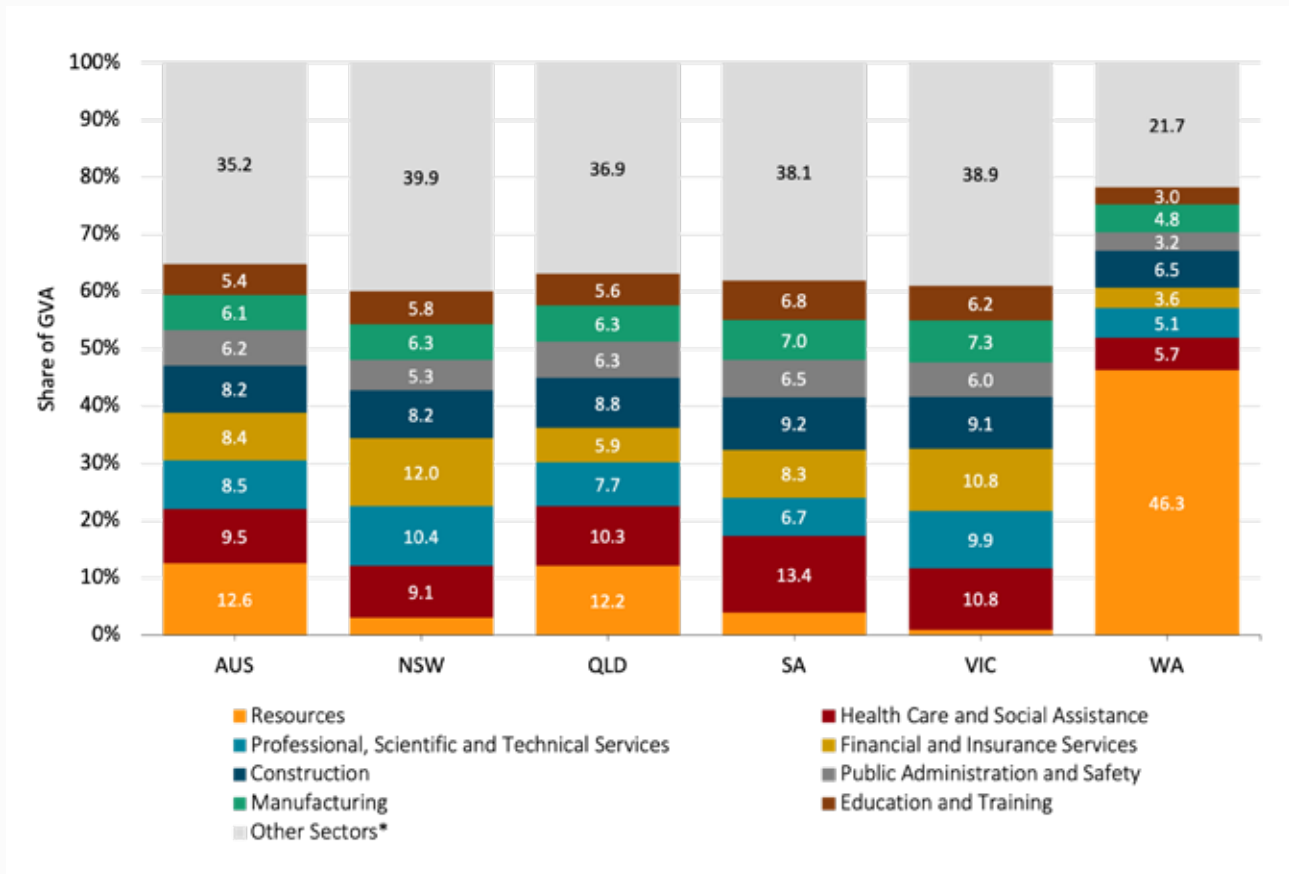
Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS 5220 table 6.



Western Australia is one of the most economically specialised economies in the world, with almost half of its economic activity concentrated in one sector – resources. Queensland has the second largest resources sector concentration but in comparison to WA it is much less dependent on resources activity with the sector contributing 12.2 per cent to its total economic activity (Figure 4).



FIGURE 4
Industry share of GVA by state, 2025



Note: Other Sectors: Transport, postal and warehousing, Retail trade, Wholesale trade, Administrative and support services, Rental, hiring and real estate services, Accommodation and food services, Electricity, gas, water and waste services, Agriculture, forestry and fishing,

Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS 5220 table 2,3,4,5,6 and 10.



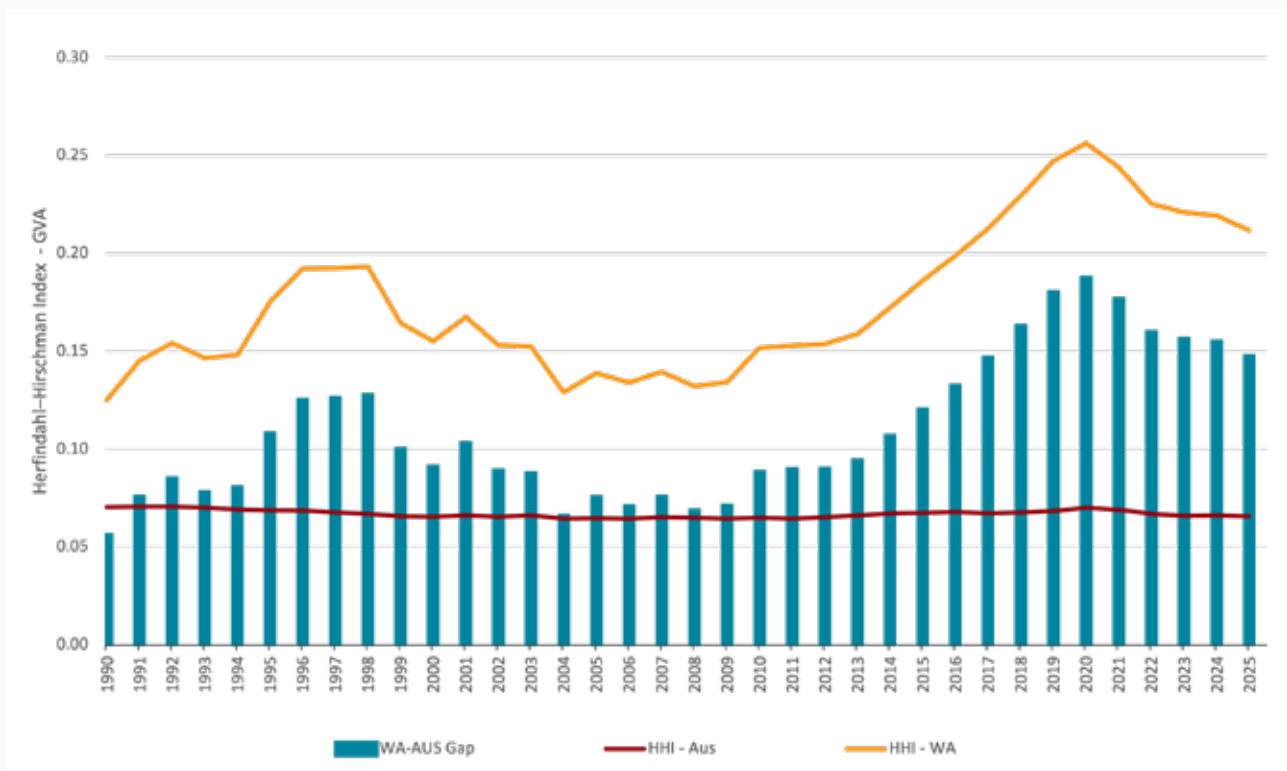
The WA economy has become more concentrated over time, with marked intensification since the mid-2010s (Figure 5). Australia's industry concentration has remained stable over the past three decades. This is measured through the Herfindahl-Hirschman Index (HHI), where lower values indicate a more diversified economy and higher values indicate a greater dependence on fewer sectors. In an economy with a HHI value of 0 there would be numerous industries of equal size contributing similarly to economic activity.

By contrast in an economy with a value of 1 there would be just one industry representing all economic activity.

The HHI shows between 1990 and 2025 a low and stable index value of 0.06 to 0.07 for Australia. However, WA's HHI is much higher than the national level, illustrating the significant role the resources sector plays in the economy and the greater exposure the state has to export markets and global shocks.

FIGURE 5

AUS and WA industry concentration, Herfindahl-Hirschman Index, 1990 to 2025



Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS 5220 table 6 and 10.

Western Australia’s dominance of national resources output has deepened over the last decade.



Total Australian mining output grew from \$108 billion in 2014-15 to \$306 billion by 2024-25, a near threefold increase over the decade.

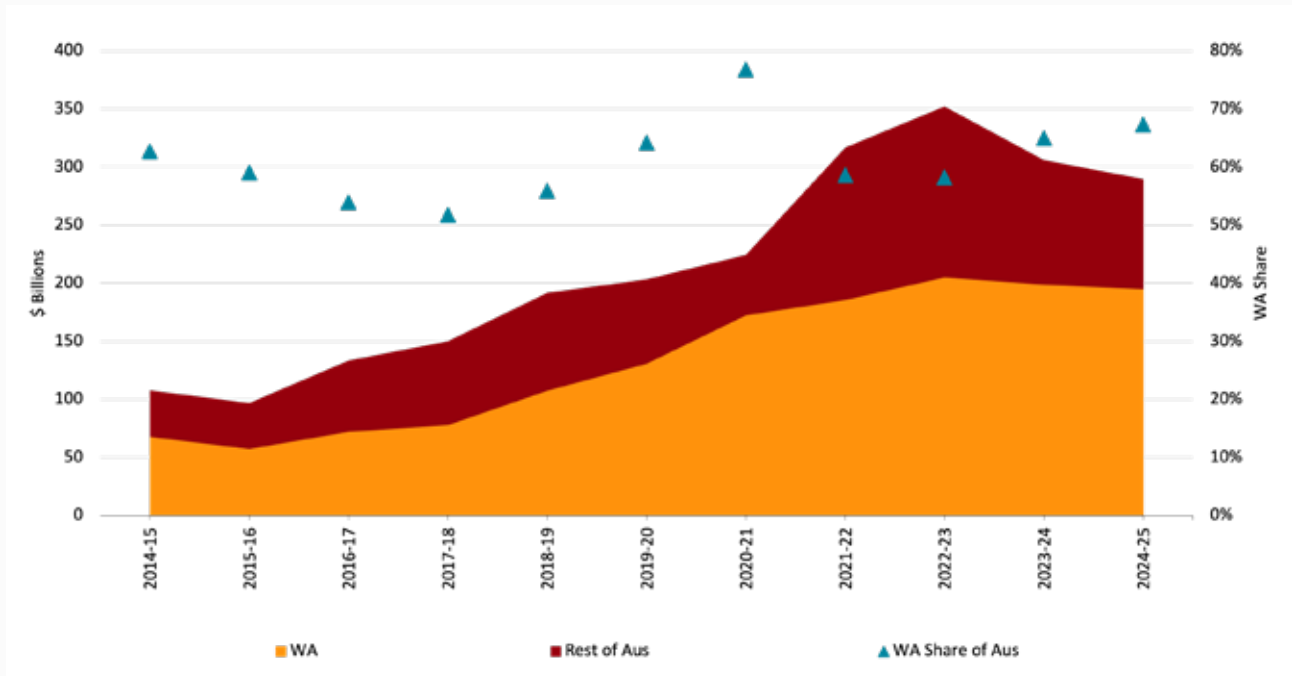
Growth in economic activity has been steady, albeit with significant fluctuations in commodity prices year to year (Figure 6).



Western Australia has consistently accounted for over half of the nation’s resources output with a spike of 75 per cent in 2020-21 driven by elevated iron ore prices relative to other resources.

FIGURE 6

Resources economic impact, WA and rest of Australia contribution, 2014-15 to 2024-25



Note: Dollar values are in current prices.

Source: Bankwest Curtin Economics Centre | Department of Mines Petroleum and Exploration, WA.

EMPLOYMENT AND WAGES

Economic activity and labour market outcomes are closely interrelated. Industries that generate strong growth in economic activity typically support higher levels of employment, both directly and indirectly through the supply chain. This has valuable consequences for governments as it addresses issues of workforce participation and unemployment.

Employment in WA's resources sector has increased substantially over the last three decades, from 24,594 in 1984 representing 4.1 per cent of the WA workforce to 143,156 in 2026 representing 8.5 per cent, with a steep increase during the late-2000s coinciding with the mining construction boom (Figure 7).

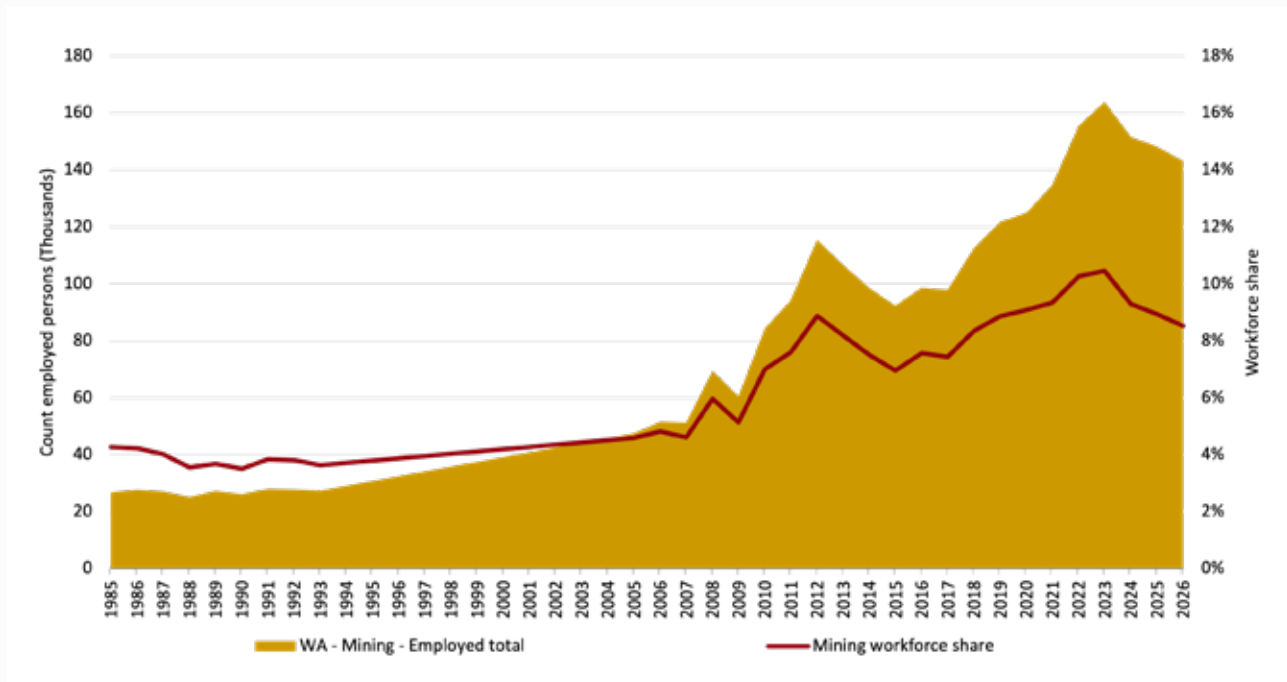
Mining is often considered a major employer but in direct employment terms it is relatively modest compared to its economic footprint as it is a capital-intensive sector (Figure 11).



Despite the relatively low direct employment, mining is a driver of employment through its extensive supply chain and links to service industries.

FIGURE 7

Number and share of people employed in the resources sector in WA, 1985 to 2026



Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS 6291.0.55.001 Labour Force, Australia, Detailed.

WA's resources sector commands a substantial wage premium when compared to other industries, with workers flocking to the state during the mining construction boom. WA's population grew to 2.21 million people between 2003 to late 2008 - capitalising on Chinese industrialisation. Interrupted by the hiatus during the GFC, WA's population expanded by 179,000 to 2.46 million people between 2009 and 2012 from the massive LNG and iron ore expansion and associated infrastructure construction projects.



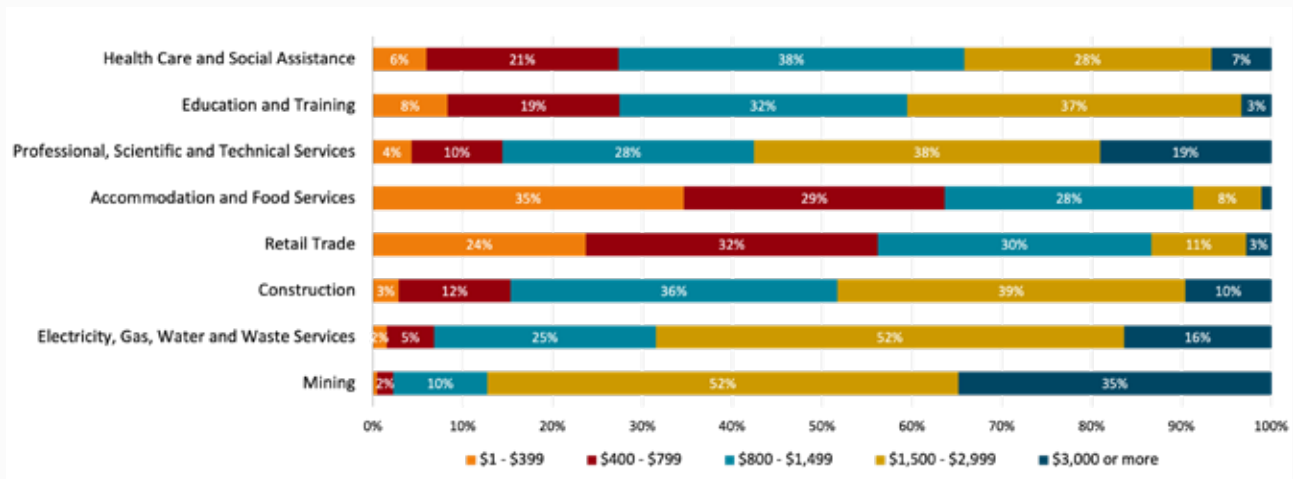
Collectively, these two periods added 435,000 people to the state's population, equivalent to an expansion of more than a fifth from the start of 2003.

Mining employees are disproportionately represented in higher income brackets with 35 per cent of workers earning over \$3,000 a week and 87 per cent of employees earning over \$1,500 a week.

The concentration of high-income employment in mining supports household consumption, regional economic activity and public finances. However, elevated wages also act as a strong pull factor for workers in other industries, notably construction, placing pressure on skills shortages. The pull factor can be so strong that it affects international and interstate migration. This is particularly acute in time of strong commodity demand which can have flow effects to other sectors and both the cost and delivery of infrastructure like housing and roads (Figure 8).

FIGURE 8

Employed persons by industry and income range, WA



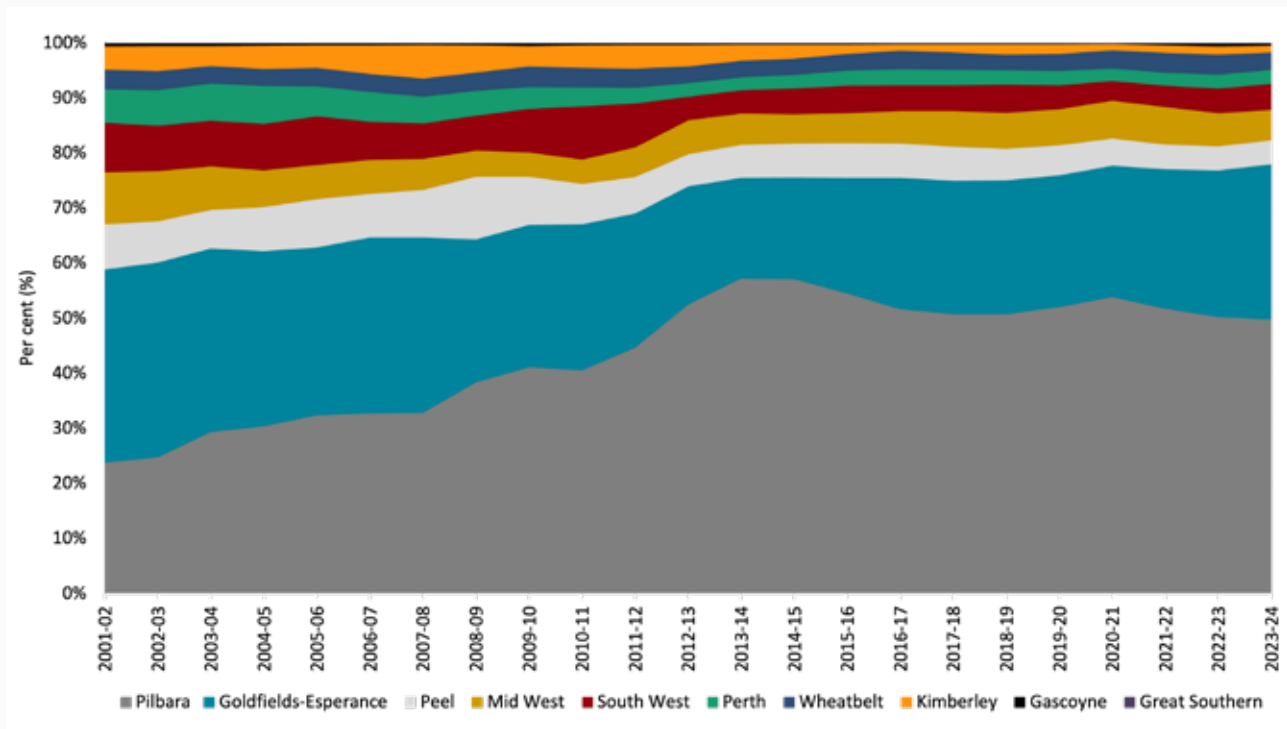
Source: Bankwest Curtin Economics Centre | Authors' calculations based on 2021 Census – employment, income and education.

Resources sector employment is primarily concentrated in WA's mining regions - the Pilbara and Goldfields-Esperance (Figure 9). Consequently, these regions are much more exposed to the cyclical nature of economic activity in the resources sector. The regions specialise in different commodities.

The Pilbara is a major iron ore mining area whereas Goldfields-Esperance is more diversified with gold, lithium, rare earths and nickel mines all present. Pilbara resources are a massive bulk export that is largely destined for China whereas the Goldfields are exposed to a more diversified export market.

FIGURE 9

Regional shares of FTEs in the resource sector, 2001-02 to 2023-24



Source: Bankwest Curtin Economics Centre | Authors' calculations based on Economic indicators resources data from WA Department of Mines Petroleum and Exploration.



SPILLOVERS: ECONOMY-WIDE IMPACT OF THE RESOURCES SECTOR



The economic activity of a sector does not happen in a vacuum – it operates in a complex and interconnected system with other parts of the economy. When one industry grows or shrinks, the effects flow through to other businesses, workers and communities across the economy.

For example, if demand for iron ore increases, mining companies may increase production and

hire more workers. This is known as the **direct effect**. To support this higher level of activity, mining companies will purchase more goods and services from suppliers such as transport operators, equipment manufacturers, engineering firms and professional services. This is known as the **indirect effect**.

The impacts do not stop here. As more people are employed and businesses earn higher incomes, households have more money to spend on everyday goods and services such as housing, retail, hospitality and recreation. These broader flow-on impacts are known as the **induced effect**. This interconnected system can be captured using specialised economic models. In this section, we use such a model to capture the direct, indirect and induced effects of Western Australia's resources sector and how this is distributed across the Australian economy using BCEC's in-house AusRIO model. (see Box 1 for methodological detail).

Box 1: Australian Regional Input-Output model AusRIO

Australia's economy is made up of thousands of interconnected industries, business and households, and when activity changes in one part of the economy it flows through the whole economic system. AusRIO is a multi-regional input-output (MRIO) model that uncovers the interindustry and interregional relationships within the Australian economy. It maps the buying and selling relationships between 115 industries across 15 Greater Capital City Statistical Area (GCCSA) defined regions. The model is used to capture these hidden spillover effects finding the sectors contribution to be much wider than direct figures report by distinguishing three layers of economic contribution:

- **Direct effects** output, income and employment generated by the sector itself
- **Indirect effects** as the change ripples through supply chains as producers increase or decrease supply to meet the new level of demand
- **Induced effects** as households adjust their spending to their new income level this is converted into consumption of goods across the economy.

The broader contribution of the resources sector is estimated using a hypothetical extraction approach. Under this method the demand for the selected resources sectors is removed from the economic system and the resulting reduction in economic activity is compared against the baseline economy. Published ABS estimates of the sector's direct contribution are used as the baseline for GVA and employment. The MRIO model is then used to estimate the indirect and induced multipliers and the geographic spillover effects. The approach combines observed industry outcomes with modelled supply-chain and consumption effects.

Employment estimates are derived from a satellite account linking ABS national accounts employment to GCCSA geographies via the ABS Census 2021. The base year for the model is the ABS 2022-23 national input-output tables. The resources sector is defined as coal mining, oil and gas extraction, iron ore mining, non-ferrous metal ore mining, non-metallic mineral mining, and exploration and mining support services.

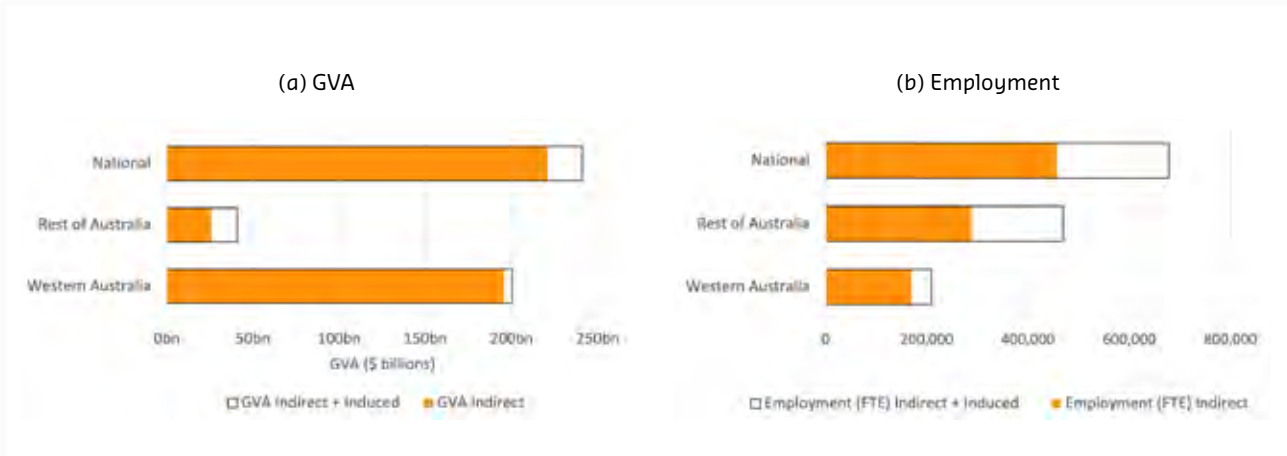
Taking into account direct, indirect and induced impacts, WA's resources sectors are estimated to contribute around \$241 billion in economic activity across the national economy and support 677,000 full-time equivalent jobs in 2025 (Figure 10). Of this, around 83 per cent (\$200 billion) of the economic activity generated remains in the WA economy meaning \$41 billion is accrued outside the state. However, when assessing employment, WA's resources sector supports 320,000 jobs across Australia, more than double the number of full-time equivalent employees (115,000) supported by the sector in the state itself².



For every 1 job in the WA resources sector, up to 4.4 are supported across Australia.

FIGURE 10

Economic activity and employment spillovers of WA's resources sector



Note: GVA (Gross value-added) is a measure of economic activity, Employment FTE (full-time equivalent) is a measure of employment that combines full and part-time workers into a common measure. Modelled estimates and sensitivities are derived from the 2022-23 AusRIO framework and differ from the ABS national accounts and labour force survey figures due to differences in reference year and methodology. AusRIO estimates reflect production structure and should be interpreted accordingly.

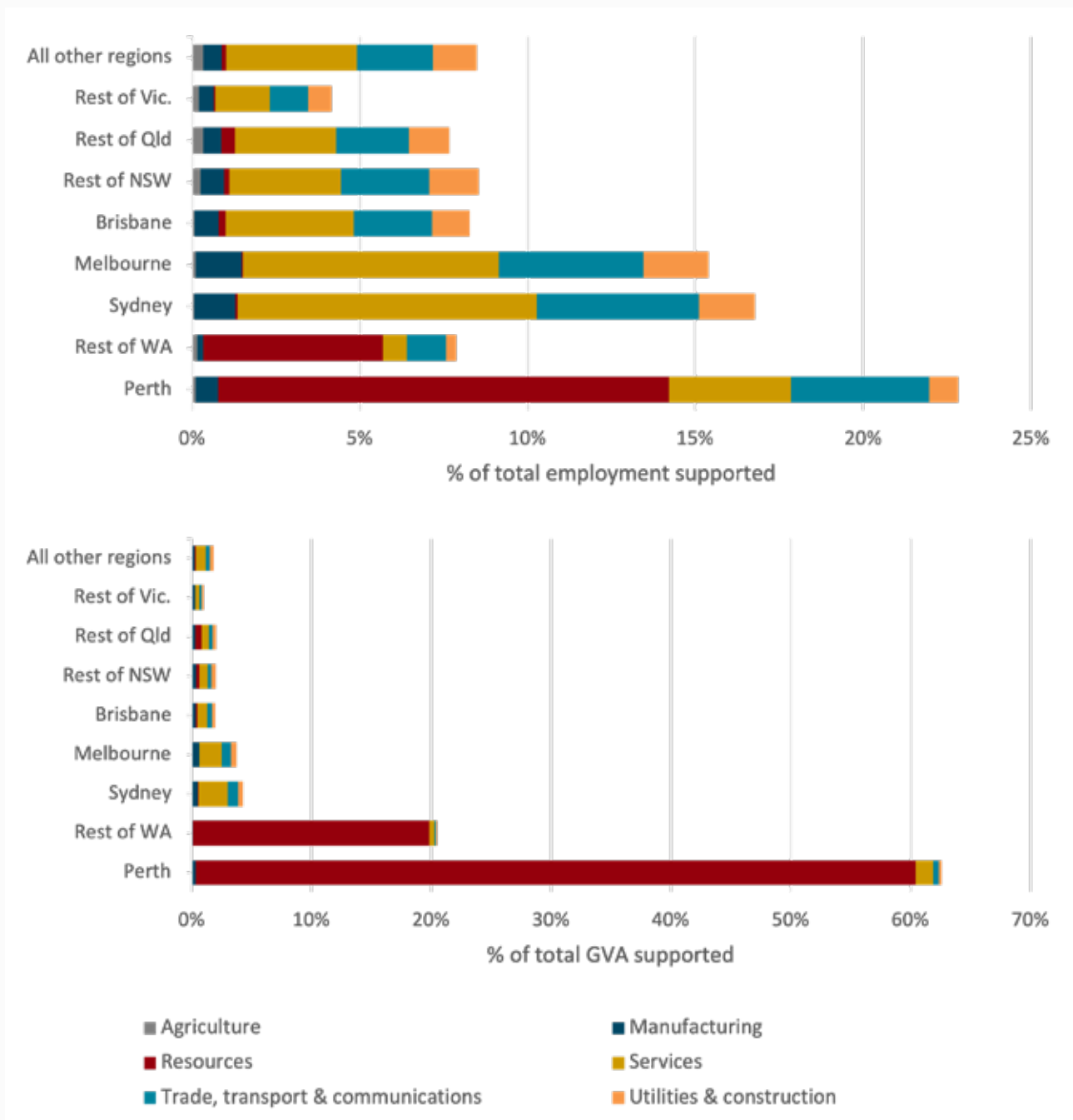
Source: Bankwest Curtin Economics Centre | Authors' calculations from AusRIO Model.

² Note: CMEWA (2026) have produced estimates based on a primary survey input-output framework and yield higher indirect spillover results (649,000 jobs supported across WA). The CMEWA results are not directly comparable due to the differences in data sources and methodology.

The economic activity and employment supported is diverse and goes well beyond the resources sector. While 83 per cent of GVA generated from WA's resources sector accrues to the sector itself, just

20 per cent of employment is supported within the sector – whereas services and trade, transport and communication sectors received 37 and 25 per cent of the employment impact (Figure 11).

FIGURE 11
Employment and economic activity spillovers, industries and regions



Note: Sectors and regions aggregated to aid clarity. GVA (Gross value-added) is a measure of economic activity, Employment FTE (full-time equivalent) is a measure of employment that combines full and part-time workers into a common measure. Results displayed include direct, indirect and induced impacts. Source: Bankwest Curtin Economics Centre | Authors' calculations from AusRIO Model.

Different sectors are supported by the operation of WA's resources sector depending on the economic geography in question. Sydney sees significant spillovers particularly in professional, scientific and technical services reflecting the links between resources and corporate, financial and specialised business services. Melbourne shows a slightly different mix with more links to wholesale trade, professional services and manufacturing. Queensland stands out for its links with the construction, retail and administrative services sectors suggesting a degree of integration with the WA resources sector.

The spillover analysis tells us that WA's resources sector underpins a very significant amount of economic activity and employment across Australia. It shows the sector is more interconnected nationally than would be obvious at the first pass.



What this also means is that the future of the resources sector is consequential for the economic development of sectors and regions across Australia.

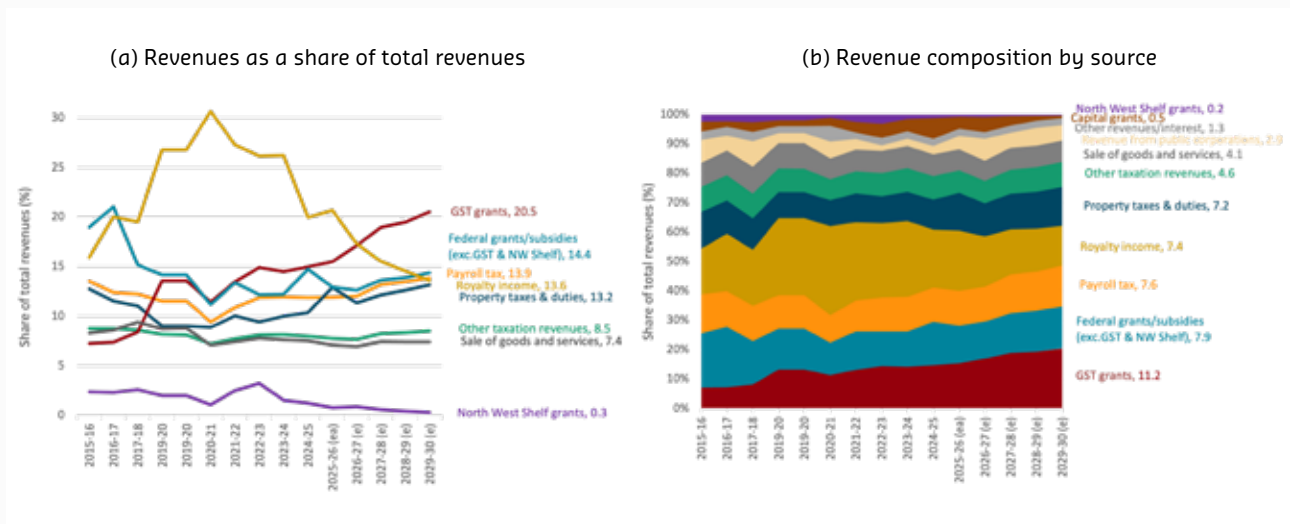


CONTRIBUTION TO PUBLIC FINANCES

The importance of WA's resources sector is also reflected in the contribution it makes to both state and federal public finances through a combination of royalties, company tax, payroll tax and the Petroleum Resources Rent Tax (PRRT). This section introduces WA's changing revenue base, with greater detail on the taxation of resources in Chapter 3.

For Western Australia, royalties continue to play a significant role in revenue for the WA state budget, however WA's revenue mix has been shifting away from a heavy reliance on royalty incomes since peaking in 2020-21 as iron royalties are forecast to soften over the forward estimates (Figure 12). GST grants are projected to become the state's largest revenue source by the end of the decade, alongside growth in payroll tax and property-based revenues.

FIGURE 12
WA revenues by source, 2015-16 to 2029-30 (forecast)



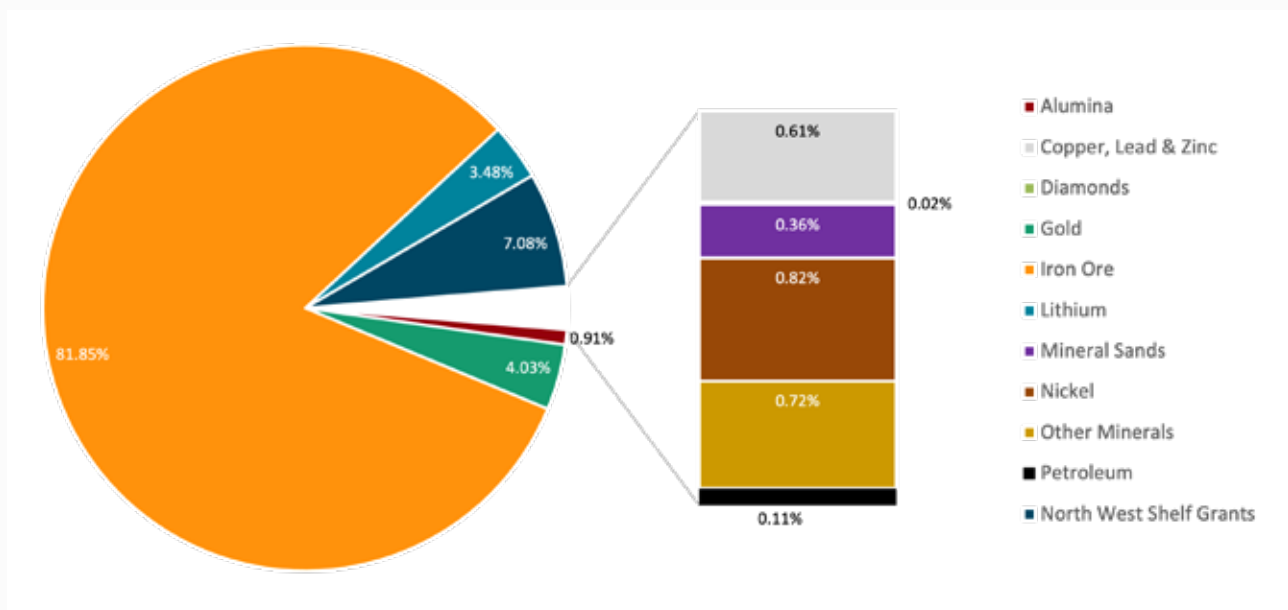
Source: Bankwest Curtin Economics Centre | Authors' calculations based on WA Budget 2026-27.



Iron ore remains the largest contributor to royalty revenue for the state, comprising over 80 per cent.

This is followed by the North West Shelf (7%), gold (4%) and lithium (3.5%) (Figure 13). While this has delivered substantial fiscal benefits during periods of strong prices and demand, it also creates significant revenue concentration risk for the state government. Changes in global iron ore prices, production volumes or demand from major trading partners – particularly Chinas – can have a material impact on royalty collections, making state revenues more exposed to commodity market cycles and economic conditions.

FIGURE 13
WA royalty revenue contribution by commodity



Note: Figures are based on five-year average.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on Economic indicators resources data Department of mines Petroleum and Exploration Gov WA.

THE BROADER FOOTPRINT OF THE RESOURCES SECTOR

This chapter has so far detailed the outsized economic contribution the resources sector makes to both the Western Australian and national economies. However, its influence extends well beyond output, employment and government revenue. It also shapes environmental outcomes, social and cultural dynamics, innovation and the performance of other industries across the economy.

The cyclical nature of mining activity and commodity prices can affect exchange rates and competitiveness of other trade-exposed sectors – a phenomenon referred to as “Dutch disease” – but exchange rate movements can also deliver benefits to businesses and households by lowering the cost of imported goods and services and supporting living standards

The sector has also been a major source of innovation, driving advances in automation, remote operations, data analytics, engineering and energy systems that have generated productivity gains within mining and created spillover benefits for other industries. Resource development also has important implications for environmental sustainability, regional communities and Aboriginal peoples as traditional owners of much of the land on which mining occurs.

These issues are complex and multifaceted, and while this section touches on some of the key considerations, they warrant far deeper examination than is possible within the scope of this report.

Macroeconomic impacts

The WA economy is exposed to commodity price cycles, with periods of strong commodity demand generating substantial increase in government revenue and economic activity. The benefits extend beyond the resources sector itself. Analysis of Australia’s mining boom found that disposable household income increased, and employment outcomes improved, while a stronger Australian dollar improved living standards through cheaper imports and greater purchasing power (Downes, Hanslow and Tulip 2014).

However, one consequence of mining booms and subsequent increases in mining investment is the appreciation of the Australian dollar. A stronger exchange rate can reduce the competitiveness of trade-exposed industries as they become comparatively more expensive. These effects are described as the “Dutch disease” after the Dutch

experience of declining manufacturing and agriculture after the discovery of the Groningen gas field in 1959.

Evidence from the Australian experience post the mining boom is more nuanced than the traditional Dutch disease story. While initial evidence shows that manufacturing output does fall in the years following the mining boom, it coincides with a long-term decline in the Australian manufacturing sector suggesting that the exchange rate fluctuation is not the sole contributor to its decline. For WA, the challenge is ensuring that the structural shifts that have been observed since the mining boom do not leave the economy more exposed when the next downturn arrives.

Environmental impacts

Mining is an essential part of the effort to decarbonise other sectors of the economy. Critical minerals sourced in Australia will help drive forward technological change in other sectors such as electric vehicles and renewable energy generation. However, mining itself is also a source of emissions and environmental harm.



Resource extraction can have significant environmental impacts: land disturbance, biodiversity loss, water consumption and emissions generation. WA has vast swaths of land under mining tenements - 65 million hectares in 2024-25, which is roughly two and a half times the size of the United Kingdom - of which active mining leases account for around 3.4 million hectares (DMPE, 2026). Despite concerns about the very large land area covered by mining tenements, the actual environmental footprint of mining activity is relatively small.

In 2024, nearly 188,000 hectares of land was classified as 'disturbed'³ by mining activity (Government of Western Australia, 2025a) representing less than 6 per cent of the land covered by active mining leases. Two major contributors to the disturbance include transport and service infrastructure accounting for 20 per cent and direct extraction activity - mining voids and waste dumps - accounting for a further 25 per cent. However, when mining occurs on areas of biodiversity or cultural significance the impacts can be severe (Roche & Mudd, 2014).

The environmental impacts of mining are therefore not simply a question of how much land is disturbed, but how those impacts are managed over the life of a project. Modern mining operations operate within increasingly stringent environmental approval frameworks covering biodiversity, water use, cultural and heritage protection and emissions management. Mining projects in Western Australia are now subject to a complex approvals' framework involving the Environmental Protection Act 1986, Mining Act 1976, Biodiversity Conservation Act 2016, Aboriginal Heritage Act 1972 and, where matters of national environmental significance are involved the Commonwealth Environment Protection and Biodiversity Act 1999.

Environmental governance continues to evolve. In 2024, Western Australia enacted the most significant reforms to its environmental approvals framework in a generation. The reforms introduced a new parallel approvals process designed to reduce duplication and improve the timeliness of environmental assessments while retaining environmental protections. The changes reflect an ongoing tension between facilitating investment while retaining strong environmental oversight, particularly as demand for critical minerals and other resources accelerates. At the same time investors, consumers and communities are placing greater emphasis on companies to demonstrate strong environmental performance to maintain a social licence to operate.

The lifespan of a mine does not end when extraction ceases. Decommissioning mines and rehabilitating land are a key part of the resources sector activity and are mandated under WA mining legislation. The Mining Rehabilitation Fund (MRF) levy was introduced in 2013 as a mechanism to make sure mining companies contributed to the cost of rehabilitation.

As of 2024, 44,000 hectares of land were classified as under rehabilitation (Government of Western Australia, 2025a), however there is some concern that the land area being disturbed by mining is growing more quickly than the area being rehabilitated. The scale of outstanding rehabilitation obligations represents billions of dollars across active and legacy sites, representing a significant though often overlooked part of the resources sector. The impact of decommissioning can be acute particularly for local communities as mining activity ceases and the spillovers into local economies also recede.

At the same time, technological change is helping to reduce the carbon footprint of mining through improved energy efficiency, electrification and renewable energy integration. Rio Tinto, for example, one of WA's largest mining companies has partnered with CATL, one of the world's largest battery manufacturers, with the intent of increasing the electrification of its mining operations and battery recycling initiatives. These developments suggest that the environmental impacts associated with mining can be reduced though not entirely eliminated.

This creates a fundamental tension at the heart of the resources sector. Mining is a source of land disturbance, biodiversity loss, water consumption and greenhouse gas emissions. Yet it is also essential to the technologies required for the global energy transition. WA is a major supplier of lithium and holds significant deposits of other minerals needed to support global decarbonisation efforts. The challenge for policymakers, communities and industry is therefore to ensure that the minerals needed for the energy transition are produced with the lowest possible environmental footprint while maintaining the economic benefits they generate.

Is the resources sector decarbonising?

While Australia's national greenhouse gas emissions have gradually declined since the mid-2000s, Western Australia's emissions profile has diverged from the national trend. Emissions in WA have remained broadly stable over time, reflecting the state's industrial structure and the continued expansion of emissions-intensive resource extraction and processing activities. Mining and energy-related industries have accounted for a growing share of the state's emissions footprint.

³ Disturbed land refers to areas that have been affected by any mining activities, typically this involves the removal of vegetation, topsoil or other materials which impact the environment or land use.

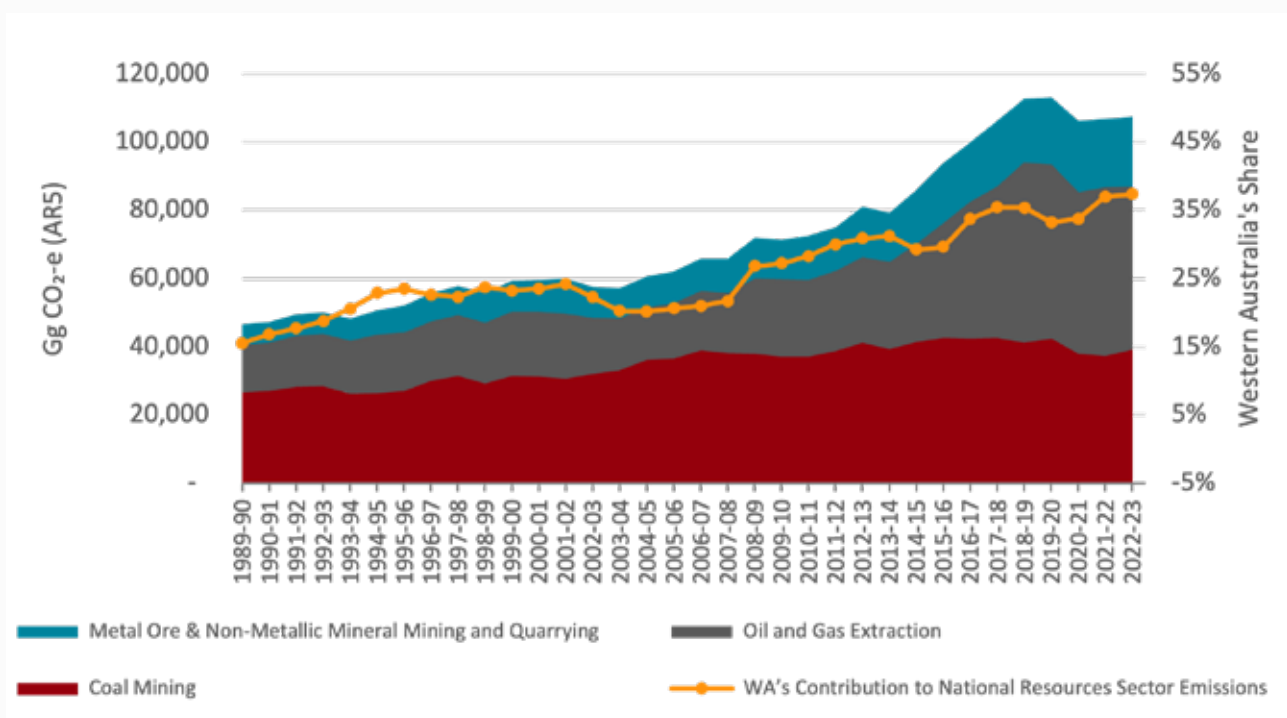


By 2023, Western Australia accounted for around 35 per cent of Australia’s annual greenhouse gas emissions despite representing a much smaller share of the national population - highlighting both the scale of industrial activity and the concentration of emissions-intensive production in the state.

Emissions growth has not been uniform across subsectors. Oil and gas extraction has emerged as the largest contributor to resource sector emissions growth, followed by coal mining. This reflects the energy requirements of extraction, processing and transport, as well as the expansion of LNG production over recent decades. Recent analysis also points to diesel consumption, electricity demand and fugitive emissions as key drivers of operational emissions growth across parts of the sector (DQ – Net Zero). Absolute emissions from WA’s resources sector have risen substantially over time and relative to 2005 levels – the baseline year used in Australia’s emissions reduction targets – emissions remain considerably higher, highlighting the scale of the decarbonisation challenge. This challenge is particularly acute in the LNG industry where emissions have grown more quickly than other resources sub-sectors and remain disproportionately large relative to its share of resources sector production (Figure 14).

FIGURE 14

Scope 1 national emissions of the resources sector and Western Australia's share, 1989-90 to 2022-23



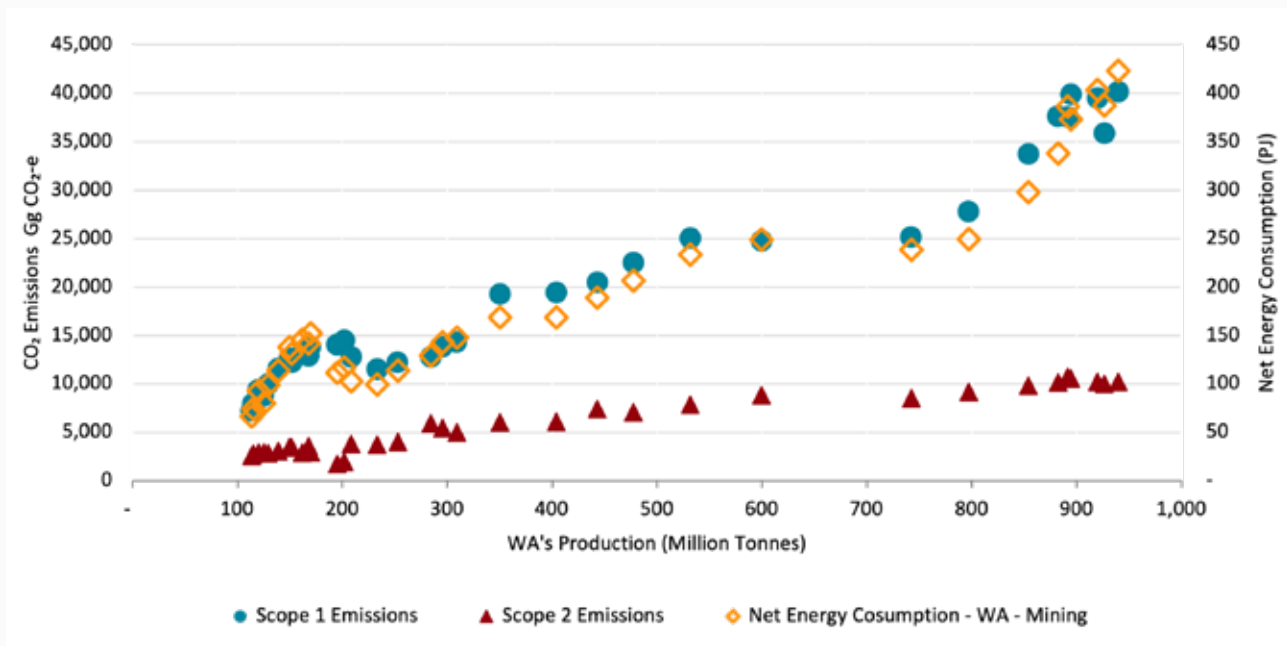
Source: Bankwest Curtin Economics Centre | Authors' calculations based on DCCEEW National Inventory by Economic Sector.

As WA resources production has increased, so too have net energy use and emissions. Notably, scope 1 emissions – direct emissions – have increased closely in line with net energy consumption (Figure 15). This shows that direct emissions and direct energy use are closely related in mining as operations are dominated by diesel and gas use. Scope 2 emissions represent

about a third of scope 1 and are increasing more slowly, reflecting the relatively limited role of grid energy in mining operations. This suggests that so far we are not seeing a significant decoupling of direct emissions from production which is concerning as scope 1 emissions are more difficult to address than scope 2 which can be reduced through electrification.

FIGURE 15

Energy consumption, CO₂ emissions and production



Note: WA's production includes LNG, Iron Ore, Gold, Zinc, Lead, Copper, Alumina and Bauxite, Nickel, Mineral Sands, Lithium, Platinum Group Elements, Cobalt, Diamonds, Salt, Coal, Silver.

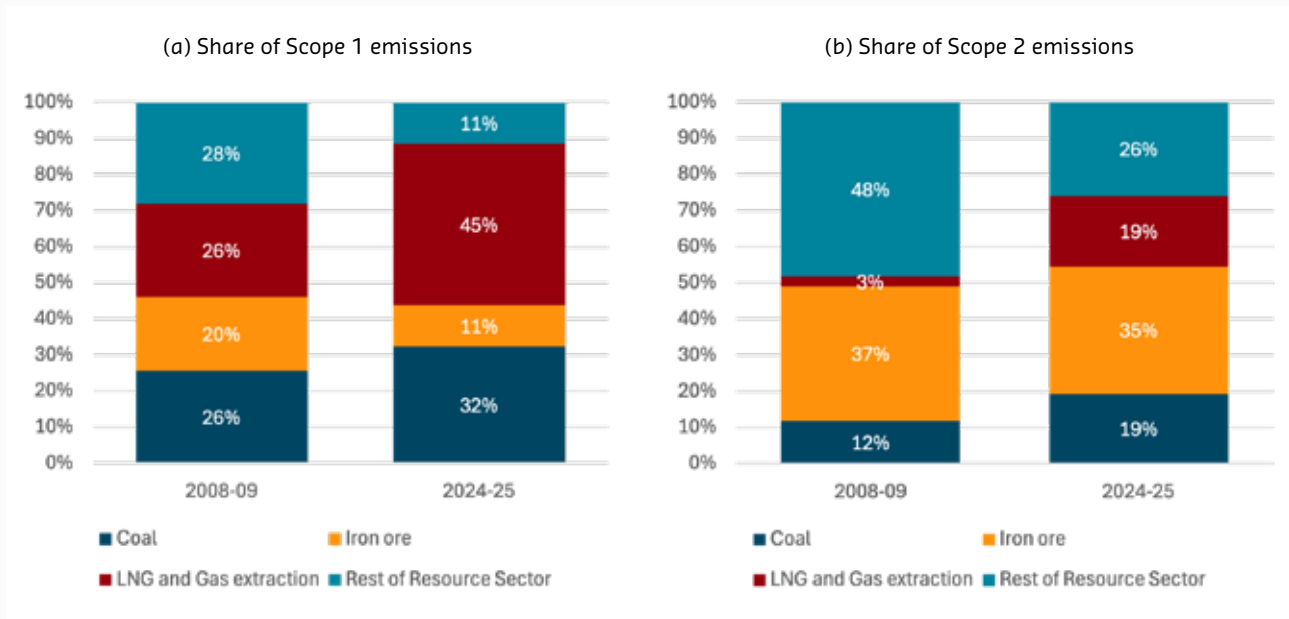
Source: Bankwest Curtin Economics Centre | Authors' calculations based on DCCEEW, National Inventory by Economic Sector: data tables and methodology 2023 and Australian Energy Statistics. DMPE, Government of Western Australia, 2025 Major Commodities Resource Data File.



The resources sector is a collection of quite different activities which all have different emissions profiles and require different approaches to decarbonise. In 2024-25, LNG and gas extraction make up 45 per cent of all scope 1 emissions up from 26 per cent in 2008-09 (Figure 16). Scope 1 emissions are more challenging to abate and will require use of offsets and carbon capture and storage. Scope 2 emissions are predominantly made up of iron and coal, 35 and 19 per cent respectively. Scope two emissions are relatively more straightforward to decarbonise through an increase of renewable energy production. However, considering production-side emissions alone provides an incomplete picture of the sector’s role in the transition. Australia’s resource sector

also supplies commodities that enable emissions reduction globally. Treasury modelling suggests the composition of Australian exports is expected to shift over time away from hydrocarbon energy commodities and toward minerals and processed materials that support global decarbonisation. Under Treasury’s Renewable Exports Upside Scenario, Australian exports of green iron, ammonia and lithium could contribute an estimated 466 Mt of global emissions abatement in 2050 by displacing more emissions-intensive production overseas - an amount greater than Australia’s total net emissions today (Australia’s Net Zero Transformation: Treasury Modelling and Analysis, p.24, Box 3.11).

FIGURE 16
 NGER-Registered resource companies in Australia, 2008-09 and 2024-25



Note: Rest of Resource Sector: Alumina, Copper, Gold, Lithium, Magnesia, Manganese, Mineral sands, Nickel, Cobalt, Oil, Rare earth elements, Silver, Zinc, Lead, Industrial minerals.

Source: Bankwest Curtin Economics Centre | Authors’ calculations based on Clean Energy Regulator. Australian Government Corporate emissions and energy data.

How much does the resources sector contribute to Innovation?

Beyond the traditional measures of economic value, the resources sector also influences innovation. Innovation is difficult to measure - there are values which capture innovation inputs such as research and development (R&D) spending and innovation outcomes such as patents and new technologies. Business surveys also look to capture innovative activity through collecting information that can include the introduction of a new or significantly improved good or service, operational process, managerial or marketing method⁴.



Mining is a large contributor to Business R&D spending which is a significant input into innovation.

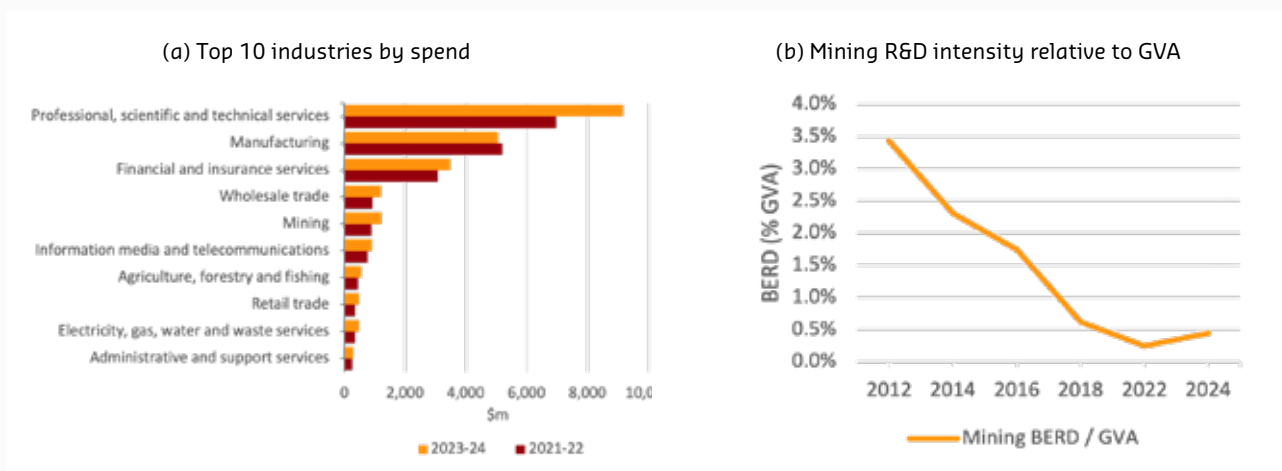
However, since 2012 the mining sector has invested less on R&D as a proportion of its economic activity – falling from 3.44 per cent in 2012 to 0.44 per cent in 2024 (Figure 17). This fall coincides with the end of the mining construction boom, suggesting that mining R&D and in turn innovation spillovers from the sector may be cyclical in nature.

Research from (IP Australia, 2019) notes that both R&D expenditure and patent activity has fallen since the mining boom, indicating a close relationship between the commodity market and innovation investment. The analysis found that the strongest areas of mining innovation were mining operation, automation, exploration technologies and metal processing. The analysis also found there are strong links between universities and public research organisations, notably CSIRO.

Mining has innovations synergies and spillovers with chemical, physical and advanced technologies sectors. The avenues through which mining influences innovation in other sectors ranges from knowledge creation, technology diffusion, operational adaptability and energy transition. Innovation spillovers can be framed through the Triple Helix model of innovation which emphasises interactions between industry, universities and government (Leydesdorff and Etzkowitz, 1998).

FIGURE 17

Business expenditure on R&D



Source: Bankwest Curtin Economics Centre | Authors' calculations based on Research and Experimental Development, Businesses, Australia, 2023-24 financial year | Australian Bureau of Statistics.

⁴ See for example the ABS Innovation in Australian Business survey.

Case Studies: Resources sector innovation spillovers

This section introduces three examples of innovation in Western Australia's resources sector and illustrates where interactions between government, industry and universities generate new knowledge, reapplications of technology and commercialisation. In WA, the resources sector is formally embedded in research partnerships particularly in chemicals and engineering departments but also informally through the agglomeration of expertise in the state. Together the case studies show how innovation generated within the resources sector can spillover into new technologies and revenue generation.

Victory Metals

Victory Metals is an exploration company with a focus on extraction of rare earths in Cue, Western Australia. The company worked with experts at Curtin University to solve a technical challenge – to extract more concentrated rare earths through the use of new flotation technology (Uhlman 2026). University experts specialised in metallurgy and chemicals were able to translate research and expertise into a commercial project.

Nimy Resources

Nimy Resources is a Western Australian nickel mining company that discovered gallium in 2025. Gallium is valuable material used to produce semiconductors as well as other advanced technologies (Hadrian 2025). Nimy used its mining expertise and discovery and worked with Curtin University experts in chemistry and metallurgy to investigate scalable extraction techniques. This was made possible in WA due to a cluster of expertise in chemistry and mining and cross-disciplinary spillovers. The outcome of the collaboration is not only a commercially valuable export but, also the creation of downstream opportunities in advanced manufacturing and semiconductor supply chains.

CSIRO Gold Extraction

Gold is one of the key resources in Western Australia, and one which will remain relevant for the foreseeable future. The process of gold extraction is dependent on the use of cyanide to separate the gold from the ore, a process that carries substantial environmental and health risks. Researchers at the government agency CSIRO have developed a way to extract gold with less cyanide (Schafferius, 2025). This is an example of government backed research linked with university research that has led to a scalable new technology for use in the resources industry.

Collectively, these examples demonstrate that innovation in the resources sector can extend beyond mining to support new industry activity that can lead to further growth and opportunities in environmental, advanced manufacturing and other industry applications.

⁵ Following the High Court ruling in *Commonwealth of Australia v Yarmirr* [2001] HCA 56; (2001) 208 CLR 1 Native Title has also been recognised over areas of sea, but this provides Traditional Owners only a right to take resources, such as fishing.

The resources sector and WA's Aboriginal and Torres Strait Islander peoples

Jason Hunter, Nyikina and Nyul-Nyul man from the West Kimberley, and Team Leader for Indigenous Student Engagement and Success at the University of Notre Dame Australia.

Mike Dockery, Principal Research Fellow, BCEC.

The interface between the resources sector and the First Nations people of Western Australia is a complex and important area, and one that could not be adequately addressed within the scope of this report.

We acknowledge that Aboriginal peoples were the original inhabitants and owners of the land that now makes up the state of Western Australia, from Wardandi country on the south-west capes, through Mardu and Ngaanyatjarra lands of the central desert, to Miwa country in the far north.

Around 85 per cent of the WA land mass is subject to Native Title in the form of determined or registered claims. No lands were ever ceded. Almost all onshore⁵ exploration and mining activities therefore take place on traditional Aboriginal lands, and often with significant impacts.

The extensive economic benefits the resources sector generates for this state, as detailed in this report, similarly flow to Indigenous West Australians to some degree. However, their unique position as traditional custodians of the land makes that equation far more complex than for the general population.

In many cases Aboriginal peoples in WA have been able to derive benefits in the forms of royalty or compensation payments, employment and training opportunities, local economic development, and community infrastructure and services. At the same time they also suffer greater spiritual loss from the violation of their rights to control access to their lands and from damage to their lands. This was very publicly demonstrated with Rio Tinto's 2020 destruction of ancient rock shelters at the Juukan Gorge, carried out with ministerial consent under the Aboriginal Heritage Act 1972, and which stands as just one high-profile case of substantial ongoing desecration of culturally significant sites.⁶

Numerous critical issues in the relationship between the WA resources sector and Indigenous Australians remain highly contested. These include:

- The appropriate level of control Indigenous Australians should have over their traditional lands and the extent to which this is provided by the legal framework under existing Native Title legislation.

- Whether a fair share of benefits flow to Traditional Owners from resource developments on their land.
- What constitutes best practice in agreement making between resource interests and Traditional Owners, and how can benefits best be managed to balance current and future needs?

It should be acknowledged that the existing Native Title framework provides Traditional Owners with only a limited right to negotiate in relation to proposed activities on their lands (see, for example, Prout Quicke, Dockery, and Hoath, 2017). In the legal and bargaining processes, the Indigenous representative bodies are often at a significant disadvantage when engaging with mining companies with substantial resources (O'Faircheallaigh, 2016).

A considerable literature explores these issues and highlights the often limited benefits that Indigenous communities have been able to leverage from the extractive industries (see, for example, works by Marcia Langton and Ciaran O'Faircheallaigh).

These issues must be considered in the context of the history of policies of genocide, racism, and discrimination that contribute to the ongoing trauma, disadvantage, and disempowerment of Indigenous peoples of this state. Dispossession did not end with colonisation. Mining companies' establishment of closed company towns in the Pilbara in the 1960s and 1970s, in cooperation with the state, and from which Aboriginal peoples were excluded, such as Tom Price, Pannawonica, and Newman, is a stark reminder of that (Holcombe, 2005).

Indigenous leaders and many scholars argue that aspects of the current Native Title and agreement making framework reproduce forms of dispossession through limiting Indigenous control over land-use and the gap between what is promised through Native Title and agreement making and what communities actually experience (Bauman, Strelein, & Weir, 2013; Howlett & Lawrence, 2019; O'Faircheallaigh, 2016; Prout Quicke, Dockery, & Hoath, 2017).

As Western Australia's resource sector continues to evolve in response to decarbonisation, technological change, and shifting global demand, there is an opportunity to reshape the relationship with Traditional Owners through stronger partnerships, more equitable benefit sharing, and greater recognition of Indigenous rights, aspirations for self-determination, and stewardship of country.

These issues cannot be adequately canvassed without deep engagement with Indigenous persons and in collaboration with Indigenous researchers.

⁶ Australians for Native Title and Reconciliation (ANTAR, 2025).

SPOTLIGHT: IRON ORE

Iron ore is one of Australia’s most important commodities and the backbone of the WA economy. Iron ore is mainly used in steel production, which is essential for construction, infrastructure, transport and manufacturing industries.

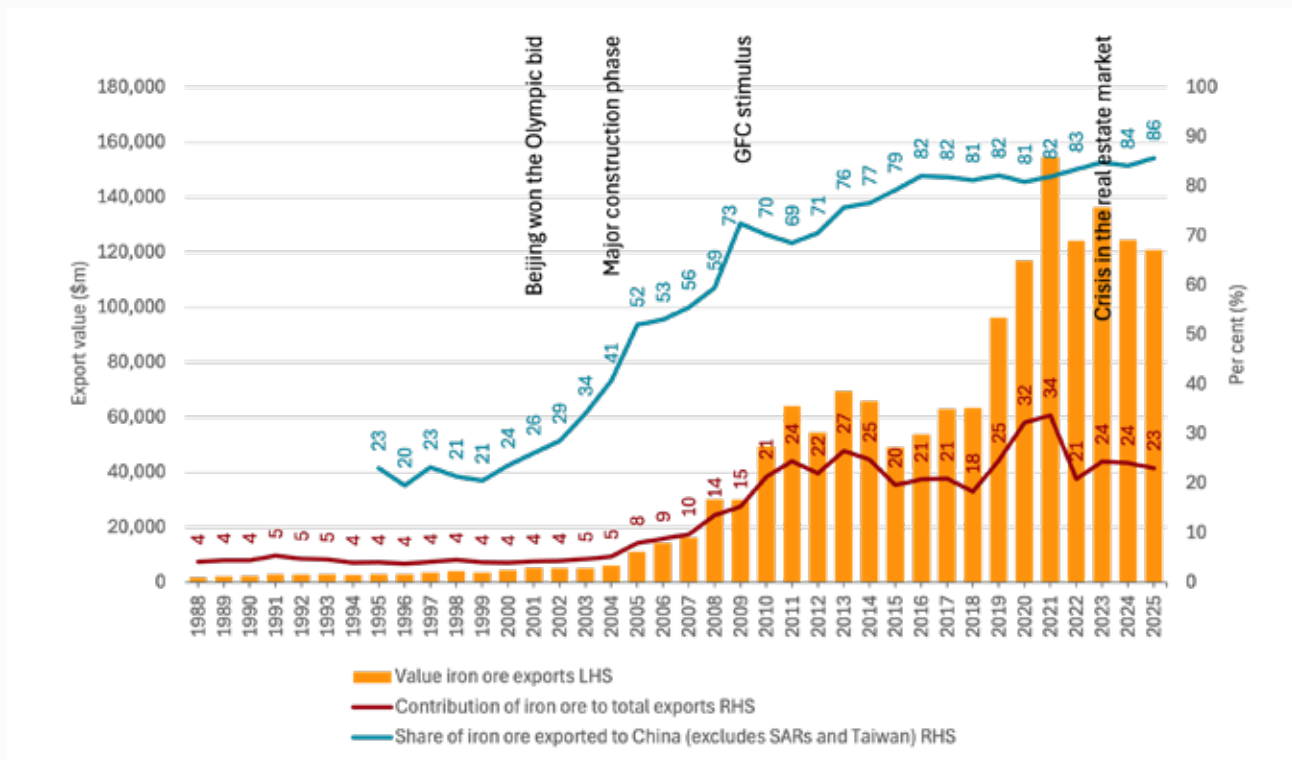


Around 98.8 per cent of the nation’s iron ore is produced in WA, where large reserves have supported the development of the state’s largest industry.

The industry expanded rapidly from the 2000s as China industrialised and became the world’s largest steel producer, which drove a sharp increase in the demand for Australian iron ore. As a result, iron ore became the nation’s largest export commodity, representing 20 per cent of total exports (Figure 18), making Australia the world’s largest supplier of iron ore. However, the transition towards very low-carbon or ‘green’ steel production may create future challenges for the sector. Current lower-carbon iron production pathways require high grade iron feedstocks. Based on available data, just an estimated 2.4 per cent of Australia’s iron ore production meets the DR-grade threshold required for green steel production. Ensuring WA’s continuing place as the dominant supplier of iron ore will require the development and commercialisation of green iron pathways using medium and lower-grade iron ores. The sector is engaging closely with customers, suppliers, universities, research bodies and Governments to explore this opportunity.

FIGURE 18

Iron ore exports: value, contribution to total exports, and share exported to China, 1988 to 2025



Note: Export values are reported in current prices.

Source: Bankwest Curtin Economics Centre | Authors’ calculations from ABS 6457 International Trade Price Indexes, Australia (1,3,7,9,12) and ABS Data Explorer.

Australia's iron ore industry was not always as important as it is today. Large-scale expansion began following the discovery of vast deposits in the Hamersley Range during the 1950s by mining magnate Lang Hancock, who played a significant role in the early development of the industry and in advocating for the removal of the embargo on iron ore exports (Davies, 2021). The embargo was effectively lifted in December 1960, allowing the industry to expand rapidly (Figure 18). However, the real turning point came during the 2000s as China's construction and infrastructure boom drove a massive increase in steel demand and consequently demand for Australian iron ore (Kearns and Lowe, 2011).

Demand increased even further in the lead up to the 2008 Beijing Olympics as China accelerated construction and infrastructure activity. When the global financial crisis hit in 2008, China responded with a large stimulus package that kept steel production and infrastructure running, increasing the demand for Australian iron ore even more (Kearns and

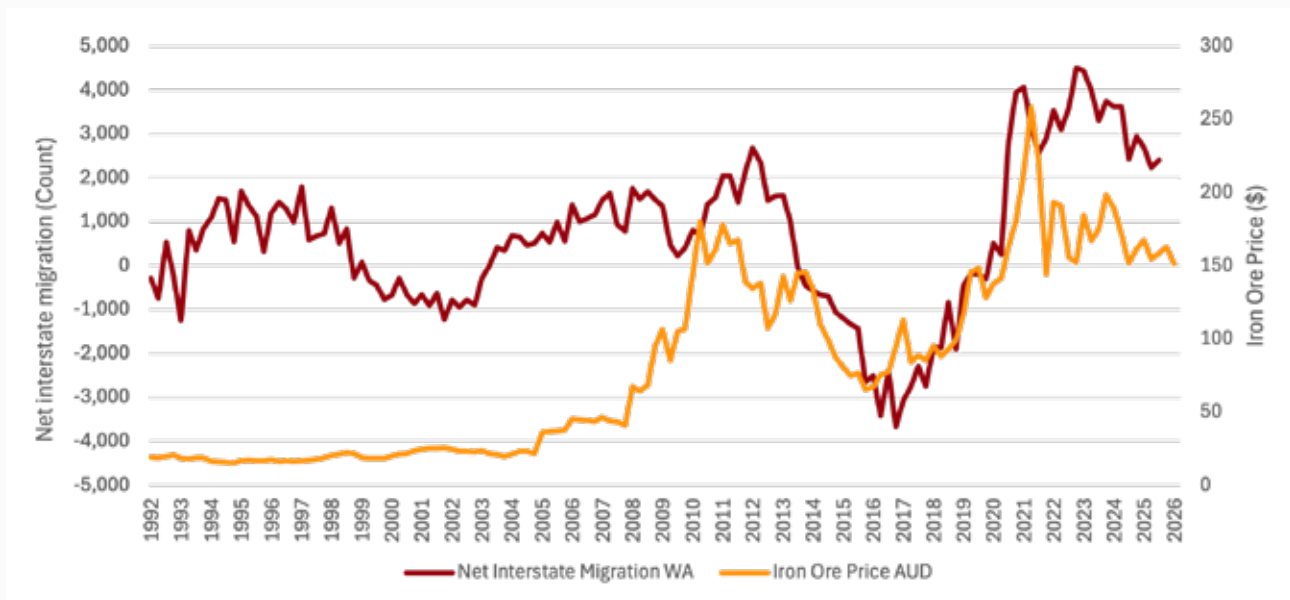
Lowe, 2011). As a result, Australia avoided a severe recession.

Given the scale of the industry, the iron ore sector quickly reshaped the WA and Australian economy, with the impact of the sector reaching beyond mining. Since the 2000s, net interstate migration has tracked movements in the iron ore price with remarkable fidelity, rising during periods of elevated commodity prices and vice versa (Figure 19). The sector also generates substantial royalty and tax revenues for the state and federal government, making iron ore a major contributor to government revenue, and a significant swing variable that can mean the difference between budget surpluses and deficits.

In 2024-25, iron ore mining in Western Australia was valued at \$126bn (DMPE, 2025), generated \$8.6bn in royalties for the state (WATC, 2025), and by our estimation contributed around \$21.1 billion in federal company tax revenue in 2023-24⁷.

FIGURE 19

Iron ore price and interstate migration



Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS3101_02, RBA table 11, Fred PIORECRUSD.M.

⁷ Estimates are based on authors calculations from Australian Taxation Office (2025) data.

Extending this further to capture both direct and indirect impacts of the sector and its connection to other industries and household consumption, our analysis shows that iron ore mining in Western Australia generated around \$102.bn in economic activity across Australia in 2023⁸. The sector itself directly employs around 31,000 FTE employees in WA (DMPE, 2026) but when spillovers into supply chains and household consumption are taken into account, we estimate that this direct employment drives an extra 56,000 full-time equivalent jobs outside WA.

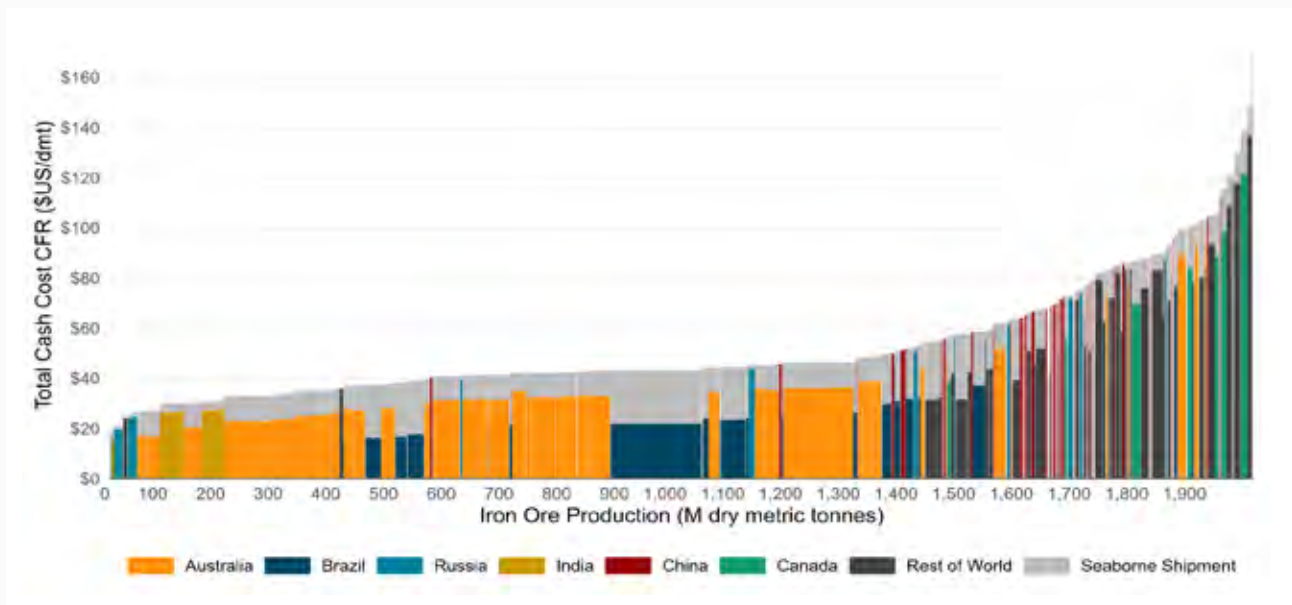


The industry success has also created a high level of dependence on Chinese demand. China remains Australia's largest iron ore buyer, receiving around 80 per cent of the ore exports. The concentration of exports towards a single market leaves Australia very exposed (Figure 53), particularly as alternative buyers such as Japan and South Korea account for only a marginal share of exports, 5.4 per cent and 5.2 per cent respectively (Table 7).

On the supply side, Australia remains one of the world's most competitive iron ore producers, accounting for around 37 per cent of global supply (Geoscience Australia, 2023). Australia's strong position is supported not only by the scale of production, but also by its relatively low operating costs (Figure 20). Brazil's cost profile for iron ore is also competitive, however seaborne shipment costs are higher given the distance of Brazil to China, while China's domestic iron ore production is significantly more expensive even without substantial transport costs.

FIGURE 20

Cost curve for iron ore



Note: Coloured bars represent FOB cost. Cost and production estimates reflect selected individual mines tracked by S&P Global and do not represent total global output. This dataset covers the seaborne iron ore market only and does not capture the full universe of global producers. Therefore actual industry costs and production shares may differ from those shown.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on S&P Capital IQ mine Economics Market intelligence, 2025 Iron Ore Production Ranked on Total Cash Cost.

⁸ Estimates derived using AusRIO – see Box 1 (page 25) and Technical Notes for further detail.

However, a substantial transition towards green steel production could change the competitiveness of Australia in the iron ore market. Steelmakers moving away from coal are expected to seek high grade iron content ore, to be used in hydrogen base furnaces. This may create challenges for Australia; based on available data, an estimated 2.4 per cent of current production is classified as high-grade ore (Figure 21). Australia's remaining supply may require additional processing to meet future green steel requirements. Once these extra operating and capital costs are included, some lower-grade Australian mines could become much less competitive (IEEFA, 2023).

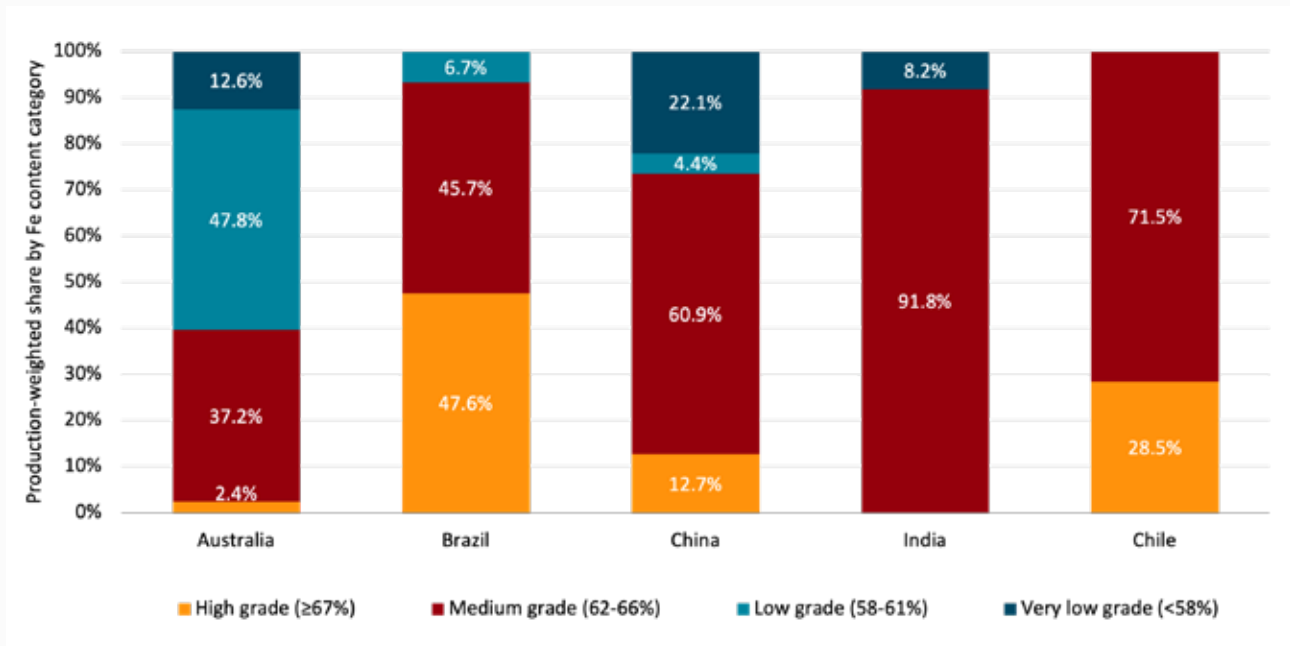
Another emerging challenge is Guinea's Simandou project, which is expected to become a major supplier of high-grade iron ore. At full production, Simandou

is expected to supply around 120 million tonnes annually (Australian Financial Review, 2025) - around 12 per cent of Australia's 2025 production. However, views differ on the extent to which this will directly impact WA, as Simandou's higher-grade deposit may primarily compete with Brazilian ore rather than WA's medium-grade iron ore.

Despite possible long-term challenges, Australia is likely to remain one of the world's largest iron ore exporters, supported by its reserves of approximately 12,330 and an estimated reserve life of around 33 years⁹ (Geoscience Australia, 2025a), in addition to industry specialisation and further straightening advantages such as scale production and low costs. However, global forces will change the structure of the sector over the coming decades.

FIGURE 21

Iron ore grade profile: production-weighted share by iron content category



Note: Cost and production estimates reflect selected individual mines tracked by S&P Global and do not represent total global output. This dataset covers the seaborne iron ore market only and does not capture the full universe of global producers. Therefore actual industry costs and production shares may differ from those shown.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on S&P Capital IQ mine Economics Market intelligence, 2025 Lithium Production Ranked on Total Cash Cost.

⁹ Based on operating mines in 2024. However, reserve life estimates can change as ongoing exploration, and resource conservation can alter forecasts. (Resource Life 1 = Measured and Indicated Mineral Resources ÷ Production).

SPOTLIGHT: LNG

Liquefied natural gas (LNG) has grown into a major industry for the Western Australian and Australian economies and has evolved to become one of the country’s key export sectors over the past two decades. LNG is natural gas cooled into a liquid form in LNG trains so it can be transported overseas. Once it is deliquefied, it is used mainly for electricity generation, industrial use and heating.



Australia is currently the world’s second largest LNG exporter, accounting for around 18.6 per cent of global LNG trade in 2024, following the US (22 per cent) and slightly ahead of Qatar (18.4 per cent). Most Australian LNG exports are sent to trading partners in Asia including China, South Korea and Japan. Western Australia remains the largest LNG producing state with 59 per cent of Australian LNG produced in the state. LNG production has become

more broadly distributed across Australia, with Northern Territory commencing production in 2006 and Queensland in the late 2010s (Figure 54).

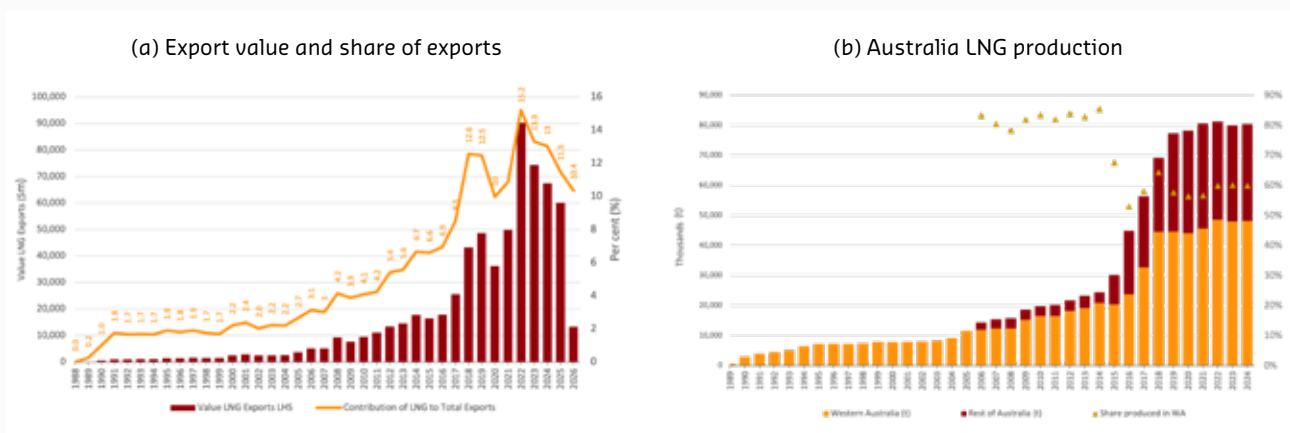
While Australia is currently a major LNG producer, the longer-term outlook for LNG exports is uncertain. On the one hand, concerns about energy security and the role of gas in supporting emissions reductions in power generation and industry continue to underpin demand in many regions, particularly across Asia (Business Standard, 2026, Wang et al., 2025). On the other hand, the net zero transition, falling renewable costs and increasingly stringent climate policies are expected to constrain demand over time.

In Australia, LNG production is expected to remain significant through the 2030s, but growth is likely to moderate as existing fields mature, long-term contracts begin to expire and competition from lower-cost producers intensifies.

While opportunities for large greenfield developments have become more limited, brownfield expansions and backfill projects remain commercially attractive, with Browse representing the most significant examples.

Despite the uncertainty around future demand and production, most major energy outlooks including the International Energy Agency, continue to project an important role for natural gas in the global energy system for decades to come (IEA, 2025a).

FIGURE 22
LNG Exports and Australia Production, annual average



Note: LNG is part of the Confidential Commodities List (CCL), all statistic has been subject to confidentiality restrictions and therefore may not represent the true aggregate value. Export values are reported in current prices.

Source: Bankwest Curtin Economics Centre | Authors’ calculations based on ABS data explorer and Department of Mines, Petroleum and Exploration - Major commodities data file.

LNG production has expanded significantly to support growing global demand. From 2006, more projects outside WA started to develop, and in 2016 the introduction of Queensland's Gladstone project, combined with increased production in WA, helped increase Australia's LNG production to around 80 million tonnes in 2021, with WA producing around 60 per cent of the nation's total output. This increase in production was largely supported by Asia which accounted for about 64 per cent of trade global LNG demand in 2025.

Although Australia remains one of the main LNG suppliers to Japan, China and South Korea (Figure 55), demand for Australian LNG from these markets is becoming less certain. For instance, China, which accounts for around 33 per cent of Australia's LNG exports, has made an effort in recent years to diversify its imports by signing long-term, large volume contracts with Qatar, the US, as well as smaller contracts with Russia (IEEFA, 2025) (Bouso, 2026). This also reflects a broader shift in the LNG market, with much of the new global capital investment moving towards the US and the Middle East rather than Australia (Figure 56).

There are a number of drivers changing market dynamics for Australian LNG. Australia is now one of the highest-cost LNG producers among major exporters (Figure 23), with total levelised costs around two to three times higher than Qatar's. Specifically, Australia's costs are estimated at US\$10.28/MMBtu compared with Qatar's US\$3.29/MMBtu on a full capital recovery basis—a figure that falls further when revenues from associated liquids production are credited to Qatar. Furthermore, Qatar benefits from massive, low-cost facilities and economies of scale. The US also maintains a cost advantage at US\$7.21/MMBtu, expanding production rapidly through access to cheap Henry Hub feedstock and established construction efficiencies.

Australia's higher costs reflect the nature of its projects: offshore extraction, remote locations, and complex deepwater infrastructure. This cost gap is largely driven by fixed costs, whereas Australia's variable costs remain broadly in line with other major exporters. This distinction is vital; while variable costs are the primary measure of competitiveness in contract renegotiations—as fixed costs are already committed—it is a different story for greenfield and brownfield investments, which remain significantly more expensive than those of our competitors.

Ultimately, as WA's long-term contracts roll over throughout the 2030s, Australian producers will increasingly compete against lower-cost US and Qatari supply in an oversupplied market. In this environment, variable cost competitiveness alone may be insufficient to retain market share without concessions on contract slope or volume.

Second, Australia's LNG sector has become relatively mature, with most existing projects operating close to their designed export capacity (EnergyQuest, 2026). The industry appears to have reached some of its geographic limits, as many of the more commercially attractive projects were already developed during the peak of the LNG investment boom in the 2010s and early 2020s. In addition, relatively few low-cost greenfield opportunities remain available (Australasian Centre for Corporate Responsibility, 2023).

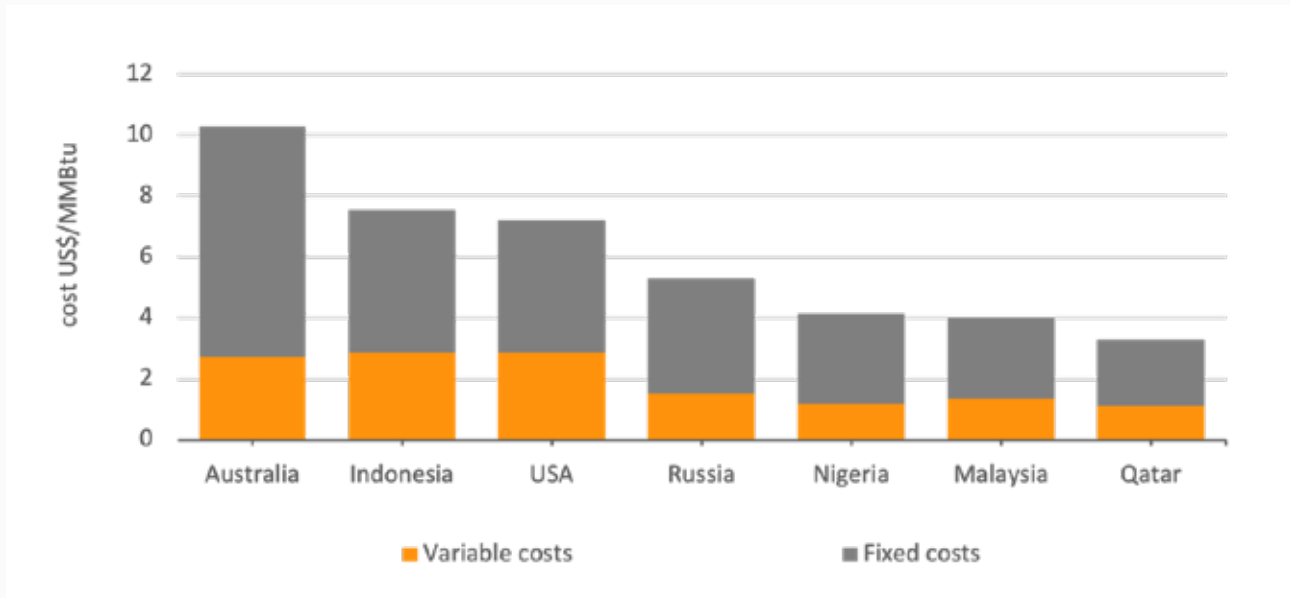
At the same time, Australia's existing long-term LNG contracts are expected to expire around 2033 (DISR, 2024b). Even though some of these contracts may be extended, this does not necessarily mean export volumes will remain at current levels. According to Future Gas Strategy Analytical Report (2024b), Australia's LNG export volumes are forecast to fall to around 20 million tonnes by 2040, which is only around a quarter of what is exported today. If prices are not taken into account, lower export values could reduce royalties and wider economic benefits generated by the industry.



Australia's LNG industry is entering a different phase of development. Rather than building entirely new projects, future investment is likely to focus on extending the life of existing facilities and supplying new gas to existing processing infrastructure.

FIGURE 23

Production cost curve of select LNG exporters



Note: Full lifecycle costs including upstream production and liquefaction cost. Variable costs represent the priced-in short run marginal cost of production.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on Department of Industry, Science and Resources, Commonwealth of Australia, Future Gas Strategy Analytical Report.

Australia's LNG industry is entering a different phase of development. Rather than building entirely new projects, future investment is likely to focus on extending the life of existing facilities and supplying new gas to existing processing infrastructure. A key example is the proposed Browse development, which is intended to supply gas to the North West Shelf LNG facilities (Woodside n.d.) at Karratha as existing fields mature.



If approved and commercially viable, Browse could help sustain utilisation of the North West Shelf infrastructure for decades, although its development remains dependent on project economics, environmental approvals and government policy settings.

Although Australia is likely to remain one of the world's largest LNG exporters for decades, the sector is expected to enter a more mature phase of development. The rapid expansion that characterised the LNG investment boom of the 2000s and 2010s is unlikely to be repeated as producers face increasing competition from lower-cost producers, maturing gas fields and the challenge of securing commercially viable replacement gas supplies. The expiry of long-term LNG contracts during the 2030s may also expose producers to greater competitive pressures. While LNG is expected to remain an important export industry, future growth is likely to be slower and more dependent on existing projects and developing backfill resources than constructing entirely new export facilities.

SPOTLIGHT: LITHIUM



Lithium mining has been part of Western Australia's resources sector for decades, but the global shift towards electrification and lower-emissions energy systems has dramatically increased its economic significance. Lithium is a critical input into rechargeable batteries, electric vehicles, consumer electronics and grid-scale energy storage, driving strong demand over the past decade. However, lithium remains a relatively young market, with prices often experiencing large swings (Export Finance Australia 2025) in response to changes in supply and demand, creating uncertainty for producers and investors.

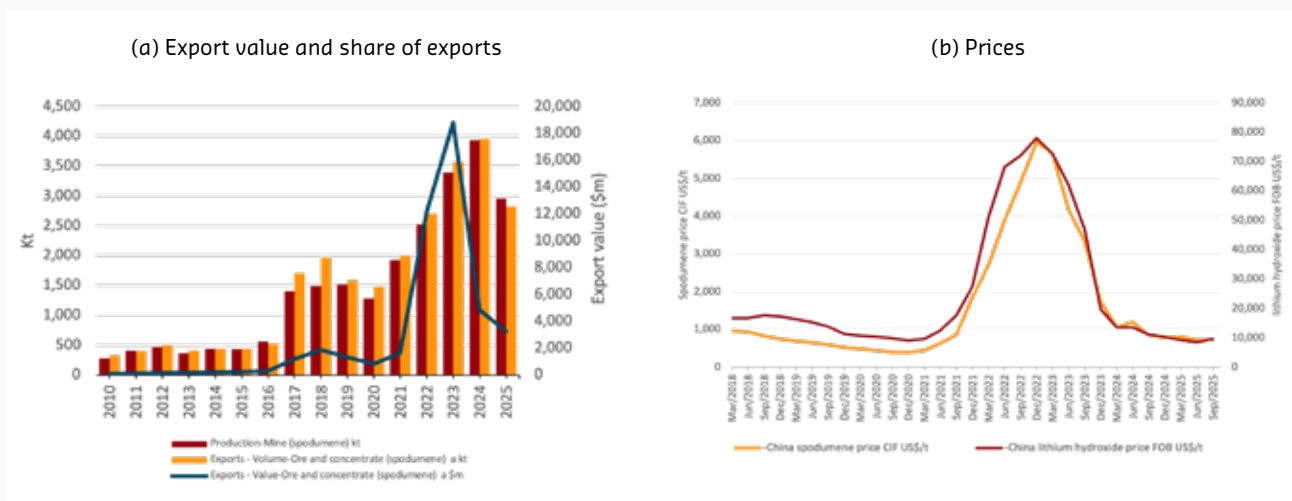
Australia is well positioned to benefit from this growth, holding the world's second largest lithium reserves, the majority of which are in WA. The state has become one of the world's largest producers of lithium spodumene

concentrate, using WA's hard rock deposits. However, most Australian production is exported for further processing overseas – particularly to China – where higher value activities including chemical refining and battery manufacturing are concentrated. Similar to many of Australia's mineral exports, the country benefits from lithium mining through exports, employment and royalties, but still misses out on the extra value that comes from downstream activities.

WA's lithium industry has become increasingly important to the state and national economy. Lithium has been produced at Greenbushes in the South West since the early 1980s, but the industry grew significantly after 2017 as global demand for rechargeable batteries and electric vehicles increased (Figure 24). Several WA mines restarted, expanded or began production, helping WA become a major supplier of spodumene concentrate to the global market.

This growth was driven by rising EV demand. At the time, governments around the world were encouraging EV adoption through subsidies, emissions targets, and other regulations that forced carmakers to increase EV production (IEA, 2025a). For instance, China created the New Energy Vehicle (NEV) Credits system, and Germany introduced an EV purchase subsidy (IEA, 2023). All of this ramped up the demand for lithium.

FIGURE 24
Lithium (Spodumene) production, export and prices



Note: Data for the most recent period is preliminary. Export values are reported in current prices.

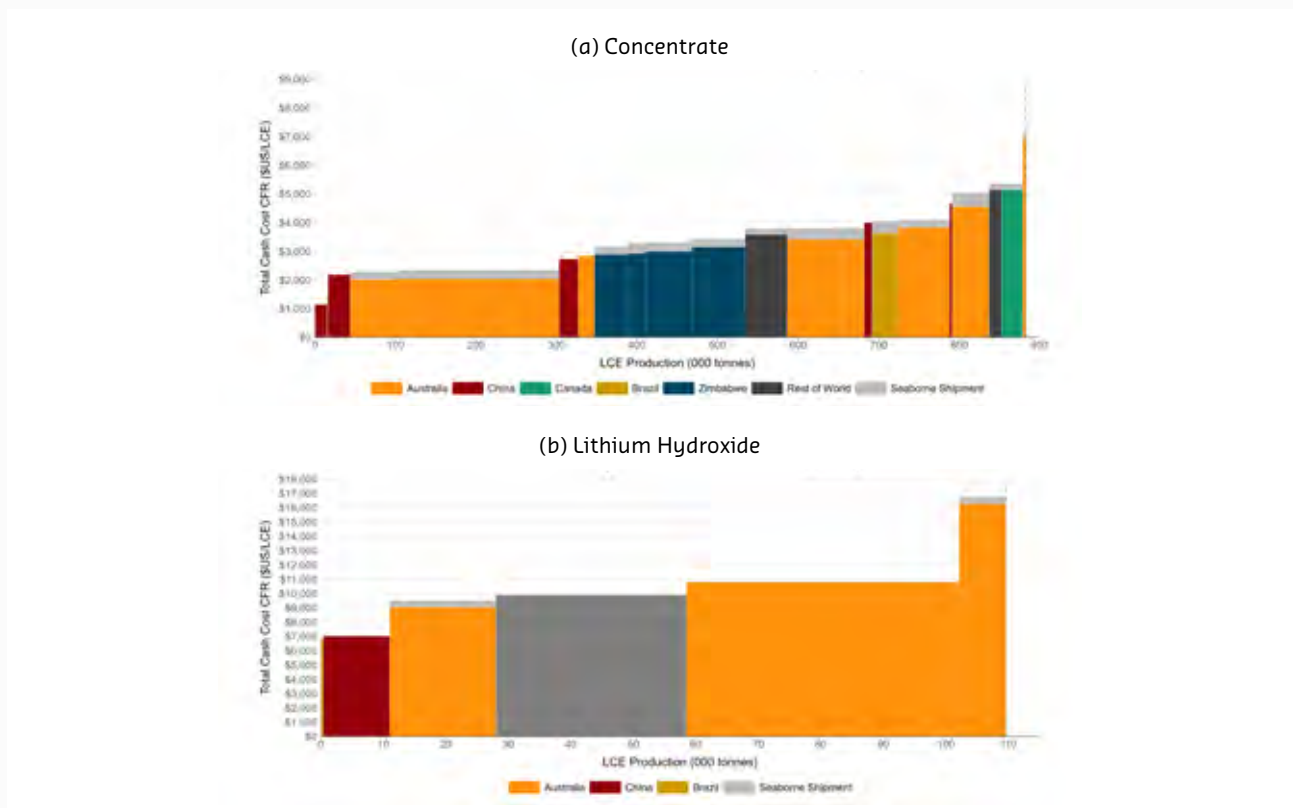
Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS, International Trade in Goods and Services, Australia, cat. no. 5368.0; Company reports; Department of Industry, Science, and Resources; International Trade Centre, International Trade Statistics 2001-2021.

After weak prices in 2020, lithium prices rose sharply during 2021 and 2022 (Figure 24). Lithium hydroxide quarterly average prices rose from US\$15,000/t in 2021 to US\$80,000/t in 2022, while spodumene prices increased from US\$1,000/t to US\$6,000/t. These high prices made lithium mining highly profitable and encouraged companies to expand production. For example, Pilbara Minerals moved to increase Pilgangoora’s capacity by 47 per cent, aiming for 1 million tonnes of spodumene concentrate per year in 2025 (Pilbara Minerals Ltd, n.d.). Total WA lithium production also rose strongly, increasing by 167 per cent from 2020 to 2024. Around the world, lithium producers also took advantage of higher prices, with global lithium supply rising from 35,000 tonnes in 2013 to 180,000 tonnes in 2023, and WA contributing 49 per cent of this increase (WATC, 2024).

However, the lithium boom slowed sharply in 2024 as electric vehicle growth fell short of expectations (The Australian, 2025). Reduced subsidies in parts of Europe, stronger demand for hybrid vehicles, and new lithium supply all contributed to global oversupply (Onstad, 2024), causing lithium hydroxide prices to fall by around 80 per cent and spodumene prices by around 90 per cent from their peaks (Figure 24). The price decline forced parts of WA’s lithium industry to adjust, with some higher cost mines entering care and maintenance and around 300 jobs affected (Reuters, 2024b). However, WA’s relatively low cost spodumene producers remain well placed compared with many international competitors (Figure 25). The downturn has been more challenging for downstream processing, where several lithium hydroxide refineries were still ramping up production, faced high fixed costs and encountered operational difficulties leaving them particularly exposed to lower lithium prices.

FIGURE 25

Lithium cost curve by product type



Note: Coloured bars represent FOB cost. Cost and production estimates reflect selected individual mines tracked by S&P Global and do not represent total global output. This dataset covers the seaborne iron ore market only and does not capture the full universe of global producers. Therefore actual industry costs and production shares may differ from those shown.

Source: Bankwest Curtin Economics Centre | Authors’ calculations based on S&P Capital IQ mine Economics Market intelligence, 2025 Lithium Production Ranked on Total Cash Cost.

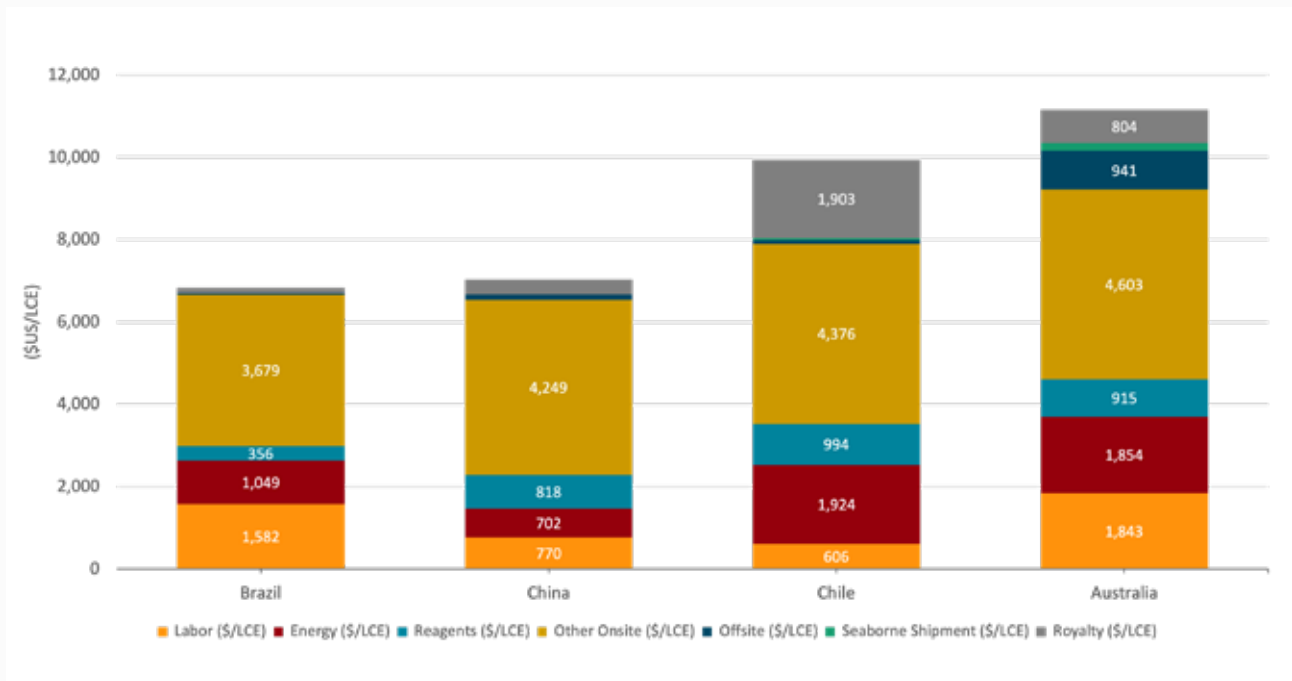


Based on available data, Australia has the highest lithium hydroxide costs among major producers, driven by relatively high energy, labour, offsite¹⁰ and royalty costs.

This highlights a key challenge for WA's lithium industry. While the state has abundant lithium reserves, a long reserve life and a globally competitive mining sector, downstream processing is far more difficult to compete in. Lithium refining requires scale, operational expertise, mature technology and low production costs – advantages that China has developed through decades of investment in refining capacity and battery supply chains. As a result, the recent price downturn exposed the vulnerability of WA's refining sector and reinforced that the state's competitive strength remains in mining and exporting spodumene concentrate rather than capturing the higher-value stages of lithium processing (Figure 26).

FIGURE 26

Production-weighted average costs of lithium hydroxide by country



Note: Cost and production estimates reflect selected individual mines tracked by S&P Global and do not represent total global output. This dataset covers the seaborne iron ore market only and does not capture the full universe of global producers. Therefore actual industry costs and production shares may differ from those shown.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on S&P Capital IQ mine Economics Market intelligence, 2025 Lithium Production Ranked on Total Cash Cost.

¹⁰ Offsite costs include concentrate sales costs, including freight, treatment and refining charges (after the product leaves the mining site).

SPOTLIGHT: NICKEL

Although nickel is not one of WA’s largest export commodities, its strategic importance has grown significantly due to its designation as a critical mineral and its role in supporting the global energy transition. In recognition of its importance to the energy transition and growing supply chain concerns, the Australian government added nickel to its Critical Minerals List in February 2024, allowing the sector to access government support.

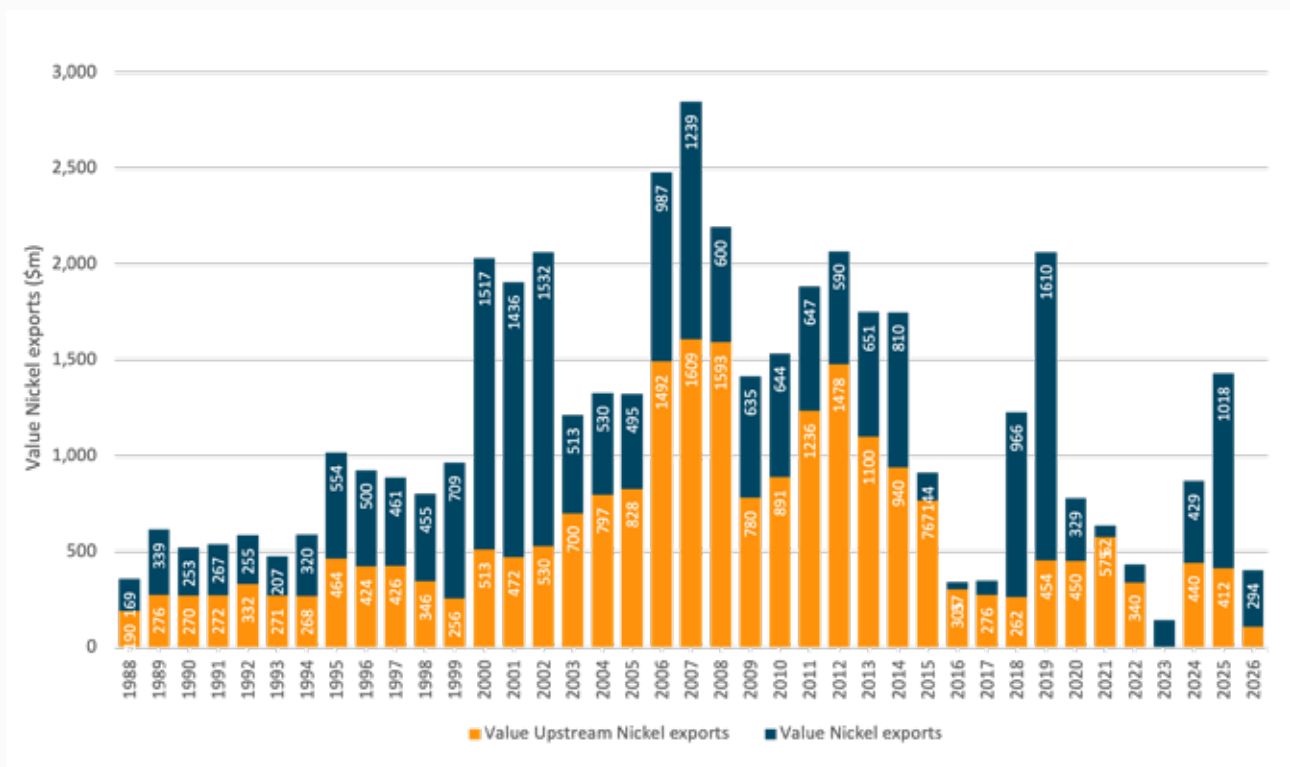


However, seven of WA’s nine operational nickel mines, along with two others under construction moved to care and maintenance by late 2025. The operational decisions to shutter the mines followed a more than 50 per cent fall in global nickel prices since 2022 (CME, 2025).

Australia faces significant challenges competing with lower-cost nickel producers, particularly Indonesia.

However, WA retains some advantages as most of the state’s nickel is sulphide nickel, (Geoscience Australia 2019), which can be easier to process into high-purity battery grade products (Transport & Environment 2023). WA nickel can also be produced with fewer emissions than some overseas competitors and could become greener if more renewable energy is used (Mandala 2024). However, there is currently little market premium for lower-emissions nickel, leaving the industry’s long-term outlook uncertain. While government support may help sustain the sector in the short term, its future competitiveness will depend on reducing costs or securing stronger demand for cleaner higher-value nickel products.

FIGURE 27
Nickel exports by type, 1988 to 2026



Note: Nickel exports refer to HS commodity code 683 (Nickel). Upstream Nickel exports refer to HS commodity code 284 (Nickel ores and concentrates, nickel mattes, nickel oxide sinters and other intermediate products of nickel metallurgy). Export values are reported in current prices.

Source: Bankwest Curtin Economics Centre | Authors’ calculations based on ABS, International Trade in Goods and Services, Australia, cat. no. 5368.0.

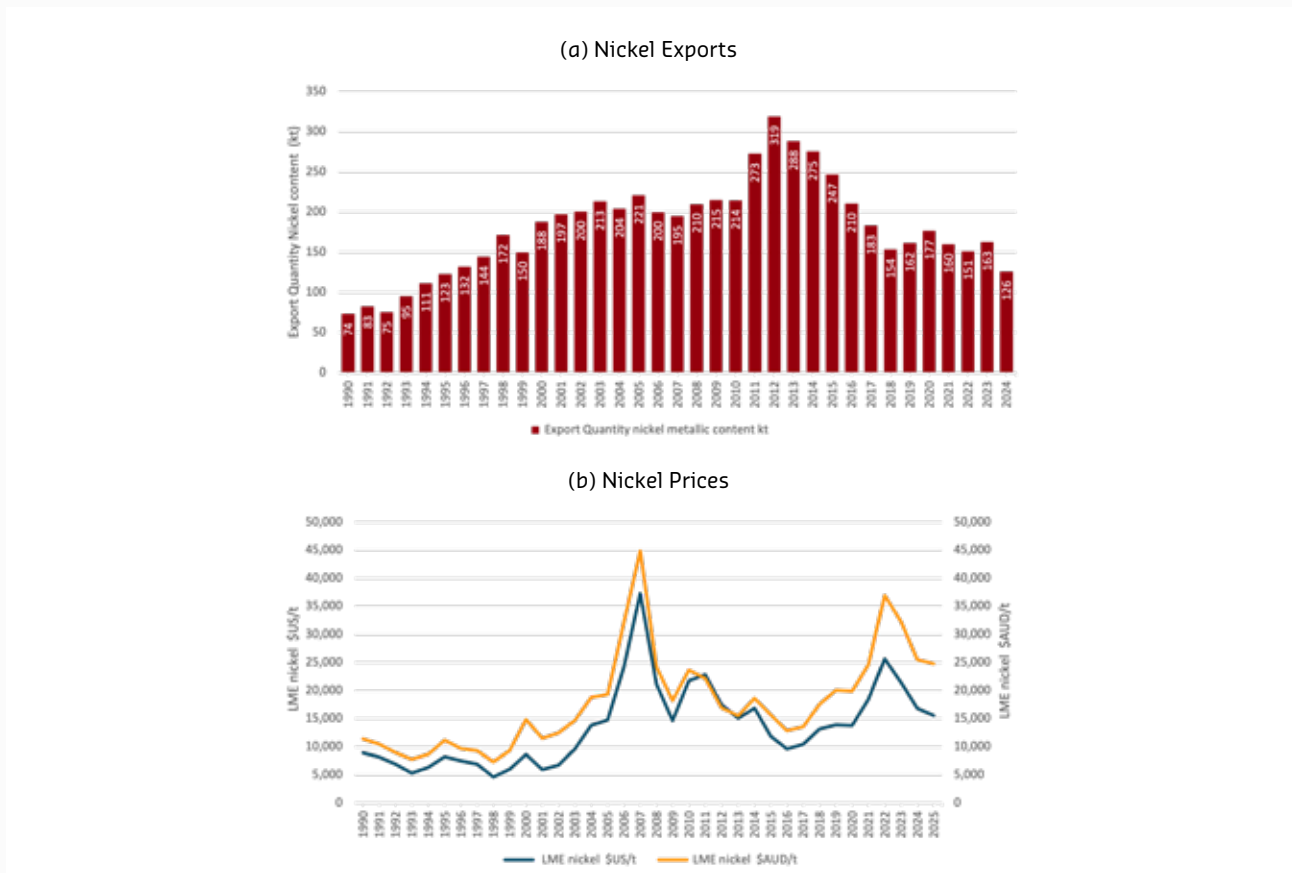


WA is the centre of Australia's nickel industry, holding about 96 per cent of the country's nickel reserves. The industry started in the late 1960s, when high-grade nickel was found near Kambalda and led to the opening of Silver Lake in 1967 - Australia's first nickel mine (Geoscience Australia, 2025b).

Nickel exports were not a major part of WA's export story until the 2000s, but they jumped sharply in 2000 to \$2 billion, doubling from around \$1 billion in 1999 (Figure 27). The biggest peak was just before the GFC in 2007, when nickel and upstream nickel exports reached around \$2.8 billion. This was mainly because the average nickel price rose by about 125 per cent between 2006 and 2007, rather than WA exporting more nickel content (Figure 28). Prices rose sharply again in 2022, which lifted export values, however, by 2023, nickel had fallen to its lowest point, with no upstream nickel exports recorded and only around \$145 million in nickel exports (Figure 27). Nickel's share of Australia's total exports also fell sharply from 1.7 per cent in 2008 at its peak to less than 0.1 per cent in 2023.

FIGURE 28

Nickel exports by quantity and prices, 1990 to 2025



Note: Total nickel metallic content: Includes metal content of ores and concentrates, intermediate products and nickel metal. LME Average cash settlement price for melting grade refined nickel.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on Company reports; Department of Industry, Science, and Resources; International Trade Centre, International Trade Statistics 2001-2021.

Part of this price volatility stems from shifts in nickel demand, especially as it has become more important for rechargeable battery production. Historically, nickel has mainly been used in stainless steel production (Nickel Institute, n.d.-a). More recently, nickel has become important in the production of some rechargeable batteries as it can help batteries store more energy (Nickel Institute, n.d.-b). However, not all rechargeable batteries use nickel (IEA, 2022), which means future nickel demand will depend partly on the evolution of battery technology.

The WA nickel industry has recently come under pressure as global prices have fallen with the expansion of lower-cost supply, especially from Indonesia (Mandala, 2024). BHP announced in July 2024 that it would temporarily suspend its Nickel West operations and the West Musgrave project from October 2024, with a review planned by February 2027 (BHP, 2024).

Australia's nickel production sits mostly in the middle to higher end of the global cost curve making it less competitive than lower-cost producers such as Indonesia. As a result, Australian producers are particularly exposed to downturns in nickel prices, which can quickly erode profitability and threaten production (Figure 29).

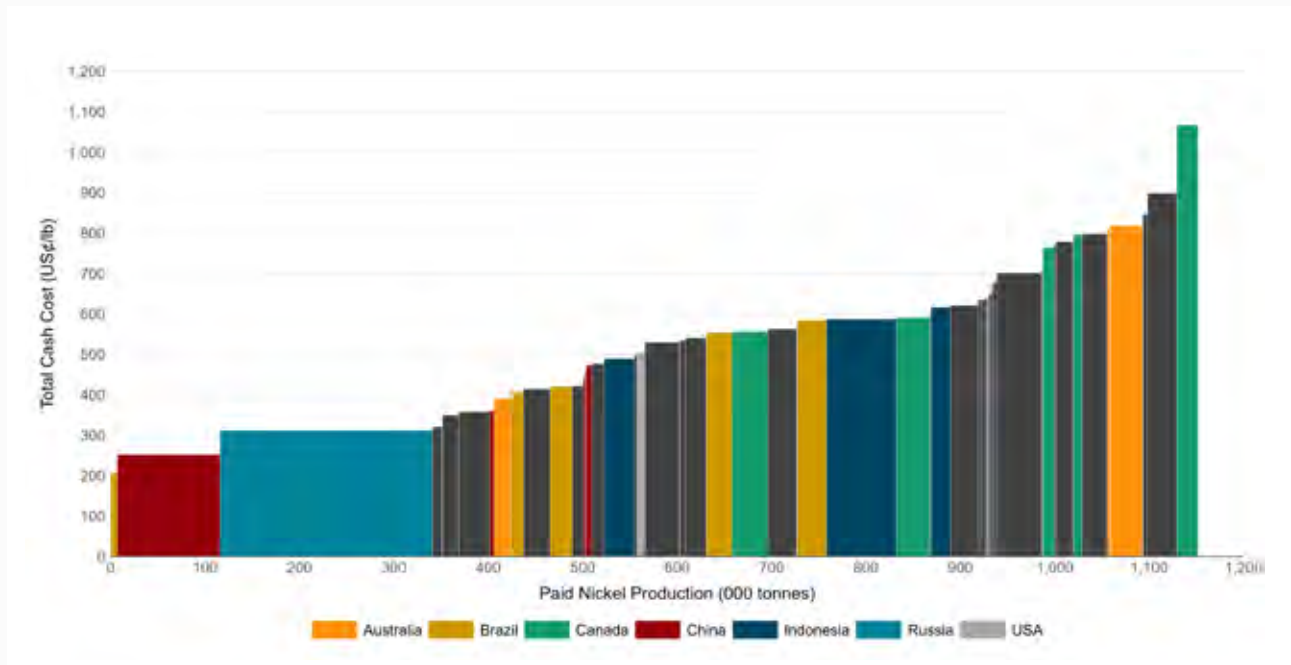
In response to these pressures the Australian government added nickel to the Critical Minerals List in 2024, which allowed nickel companies to access Commonwealth support, including the critical minerals facility and other critical minerals programs (King, 2024). The WA government also introduced a Nickel Financial Assistance program, offering a 50 per cent royalty rebate for nickel when the average London Metal Exchange (LME) price fell below US\$20,000 per tonne for a given quarter (Government of Western Australia, 2025b). In 2026, WA announced a further \$15 million no-interest loan initiative to help operating mines and preserve jobs (Government of Western Australia, 2026).

Government intervention has also played a role in the development of Indonesia's nickel industry. The Indonesian government has implemented a ban on the export of unprocessed ore alongside a range of other measures from special economic zones, infrastructure investment and incentives to help the country move up the value chain and become the world's largest nickel producer and exporter (IEA, 2024b). Note that Indonesian production is materially underrepresented in Figure 29 for data coverage reasons (see figure note).



FIGURE 29

Nickel cost curve, 2025



Note: Coloured bars represent FOB cost. Cost and production estimates reflect selected individual mines tracked by S&P Global and do not represent total global output. This dataset covers the seaborne iron ore market only and does not capture the full universe of global producers. Therefore actual industry costs and production shares may differ from those shown. Indonesia (~56% of global nickel supply, ~2.2Mt in 2024) is materially underrepresented. S&P captures only 3 operations (~127kt), as the majority of Indonesian output is NPI/MHP produced by privately held Chinese-backed RKEF facilities that fall outside S&P's mine-level coverage criteria.

Indonesia (~56% of global nickel supply, ~2.2Mt in 2024) is materially underrepresented. S&P captures only 3 operations (~127kt), as the majority of Indonesian output is NPI/MHP produced by privately held Chinese-backed RKEF facilities that fall outside S&P's mine-level coverage criteria. This dataset reflects the tracked mine universe only, not global industry costs.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on S&P Capital IQ mine Economics Market intelligence, 2025 Nickel Production Ranked on Total Cash Cost.

Not all nickel is the same. Australia, Canada and Russia predominately produces sulphide nickel, which is generally easier to process into high-purity batteries, while Indonesia and the Philippines are major laterite producers (Geoscience Australia, 2025b). Laterite nickel has traditionally been used for stainless steel, however technology advances have meant that it can now be used to produce battery materials, reducing Australia's traditional advantage (Transport & Environment, 2023; Peh, 2024).

One potential advantage for WA lies in lower-emissions production. Australian nickel has a substantially lower carbon footprint than some Indonesian and Chinese production, and greater use of renewable energy could

further strengthen this position (Mandala, 2024), giving Australia a potential advantage in lower-carbon supply chains. BHP also secured renewable energy to cover 100 per cent of the power requirements for three major Nickel West operations, strengthening the green credentials of the industry (BHP, 2022). However, there is currently little market premium for greener nickel (Home, 2024). As a result, the long-term outlook for WA's nickel industry remains uncertain. While government support may help the sector weather global market volatility, future competitiveness will depend on either reducing production costs or securing stronger demand for low-emissions nickel.



STRUCTURAL FORCES: FUTURE OF THE RESOURCES SECTORS

STRUCTURAL FORCES: FUTURE OF THE RESOURCES SECTORS

Historically, resource economies have evolved through successive waves of structural transformation, with each period reshaping patterns of production, trade and comparative advantage. Industrialisation drove rapid growth in demand for coal, steel and other bulk commodities, establishing resources as a foundation of modern economic development. Later, globalisation expanded export opportunities and integrated production across increasingly complex international supply chains, allowing resource-rich economies to make larger markets and attract capital at a greater scale.

More recently, rapid urbanisation and industrial expansion across emerging economies – particularly China – generated an unprecedented demand in commodities such as iron ore and LNG, underpinning a prolonged period of growth for Western Australia's resources sector. At the same time, advances in digital technologies, automation, and operational systems transformed how resources are extracted and processed, delivering substantial improvements in productivity, efficiency and safety.

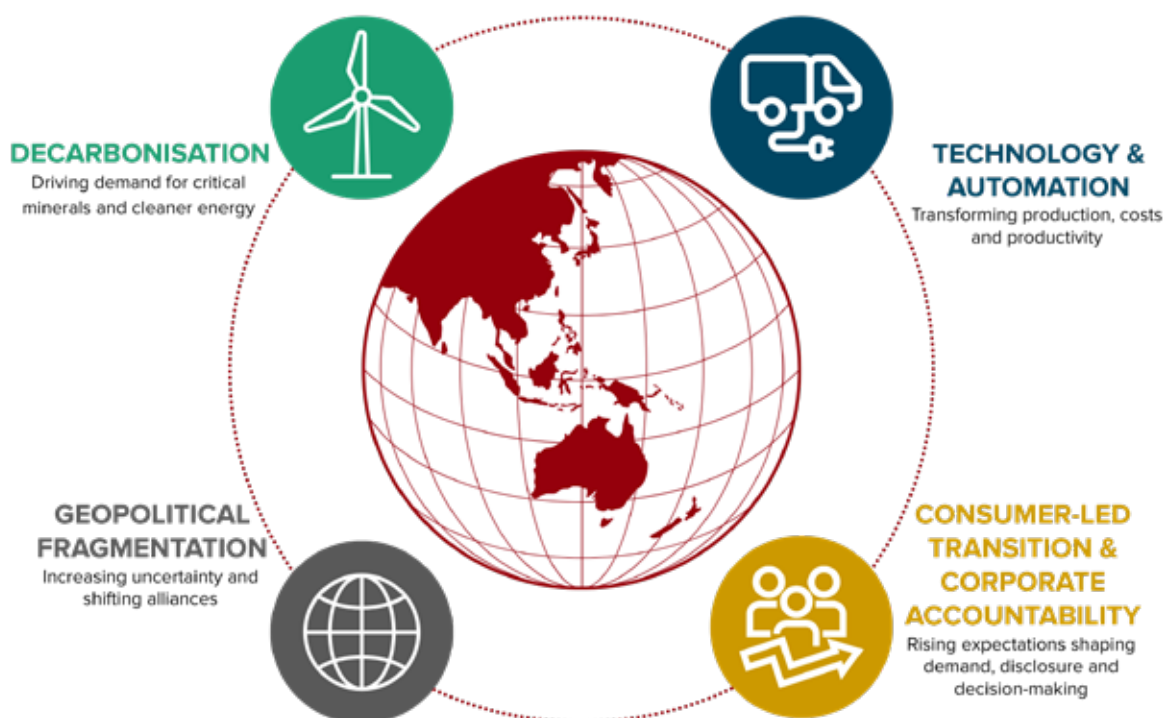
The next phase of structural change differs from earlier periods, with multiple transitions occurring simultaneously.

Four broad structural forces are shaping economic and industrial outcomes over the coming decades: the energy and net zero transition; technological change; geopolitical fragmentation; and evolving consumer, investor and community expectations. These forces do not operate independently. They are deeply interconnected and can amplify, feedback and reinforce one another (Figure 30).



FIGURE 30

Structural forces shaping WA's resource sector





The shift toward lower-emissions production and changing global energy systems is reshaping patterns of resource demand, investment and international competitiveness. At the same time, advances in automation, digital technologies, artificial intelligence and industrial processes are changing how resources are extracted, processed and integrated into global value chains. Overlaying this is a more fragmented geopolitical landscape – characterised by rising trade tensions, increasing industrial policy, supply chain realignment and growing competition over strategic industries and critical inputs.

Consumer preferences are also becoming an increasingly important driver of industrial change. Growing demand for lower-emission products, ethically sourced materials, and more sustainable production practices is influencing purchasing decisions across households and businesses. These shifts are creating new sources of competitive

advantage for producers that can demonstrate strong environmental, transparency and traceability throughout their supply chains.

Alongside these developments, expectations of corporate responsibility continue to expand. Investors, customers, regulators and communities are placing greater emphasis on environmental, social and governance performance, Indigenous engagement and broader social licence considerations. For resource companies, maintaining access to capital and markets increasingly depends not only on operational performance but also on their ability to meet stakeholder expectations.

Together, these forces are contributing to an economic model characterised by lower emissions production, greater technological intensity across industries, more strategically concentrated and resilient supply chains, stronger consumer influence and increasing intervention through industrial, trade and energy policy. Western Australia – given the central role of the resources sector – will be particularly exposed to these structural forces. Changes in global demand, production technologies, and geopolitical conditions have the potential to shape the state's export profile, investment pipeline, and fiscal position. At the same time, these shifts will create new opportunities to capture value through emerging industries, downstream processing and low-emissions production.



ENERGY AND THE NET ZERO TRANSITION

The global energy and net zero transition is no longer a future scenario – it's already reshaping global energy systems, industrial and investment patterns. The pace of change over the last decade has been material, particularly in electricity systems. A decade ago, renewable energy accounted for less than one quarter of global electricity generation. Today, that share has risen to around one-third and is projected to approach half of global electricity generation by 2030, with solar PV and wind accounting for the majority of new renewable capacity (IEA, 2026).

Domestically, Australia has committed to achieving net zero by 2050, legislating a more ambitious 2030 target of 43 per cent reduction on 2005 emissions in 2022, and last year announcing a 2035 target of 62-70 per cent (DCCEE, 2025). A national renewable electricity target of 82 per cent by 2030, together with recent changes to the Safeguard Mechanism and the introduction of a New Vehicle Emissions Scheme, are expected to do much of the heavy lifting towards reaching these targets.



Australia has committed to achieving net zero by 2050 and to reducing emissions to 62-70 per cent below 2005 levels by 2035.

As the global energy and net zero transition accelerates, the makeup of the global commodity market is expected to shift to reflect changing demand. It is expected that, by 2035, global demand for coal and other fossil fuels will decrease as low-carbon energy sources are adopted.



In turn, commodities that support the energy transition, such as those used in batteries, solar panels, and other renewables, are expected to see increased demand. These include copper, nickel, lithium, cobalt and manganese, among many others (DISR, 2025a). Australia is fortunate enough to have significant reserves of several critical and strategic minerals, which can support the resource sector going forward (Table 1). For instance, Australia has the second largest global reserves of lithium and ranks third in rare earths, with several, if not all, of the critical minerals produced in Australia expected to grow rapidly by 2035.

Additionally, Australia has secured future demand and trade through a number of critical minerals agreements with major international jurisdictions and economic blocs (Department of Industry, Science and Resources, n.d.). These inevitable structural shifts are set to dramatically alter Australia's resource sector, particularly as global energy transitions, energy sovereignty and net zero targets reduce demand for traditionally dominant exports like iron ore and oil.



TABLE 1

Global outlook for Australia's critical/strategic minerals

Dwelling type	Main Uses	Australia's world ranking for economic resources	Australia's world ranking for production	Global Demand outlook
Copper	Electrical wiring, renewables, grid, EVs	2nd	8th	↑ 29% by 2035 ¹ High growth
Nickel*	EV batteries, energy storage, stainless steel	2nd	7th	↑ 64% by 2035 ¹ High growth
Cobalt	Battery cathodes, aerospace, electronics	2nd	4th	↑ 64% by 2035 ¹ High growth
Rare Earths	Renewables, defence technologies, electronics	3rd	3rd	↑ 64% by 2035 ¹ High growth
Lithium	Lithium-ion batteries, grid storage and EVs	2nd	1st	↑ 300% by 2035 ¹ Very high growth
Graphite	Electric vehicles and battery storage	8th	-	↑ 150% by 2030 ¹ Very high growth
Zinc	Solar PV and other low emission power generation	1st	3rd	↑ 82% by 2035 ² Very high growth
Manganese	Steelmaking and batteries	4th	3rd	↑ 744% by 2035 ² Very high growth
Silver	Solar PV, industrial applications	3rd	9th	↑ 9% by 2035 ² High growth

Note: *Nickel was recently added to Australia's critical mineral list; production in Australia has now ceased. See Glossary and technical notes for further information and a full list of Australia's critical and strategic minerals. World rankings are determined by comparing Australia's EDR and production to economic resources and production reported for other countries, see Geoscience Australia for further details.

¹ Represents an increase in total demand. ² Represents an increase in demand by clean energy technologies only.

Source: Bankwest Curtin Economics Centre | Author's calculation based on IEA's Critical Minerals Data Explorer (STEPS scenario). Geoscience Australia, World Ranking for Australian Economic Resources and Australian production as of December 2024.

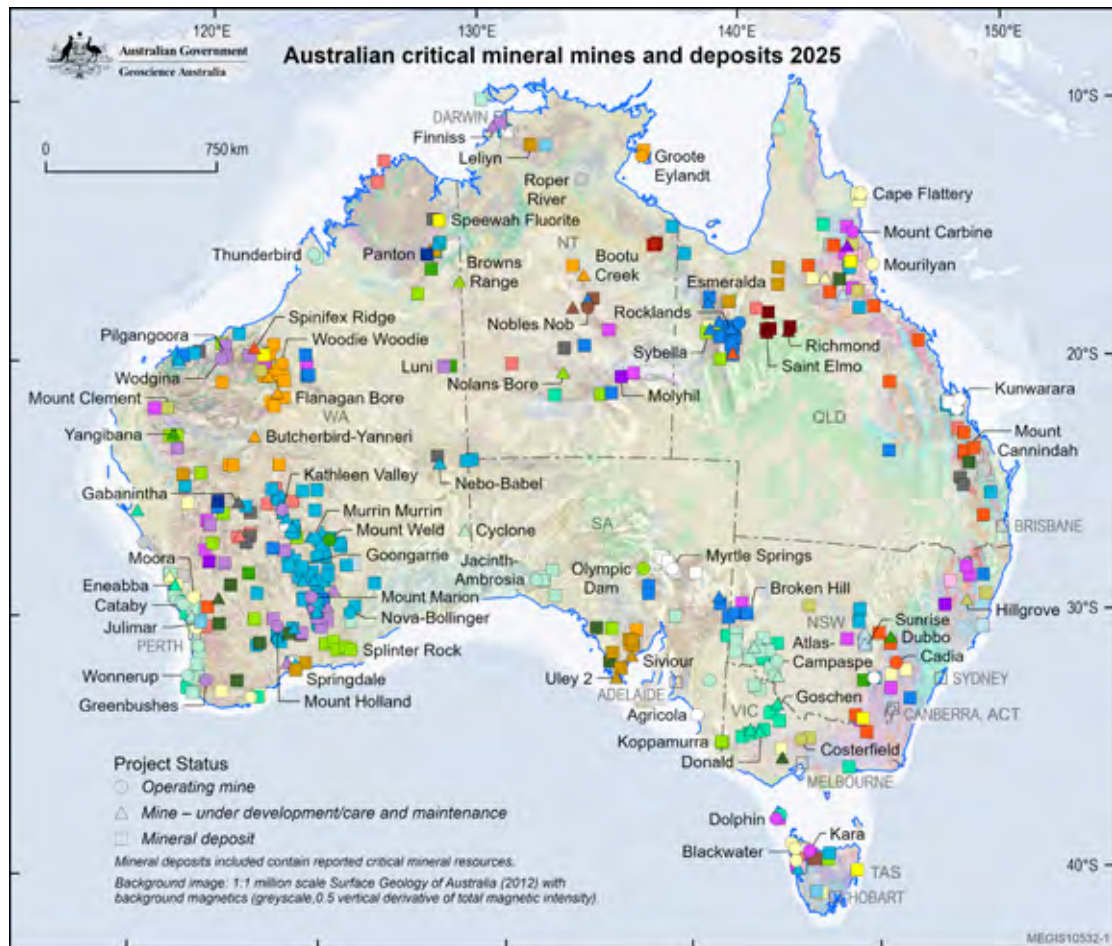
Western Australia is uniquely positioned among the states to capture emerging energy transition opportunities, thanks to its dense concentration of critical mineral deposits and active operations (Figure 31). This establishes WA as a leading global producer and exporter. By leveraging its established mining expertise, export infrastructure, and expanding downstream processing alongside strategic proximity to key trading partners, the state can significantly mitigate the economic impact of declining demand for traditional commodities. Furthermore, by adopting advanced technologies, WA has an opportunity to pivot its massive iron ore reserves to meet the rising global demand for green iron and steel, ensuring Australia remains internationally competitive (Department of Industry, Science and Resources, 2025a).



WA's concentration of critical mineral deposits and operating mines uniquely positions the state to capture emerging energy transition opportunities.

FIGURE 31

Australian critical mineral deposits and mines, 2024



Source: Bankwest Curtin Economics Centre | Geoscience Australia.

GEOPOLITICAL FRAGMENTATION AND PROTECTIONISM

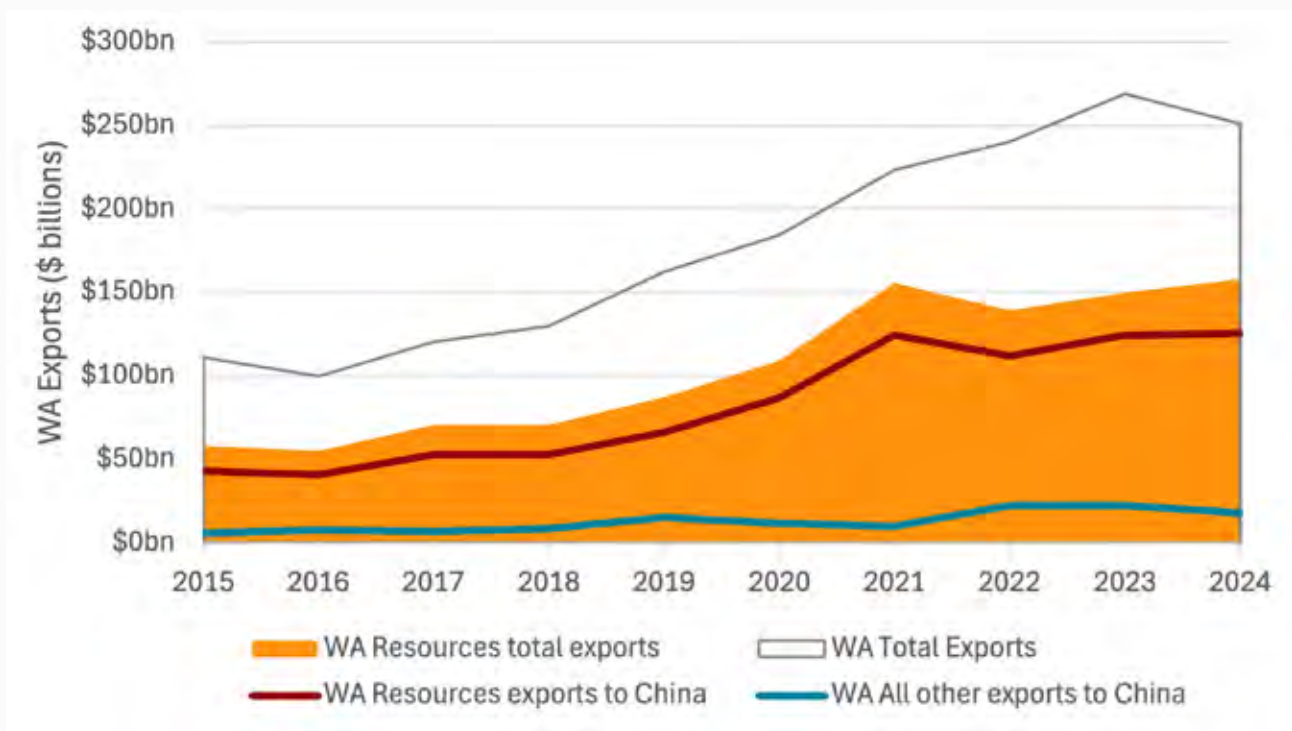
Australia is a medium-sized open economy that relies heavily on international trade, investment and global supply chains. This creates significant opportunities for growth but also exposes Australia to external shocks and geopolitical tensions beyond its control. For Western Australia, these dynamics are particularly important given the state’s export-oriented resources sector, which is deeply connected to global commodity markets and international demand, particularly from Asia. For example, almost three-quarters of the state’s \$250bn in merchandise exports were destined for China in 2024, highlighting both the benefits of strong trade relationships and the risks associated with concentrated export markets (Figure 32).



Almost three-quarters of the state’s \$250bn in merchandise exports were destined for China in 2024.

FIGURE 32

Western Australia’s goods exports mining versus all others, 2015 to 2024



Note: Resources exports refers to primary products unprocessed minerals and fuels.

Source: Bankwest Curtin Economics Centre | Authors’ calculations based on DFAT State/Territory’s Merchandise Exports and Imports.

Geopolitical fragmentation is increasing

Increasing geopolitical fragmentation in the global economy has become a significant concern in most countries. Over the last 20 years, China's rise in the global economy has seen it evolve from being a manufacturing-led economy to the second largest economy, with its industrial sector remaining a significant pillar of growth. This has led to major shifts in global dynamics, redefining (i) national policy, (ii) trade, and (iii) capital flows at the expense of more efficient global economic outcomes.

Protectionist and security-driven policies have also been on the rise over the last decade (Figure 33a). The number of trade and investment restrictions globally has increased threefold since 2018, with national security often explicitly cited as the main reason for trade interventions (Aiyar, Presbitero, & Ruta, 2023). As a consequence, foreign direct investment (FDI) has declined worldwide from 3.3 per cent of global GDP in the 2000s to just 1.3 per cent a year ago.

However, the decline in FDI has not been uniform. The rise in "friend-shoring," or preferential trade with allies, has increased significantly over the past few years. This is because FDI is no longer directed to the

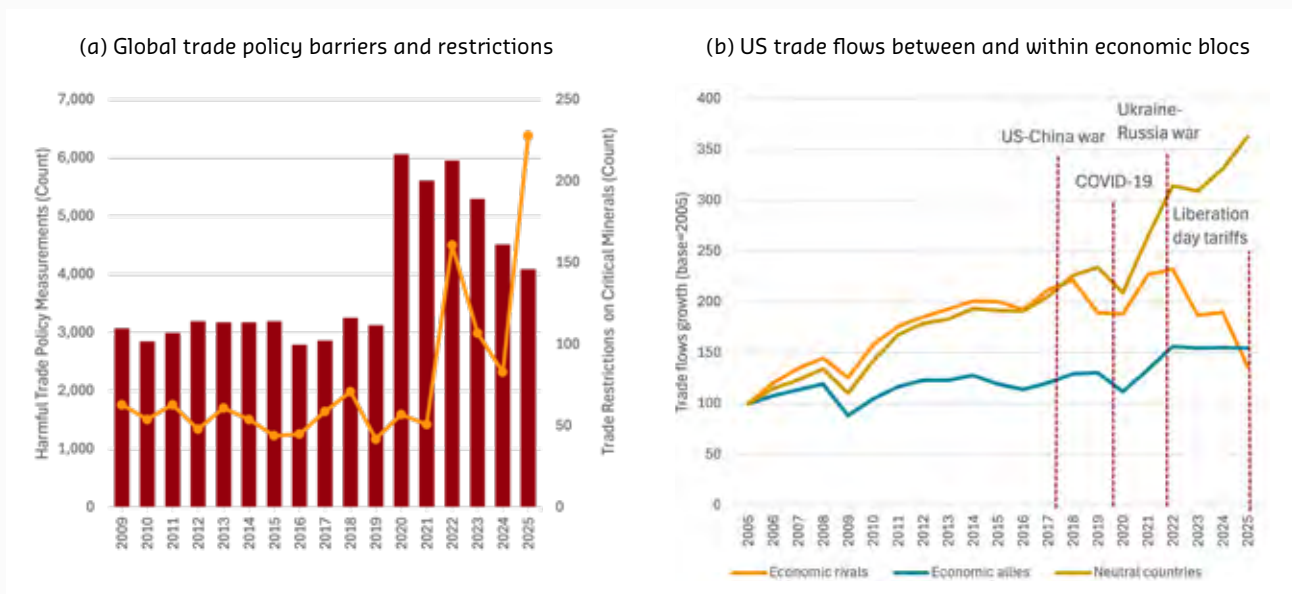
cheapest manufacturing countries - it is now targeted at geopolitically aligned nations. According to the IMF, the share of global greenfield FDI (investments in new facilities) between politically aligned countries has outpaced investments based on geographic proximity, which has historically been one of the main predictors of FDI flows (Ahn, Habib, Malacrino, & Presbitero, 2023).



The number of trade and investment restrictions globally has increased threefold since 2018 while FDI has declined worldwide from 3.3 per cent of global GDP in the 2000s to just 1.3 per cent a year ago.

FIGURE 33

Geopolitical Fragmentation, trade policy barriers and US trade flows



Source: Bankwest Curtin Economics Centre | Authors' calculations based on Global Trade Alert and UN Comtrade.

As a result of these policies, there has been an international realignment of economic blocs. According to data from the Banque de France (Carluccio, Gaulier, Smagghue, & Stumpner, 2025), there has been a consolidation of three main blocs: the Western/US European bloc, a Chinese-Russian bloc, and a third bloc of unaligned nations (mainly emerging economies from South America and Southern Africa). Bilateral trade growth between opposing economic blocs has stalled or decreased, while trade within the same bloc or with neutral countries has increased (Figure 33b).

This is better exemplified by the US-Australia Critical Minerals Framework, signed by Prime Minister Anthony Albanese and President Donald Trump in 2025 (Department of Industry, Science and Resources, 2025b). This is the most significant bilateral agreement between these two countries. The goal of this agreement is to create a resilient supply chain from 'allied' nations. It notably puts in place two mechanisms: a joint \$1 billion investment fund, matched by each country, to support an \$8.5 billion pipeline of priority projects; and a market stabilisation mechanism that will counter market distortions such as price manipulation to ensure mines remain viable when global prices are artificially suppressed.

These preferential trading and protective initiatives have a cost. It is estimated that geopolitical fragmentation is costing the global economy between \$213 billion and \$307 billion annually and is adding 0.2 to 0.3 percentage points to global inflation (WEF, 2026).

Geopolitical fragmentation and the resource sector

The resource sector is now central to geopolitical fragmentation. For decades, the gold standard for global supply chains was efficiency - paying the lowest price for a given commodity. That logic is changing. Nowadays, control over mining, refining and manufacturing processes is just as important. This is because critical minerals and rare earths are essential to the defence industry, semiconductors, electric vehicles, batteries, renewable energy technologies and other advanced industries. All play an important role in the future of decarbonisation, energy security and innovation.

China dominates many of the midstream stages of these supply chains involving the processing of critical minerals and rare earths. According to the IEA, China leads refined production for 19 out of 20 strategic minerals essential to the global economy. Nickel is the main exception, with Indonesia now the dominant refining location - although 75 per cent of Indonesia's refined capacity is directly owned by Chinese firms (International Energy Agency, 2025b).



Geopolitical fragmentation is costing the global economy between \$213 billion and \$307 billion annually and is adding 0.2 to 0.3 percentage points to global inflation.

¹³ <https://www.weforum.org/publications/deepening-divides-the-cost-of-a-more-fragmented-financial-system/>.

TABLE 2

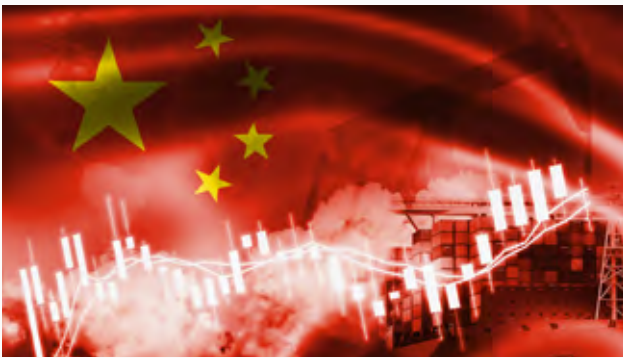
Concentration of critical minerals in supply chains

Commodity	China's Share of Global Mining	China's Share of Global Processing	Main Outputs	End-Use Sectors
Rare Earths	~69%	~91% of global rare earth refining	NdFeB permanent magnets. ~94% Rare earth catalysts Rare earth alloys & metallurgy additives	Defence & Aerospace Clean Energy & EVs Electronics & Semiconductors
Lithium	~17%	~60% of global lithium refining	EV battery cells - China ~80% Battery-grade lithium hydroxide (LiOH) Battery-grade lithium carbonate (Li ₂ CO ₃) Lithium for grid storage batteries	Clean Energy & EVs Energy Grid Storage Consumer Electronics
Manganese	~4%	~95% of global battery-grade manganese sulphate (HPMSM)	Battery-grade manganese sulphate (HPMSM) for NMC cathodes. ~95% Electrolytic manganese metal (EMM) LMFP battery cathode material (emerging)	Automotive & EVs Aerospace & Industrial Consumer Electronics
Graphite	~78%	>90% of global battery processing	EV battery anodes (CSPG). >90% Grid storage battery anodes. >90% Graphite electrodes for EAF steelmaking. ~60% Synthetic graphite for lubricants & friction materials	Automotive & EVs Energy Infrastructure Steel & Metals Industrial Manufacturing
Cobalt	~1%	~50-70% of global cobalt refining	NMC/NCA EV battery cathodes. ~67% LCO consumer battery cathodes ~85-90% Grid storage battery cathodes. China ~80% Cobalt-based superalloys (jet engines, gas turbines)	Automotive & EVs Consumer Electronics Energy Infrastructure Aerospace & Defence
Nickel	~3%	~35% of global nickel refining	NMC/NCA EV battery cathodes. <67% Stainless steel. China ~55% Nickel-based superalloys	Automotive & EVs Steel & Construction Aerospace & Defence
Copper	~8%	>50% of global copper refining	EV motors ~60% Copper cable for grids. ~18% Solar panel wiring & wind turbine cables Electronics & PCB copper foil. China dominant	Automotive & EVs Energy Infrastructure Renewable Energy Electronics & Semiconductors
Iron Ore	~11%	~53% of global crude steel production	Construction steel. ~49% Industrial machinery & equipment. ~53% Shipbuilding, railway. ~56% of global shipbuilding Automotive steel. ~53% of global crude steel	Construction & Infrastructure Industrial Manufacturing Transport Automotive
Bauxite / Aluminium	~24% of bauxite ~60% of primary aluminium	~60% of global primary aluminium smelting	Aluminium for transport ~60% Automotive Aluminium for EV battery casings & heat management Aluminium electrical conductors	Transport & Automotive Automotive & EVs Energy Infrastructure

Source: Bankwest Curtin Economics Centre | Authors' calculations based on USGS MCS 2025, IEA Global Critical Minerals Outlook 2025, IEA Global EV Outlook, IEA Rare Earth Elements Report, IEA Role of Critical Minerals in Clean Energy Transitions, World Steel Association, Natural Resources Canada, IEA GCMO 2025, U.S. EIA.

This concentration becomes even more pronounced as one moves further along the value chain. Take rare earths, for instance: China extracts around 70 per cent of global rare earths but refines 91 per cent of them (Table 2). Most rare earths are used to make magnets, for which China accounts for 94 per cent of the world’s sintered permanent magnets. These magnets are critical for electric vehicles, wind turbines, robotics and defence applications.

This gives China significant strategic leverage. In recent years, Beijing has used export controls and technology restrictions to maintain its advantage in rare earth and magnet manufacturing. For example, at the end of 2023, China banned the export of technologies used to produce rare earth magnets.



China’s market power also provides it with significant influence over global prices. Through a combination of state support, industrial policy and rapid capacity expansion, Chinese producers have periodically oversupplied critical minerals, driving prices to levels that challenge the commercial viability of competing projects elsewhere.

China’s dominance over several critical mineral supply chains has become a major strategic concern for advanced economies. This was illustrated during the last escalation in trade tensions between the United States and China. Following the Trump administration’s ‘Liberation Day’ tariff measures in 2025, China responded by imposing a mandatory licensing framework for rare earths, translated into export controls on rare earth elements. While this was a retaliatory measure directed at the United States, its impact was global, as the requirement for export

licenses created a bottleneck in automotive and electronic supply chains, which braced for significant supply disruptions. Additionally, the aerospace, defence and semiconductor sectors all heavily rely on Chinese manufacturing to feed their supply chains, making the concentration of these critical minerals and China’s quasi-monopoly a crucial concern for most Western countries.

These concerns prompted governments to place greater emphasis on supply chain resilience and diversification. In 2024, the European Union legislated the Critical Raw Materials Act (CRMA) to strengthen access to resources and materials needed for the green and digital transition (European Commission, 2025). The targets are considerable: the key benchmarks by 2030 are 10 per cent consumption of strategic raw materials to come from domestic extraction, 40 per cent of consumption processed within the EU, 25 per cent of consumption sourced from recycling and a maximum reliance of 65 per cent on any single third country for a strategic resource. Additionally, the CRMA formalises the ‘strategic partnership’ framework with resource-rich third countries, which will secure supply chain provision to EU countries and de-risk through supply chain diversification.

These initiatives demonstrate how the resources sector has moved beyond its traditional role as a source of export earnings.



Access to and control over critical minerals and processing capacity are now central considerations in trade policy, industrial strategy and geopolitical competition.

CONSUMER-LED TRANSITION AND CORPORATE ACCOUNTABILITY

Governments are not the only force reshaping the resources sector. Even when governments choose not to intervene directly, consumer behaviour and corporate accountability can still drive significant market transformation. Consumers can create, reshape or weaken markets through the choices they make. A decade ago, for instance, it was extremely hard to find gluten-free products on shelves, but nowadays these products are almost ubiquitous. Something similar happened just three months ago with the conflict in the Middle East. Even though sales of EV cars were steadily increasing, a shock in the petrol prices led to a considerable increase in demand. In the span of 90 days, the sale of new battery electric cars (BEVs) surged from 11,134 to 21,303, a more than 90 per cent increase. Now, one in three new cars sold in Australia is a plug-in vehicle, a share that was only 19 per cent before the conflict with Iran intensified (FCAI, 2026a; FCAI, 2026b; Thai, 2026a; Thai, 2026b). This shows how consumers can shape the resource sector market relatively quickly and why this is a force not to be taken lightly.

Additionally, consumers and governments can also force companies to higher environmental, social and governance (ESG) standards. ESG is a framework used to assess the sustainability and ethical impacts of investments or companies. It is used by government bodies, regulators and other businesses to judge the suitability of a project or a trading company given the following standards:

- **Environmental (E):** relates to the impact of a project on its environment, such as land clearing, loss of diversity, water contamination, use of resources (water, land and energy), as well as carbon emissions.
- **Social (S):** relates to the impact of a project on the broader community, such as workers' compensation and safety, the impact on Indigenous communities, local employment and labour standards.
- **Governance (G):** relates to the governance of a project or an entity, such as regulatory compliance, board accountability, executive and shareholders' pay, anti-corruption and transparency.

High ESG standards can be enforced by (i) consumers themselves, opting for products from firms with known high ESG benchmarks; (ii) by companies or large investment funds (BlackRock, Australian Super, Norway's GPFC, etc.) aiming to secure a sustainable and ethical portfolio of assets; and (iii) by international governments through regulatory frameworks such as mandatory climate-related financial disclosures,

government mandated carbon budgets or reporting standards. Government enforcement typically has the greatest leverage, followed by business enforcement, and consumers' choices.

Although ESG has often been seen as a voluntary or aspirational framework, it has increasingly shaped formal regulatory requirements and investment decisions. In Australia, it has led to the introduction of Australia's mandatory climate-related financial disclosures under the Australian Sustainability Reporting Standards (ASRS), which commenced in 2025.



Australia has mandated climate-related financial disclosures under the Australian Sustainability Reporting Standards (ASRS) for large corporations and major emitters.

The goal of these mandatory disclosures is to standardise how companies report their climate-related risks to investors and regulators. Reporting entities are required to disclose how climate risks (both transition and physical) could impact their business performance and how this will be managed, along with scope 1, 2 and 3 emissions. Reporting is required under different climate scenarios, for example, lower and higher global temperature pathways.

TABLE 3

Major jurisdictions with mandatory climate disclosures

Jurisdiction	Target Group & Phased Implementation	Year Implemented	Core Baseline Standard	Reference
Australia	Large corporations and financial firms phased by asset/revenue size (Group 1 to Group 3).	2025 (Phased to 2027+)	AASB (Aligned with IFRS S2)	AASB, 2024
New Zealand	Large listed issuers, banks, insurers, and investment managers (~200 entities).	2023	XRB Climate Standards (TCFD-aligned)	External Reporting Board (XRB), 2021
United Kingdom	Largest premium-listed firms, asset managers, and large private companies (>£500m turnover).	2022 (Transitioning to UK SDS)	TCFD (Moving to IFRS)	UK Department for Business & Trade, 2022
European Union	~50,000 EU and non-EU companies; phased rollout by company size.	2024 (Phased to 2028+)	European Sustainability Reporting Standards (ESRS)	European Parliament, 2022
Hong Kong	Phased mandatory climate reporting for all listed companies.	2025 (Phased to 2026)	ISSB-aligned HKEX framework	Hong Kong Exchanges and Clearing (HKEX), 2024
Singapore	All listed issuers required first, followed by large non-listed companies (revenue ≥ \$1B).	2025 (Phased to 2027)	ISSB (IFRS S1 & IFRS S2)	Singapore Exchange (SGX) & ACRA, 2024
Brazil	Publicly traded companies, investment funds, and securitisation firms (voluntary from 2024).	2026 (Mandatory)	ISSB (IFRS S1 & IFRS S2)	CVM Brazil, 2023
United States	Companies operating in California with revenues exceeding \$1B (emissions) or \$500M (climate risk).	2026 (Phased to 2027+)	TCFD / Greenhouse Gas Protocol	California Legislative Information, 2023

Source: Bankwest Curtin Economics Centre | Various sources as noted.

Major resource companies, such as Woodside, Chevron and Shell, are required to report. These reports are increasingly used by major investment companies, like superannuation funds, to determine whether a project fits their portfolio.

An entity with high climate risks can discourage investment, increasing the cost of capital for these projects. As a result, climate-related disclosure requirements have become an important market mechanism in the transition to net zero.



TECHNOLOGICAL CHANGE AND INDUSTRIAL TRANSFORMATION

Technological change is one of the defining forces reshaping the resources sector. Previous waves of innovation primarily improved the efficiency of extraction, processing and transport. The current wave is broader in scope, changing not only how resources are produced, but also which commodities are demanded, where value is captured and which economies remain competitive.

Across the sector, production is shifting from labour and equipment-intensive models toward increasingly automated, data-driven systems. Advances in artificial intelligence, robotics, automation and digital infrastructure are enabling firms to operate at greater scale with higher precision and lower operating costs. In mining and energy production, these technologies have improved productivity, enhanced asset utilisation and expanded the use of remote operations. At the same time, technological progress is reducing the importance of some traditional cost advantages while increasing the value of engineering capability, digital infrastructure and access to highly skilled labour.

Electrification and EVs

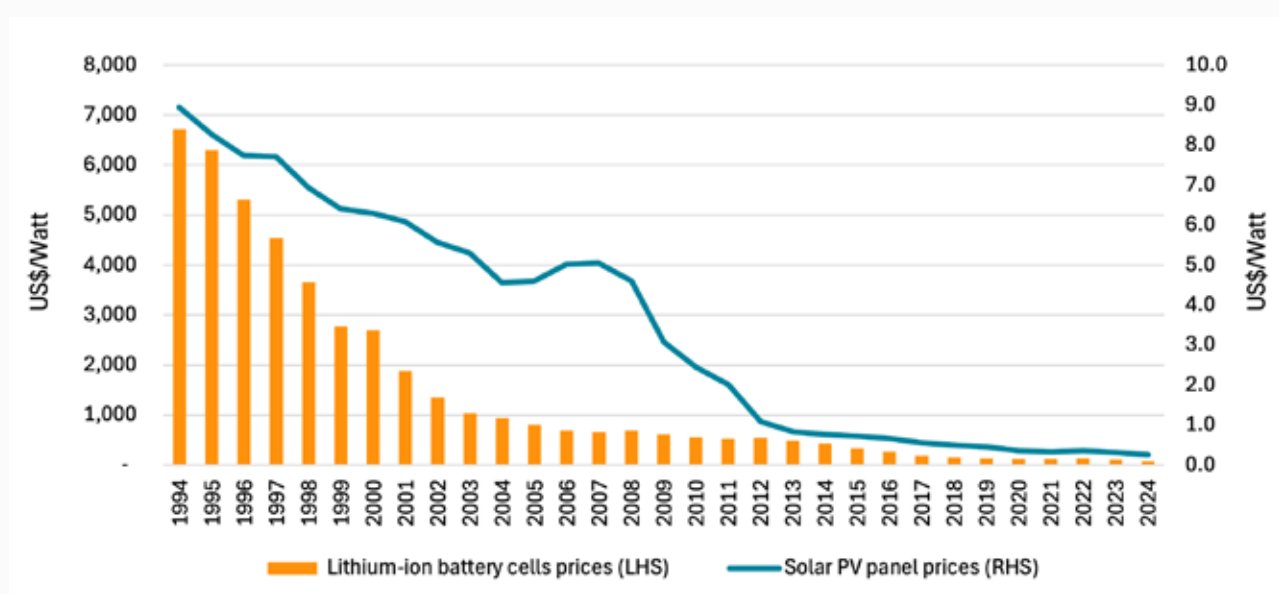
Technological change is also reshaping the composition of global commodity demand.

Electrification and digitalisation are increasing demand for minerals embedded in batteries, renewable energy systems, electricity networks and advanced manufacturing. The rapid decline in battery costs over the past decade has significantly improved the competitiveness of electric vehicles, bringing many models close to cost parity with internal combustion engine vehicles and accelerating consumer adoption (Figure 34). As battery costs continue to fall and charging infrastructure expands, consumer preferences are expected to shift further toward electrified transport.

The type of battery varies based on the primary mineral used in their chemical makeup, with lithium and nickel batteries being the most common. Lithium batteries, in particular, are seen as the best option due to their advantages over other alternatives, with several varieties available in the market that utilise different minerals such as manganese, nickel, cobalt, and aluminium (IEA, 2024a). Multiple new types of batteries are being developed to meet increasing future demand, primarily sodium batteries, which are currently the only type not to contain lithium, making them a cheaper and less critical mineral reliant option. Overall, these trends are reinforcing the broader net zero transition and increasing demand for commodities such as lithium, nickel, copper, and rare earth elements.

FIGURE 34

Price of lithium-ion battery cells and solar PV, 1994 to 2024



Source: Bankwest Curtin Economics Centre | Authors' calculations based on IRENA (2025) Nemet (2009) Farmer and Lafond (2016), Rupert Way (2026) based on Ziegler and Trancik (2021), BloombergNEF, and Avicenne Energy – with major processing by Our World in Data.

Green energy

At the same time, technological innovation is creating opportunities for entirely new resource-based industries. Green hydrogen and green ammonia have emerged as potential future export industries, particularly for countries with abundant low-cost renewable energy. Current hydrogen production relies on breaking down fossil fuels; green hydrogen is produced by splitting water through electrolysis, with the process powered by renewable sources such as solar or wind. Green hydrogen can be used as an electricity source and as a substitute for traditional liquid fuels or natural gas. This will help to decarbonise industries that cannot be easily electrified. The refining of minerals and downstream manufacturing can be powered with green hydrogen to produce green commodities such as steel.

In contrast, green ammonia is synthesised from green hydrogen and nitrogen using renewable power. Beyond its widespread use in domestic agriculture and mining, green ammonia serves as a stable liquid carrier that facilitates global hydrogen transport. Once it reaches its destination, the hydrogen can be extracted to generate electricity. Australia holds distinct comparative advantages in this area, underpinned by world-scale renewable energy resources, established export infrastructure and strong technical capabilities.

Governments have sought to accelerate industry development through initiatives such as the Hydrogen Headstart program, production tax incentives and broader measures under the Future Made in Australia agenda. Additionally, the Yara Pilbara plant, which accounts for 20 per cent of global ammonia trade, is investing in producing all its hydrogen and ammonia from renewable energy, with the project deemed feasible (ARENA, 2026).

These technologies remain at an early stage of commercialisation; however, significant uncertainty persists regarding future production costs, export demand, and the pace of deployment, with current technologies and fossil fuels being more cost efficient due to the limited scalability of green technologies. A number of proposed projects have been delayed, scaled back or cancelled in recent years, highlighting both the opportunity and the risks associated with emerging low-emissions industries. Nevertheless, projects such as the Murchison Green Hydrogen Project illustrate Western Australia's potential to capture a greater share of value through downstream processing and manufacturing rather than exporting raw commodities alone.

Technological change in operations

The global steel industry is undergoing a significant transformation driven by the transition to lower-emission production technologies. This shift necessitates moving away from traditional blast furnaces toward methods that utilise cleaner energy sources. Two new furnace technologies are gaining global traction for iron ore smelting: the Electric Arc Furnace (EAF) and the Electric Smelting Furnace (ESF). While traditional blast furnaces remain dominant, China has set ambitious policy targets to pivot its massive steel sector toward these technologies, aiming to increase the share of EAF-based steel to 30 per cent by 2035 (China Iron and Steel Association, 2023).



The global shift toward EAF and ESF furnaces could shrink the market for traditional Australian iron ore, making it essential to adapt our processing capabilities to ensure the sector remains competitive.

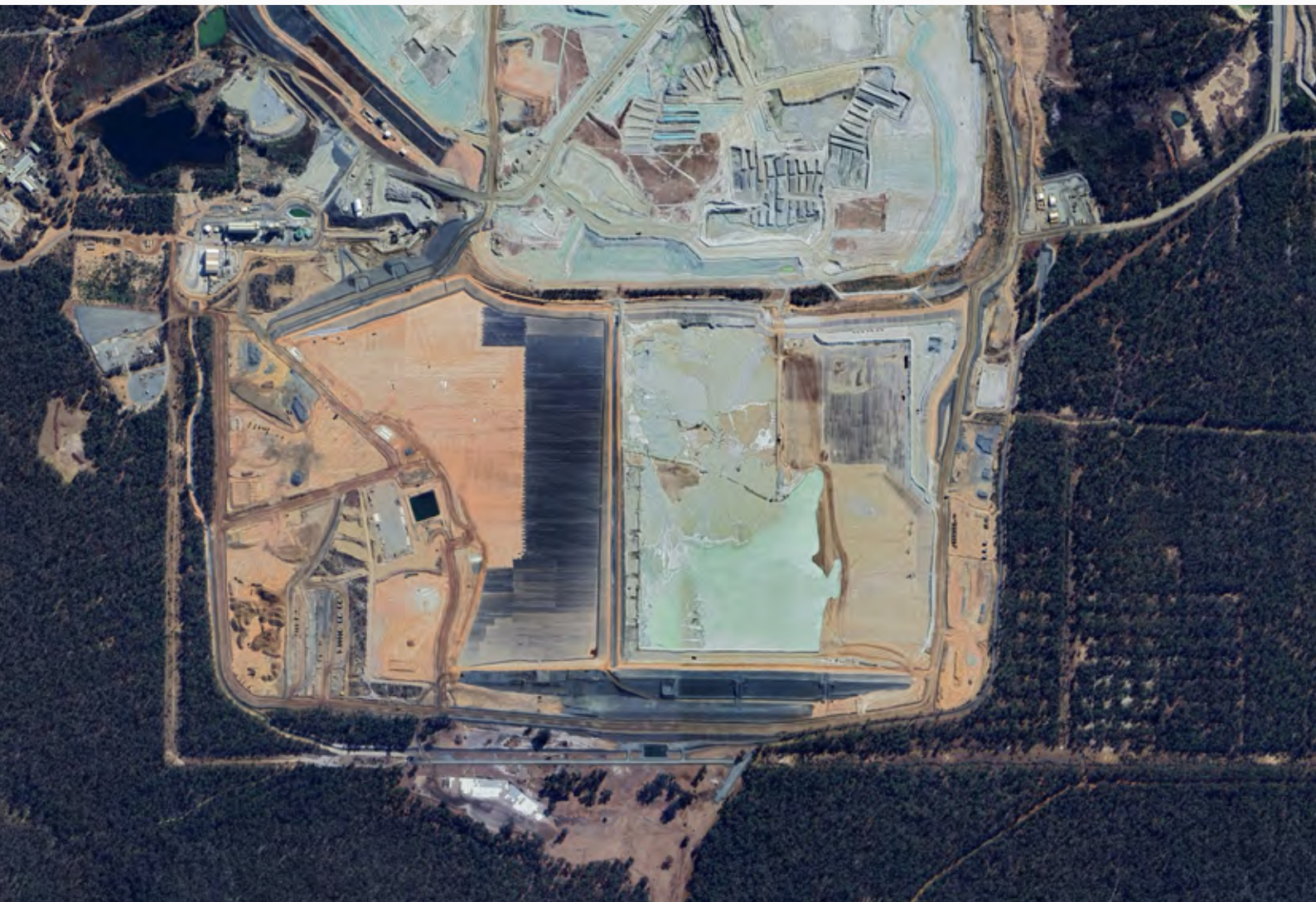
While both utilise electrical energy rather than coal or gas, resulting in significantly lower emissions, they serve different operational roles. EAFs are a mature, widely used technology primarily designed to melt high quality scrap metal or premium Direct Reduced Iron (DRI). In contrast, ESFs are an emerging application in primary steelmaking that offer superior feedstock flexibility, enabling the processing of lower-grade iron ores that would otherwise be unsuitable for an EAF. Plans are already underway for an ESF pilot plant in Western Australia, demonstrating the state's potential to lead in this space. However, this transition presents a challenge for Australia's iron ore industry: these furnaces require premium, ultra-low impurity concentrate, whereas much of Australia's current output is lower in quality. If left unaddressed, the global shift toward these furnaces could shrink the market for traditional Australian iron ore, making it essential to adapt its processing capabilities to ensure the sector remains competitive.



Automation and robotics also have the potential to substantially alter the economics of resource extraction. Autonomous haulage, remote operations centres, predictive maintenance systems and AI-assisted exploration are already improving productivity and reducing costs across many

resource operations. Over time, these technologies are likely to reduce the labour intensity of production, increasing productivity but also raising important questions about the distribution of economic benefits, future workforce requirements and the role of regional employment in resource-dependent communities.

Technological change, therefore, represents both an opportunity and a challenge for the resources sector. It is disrupting the mix of commodities demanded by global markets while simultaneously transforming how resources are discovered, extracted and processed. Economies that successfully adopt new technologies and position themselves within emerging value chains are likely to capture a greater share of future growth, while those that fail to adapt risk eroding their traditional advantages over time.



FUTURE SCENARIOS

Understanding how these structural forces may reshape Western Australia's resources sector over the coming decades is both challenging and essential, given the sector's central role in the state economy, employment, communities and public finances.

To explore these uncertainties, this report models three alternative scenarios for the future of the resources sector to 2050. The scenarios are anchored around several key drivers of structural change: the pace of global decarbonisation and the energy transition and demand for critical minerals and other resource commodities; the diversification and localisation of supply chains; the evolution of compliance with environmental, social and governance (ESG) for companies; and the economic regulation on the import of carbon-intensive goods.

Baseline scenario reflects the current trajectory of decarbonisation, in which fossil fuels continue to play an important role in the global energy mix, the extraction and transformation of critical minerals remain heavily concentrated in China, and geopolitical tensions remain elevated.

Sustained scenario assumes an organised and sustained transition towards decarbonisation, which accelerates the demand for critical minerals and transition-related commodities. Efforts to diversify supply chains for critical minerals towards trade allies boost the downstream processing of raw commodities. Stronger ESG credentials become increasingly important, creating the potential for Australian commodities to attract a price premium and sustain demand.

Accelerated scenario is characterised by a more aggressive global decarbonisation pathway, consistent with the world achieving net zero by 2050. Demand for critical materials with strong ESG credentials reaches its highest level, bringing Australian commodities a price premium. Reshoring and friend-shoring become central to supply chain strategy, generating an even greater premium for secure, responsibly produced Australian commodities.

Baseline scenario: Global decarbonisation efforts remain fragmented and fossil fuels continue to play a central role in the energy system. Existing policies place the world on a warming trajectory above 3°C. China retains its dominant position in critical mineral processing and refining, limiting supply chain diversification. Strong market concentration and continued Chinese influence over key mineral markets keep many commodity prices close to marginal production costs.

Sustained scenario: The global economy follows a more coordinated and orderly transition towards net zero, consistent with limiting global warming to below 2°C. Governments and firms increasingly seek to diversify supply chains in response to geopolitical risks and concerns over China's dominance in critical mineral processing. Demand grows critical minerals and for traceable, low-emissions commodities, with manufacturers willing to pay ESG premiums for secure supplies from trusted trading partners.

Accelerated scenario: Rapid global decarbonisation aligns with a pathway limiting global warming to below 1.7°C. Electrification accelerates across transport, industry and energy systems, with renewables providing more than 80 per cent of global electricity generation by 2050. Demand for critical minerals rises sharply, driving higher prices, increased exploration and substantial investment in new mining capacity. Carbon border adjustment mechanisms become widespread, strengthening incentives for low-emissions production and supporting the development of downstream processing industries.



The translation of these scenarios into outcomes for the resource sector differs significantly across global demand, supply chains, technology adoption, and downstream processing opportunities. In the **baseline scenario**, demand for raw materials and critical minerals follows trajectories implied by currently enacted decarbonisation policies. China retains its dominant position in mineral processing and refining, supply chains remain highly concentrated, and most commodities continue to be exported for processing offshore. Blast furnace steelmaking remains the dominant production pathway, recycling rates change little, and major economies do not impose carbon border measures. As a result, there is limited demand for low-emissions or traceable commodities, and Western Australia continues to specialise in the extraction and export of largely unprocessed resources.

In the **sustained scenario**, demand reflects both enacted policies and announced commitments consistent with a more coordinated transition towards net zero. Governments and firms increasingly diversify supply chains through reshoring and friend-shoring strategies, while ESG standards and traceability requirements become more prominent. This creates a premium market for high quality, low-emissions commodities from trusted jurisdictions and supports higher prices for some critical minerals.

Steel production becomes more diversified, with the growing adoption of direct-reduced iron and electric arc furnace technologies, while steel recycling increases substantially. These developments improve the commercial viability of downstream processing and beneficiation, allowing Western Australia to capture a greater share of value beyond extraction.

In the **accelerated scenario**, rapid global decarbonisation and energy system transformation drive a sharp increase in demand for the minerals and materials required for electrification, renewable energy and clean technologies. Carbon border adjustment mechanisms become widespread, ESG requirements strengthen, and policies aimed at reducing dependence on Chinese processing capacity reshape global commodity markets. Steel production shifts predominantly towards green hydrogen, direct reduced iron, and electric arc furnace technologies, increasing demand for higher grade feedstocks and low-emissions processing pathways. In response, Western Australia moves further along the value chain, expanding renewable-powered processing and green iron production. Under this scenario, the state evolves from a bulk commodity exporter towards a globally competitive producer of higher value, low carbon mineral products.



Projecting future scenarios: Methodology

Box 2: WA - Mining Industry Data and Scenario Simulator (MIDAS)

The WA Mining Industry Data and Scenario Simulator (MIDAS) is a structural scenario model developed to examine the long-term outlook for Western Australia's resources sector. The model combines local industry intelligence with global market projections to assess how production, exports and value creation may evolve under different economic, technological and decarbonisation pathways to 2050.

MIDAS draws on a range of data sources, including industry forecasts and market intelligence from organisations such as S&P Global, Bloomberg and the International Energy Agency (IEA), company reports and disclosures, and Australian and Western Australian government datasets. These sources are combined to develop commodity-specific assumptions on future demand, supply, costs and investment conditions.

Rather than relying on highly volatile spot prices, MIDAS uses global cost curves and greenfield incentive prices to inform long-term commodity price assumptions. This approach reflects the underlying economics of resource production and provides a more stable basis for projecting future market conditions. Under lower-demand scenarios, prices are set by the operating costs of the most expensive mines still needed to supply the market. If prices drop below this level, these mines will close, reducing supply until the market balances. Under higher-demand scenarios, prices rise to a level that makes it profitable to build entirely new mines.

The model also incorporates structural factors likely to influence future competitiveness and value capture, including carbon border adjustment mechanisms, environmental, social and governance (ESG) standards, technological change and evolving trade patterns. LNG is modelled separately to reflect its distinct market structure, with export prices linked to international oil and gas markets and long-term contract arrangements, while domestic gas prices are influenced by Western Australia's reservation policy and local production and transport costs.

The projections presented in this report are not forecasts and should not be interpreted as precise estimates of future production, prices, exports or economic outcomes. The resources sector is influenced by a range of inherently uncertain factors, including technological change, geopolitical developments, policy settings, consumer preferences, and global economic conditions. The purpose of MIDAS is therefore not to predict a single future, but to explore a range of plausible pathways and identify the opportunities, risks and trade-offs that may emerge under different assumptions. The scenarios provide an internally consistent framework for understanding how structural forces could shape the future of Western Australia's resources sector and inform strategic decision making, rather than a definitive view of what will occur.

How could the transition reshape the WA resources sector?

WA's resource sector is expected to undergo significant structural changes through to 2050, shaped by the global net zero transition, technological progress, evolving consumer preferences, and geopolitical forces. Using the BCEC's in-house WA Mining Industry Data and Scenario Simulator (WA-MIDAS), projections were developed for major commodities under three alternative scenarios to assess the implications for production, export earnings and government revenue.

The modelling suggests that the overall value of WA's resources sector remains relatively resilient across all scenarios, although the composition of production changes substantially over time (Figure 35). Under the baseline scenario, total gross sales value increases modestly to 2030 before broadly stabilising through to 2050. The sustained scenario produces slightly lower outcomes, with sector sales remaining relatively flat over the projection period. In contrast, the accelerated scenario sees a significant decline in gross sales value from around \$218 billion in 2025 to approximately \$183 billion by 2040, before recovering to around \$195 billion by 2050.

The lower gross sales value under the accelerated scenario is driven primarily by reduced iron ore revenues, as global steel producers increasingly favour higher grade, beneficiated ores to reduce emissions intensity and improve production efficiency. Over the shorter term, this outweighs strong growth in transition minerals and other emerging commodities (See chapter 1).

While demand for lithium, nickel, rare earths, and other minerals associated with the energy transition increases significantly, this growth is initially outweighed by declines in iron ore revenues. Over time, however, transition minerals become an increasingly important contributor to output and exports, providing new opportunities for growth as global demand shifts towards lower-emissions technologies.

The results highlight both the opportunities and limitations of the energy transition for WA, suggesting that growth in emerging commodities is unlikely to completely replace the economic contribution of the state's established resource exports over the coming decades.

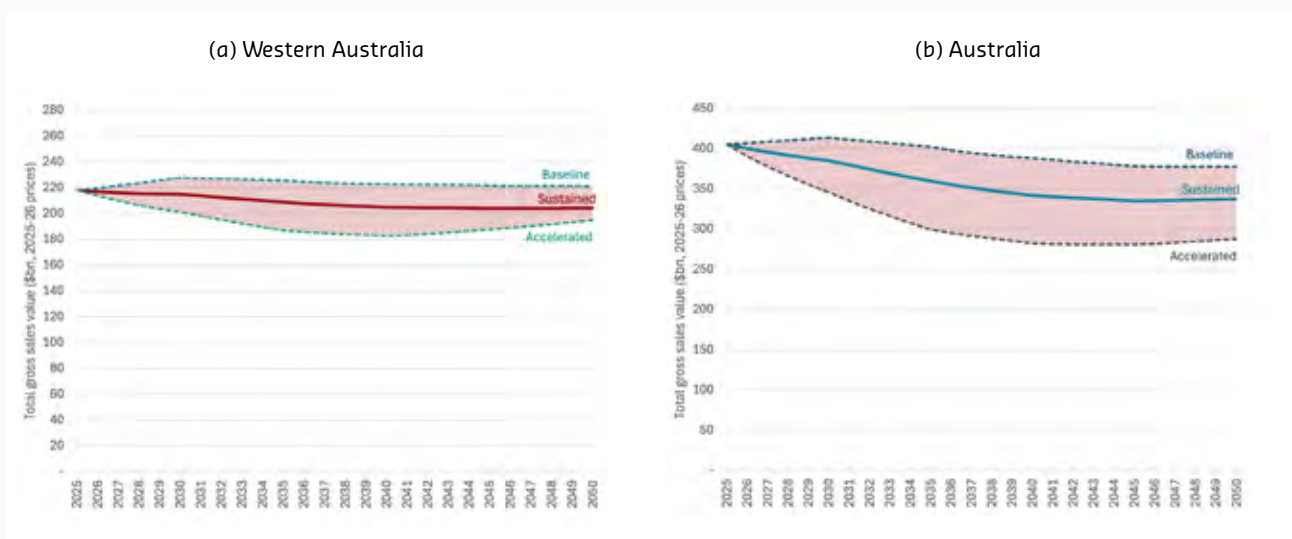
Compared with the national projections, WA's outlook exhibits similar directional trends but important differences in scale and exposure. Australia's

resources sector is projected to generate around \$405 billion in gross sales value in 2025 - almost double WA's total - and follows a comparable pattern across all three scenarios. However, the divergence between the baseline and accelerated scenarios is considerably larger nationally, reaching around \$90 billion by 2050 compared with approximately \$26 billion for WA. This suggests that while both WA and Australia remain major resource producers under all scenarios, long-term outcomes are highly sensitive to the pace of the global transition and resulting shifts in commodity demand.

These results highlight the sensitivity of both WA and Australia's resources sectors to alternative global transition pathways. While accelerated decarbonisation reduces the value of some traditional resource exports, it also creates substantial opportunities in transition minerals and related industries. The modelling suggests that, under the accelerated scenario, growth in emerging commodities does not fully offset declines in fossil fuels and in some bulk commodities, resulting in lower aggregate resource sector sales values. This points to a significant shift in the sector's composition rather than its disappearance, with future growth increasingly dependent on new sources of comparative advantage.

FIGURE 35

Scenario projections of resource sector gross sales value: WA and Australia, 2025 to 2050



Note: Include **all** resource commodities.

Source: Bankwest Curtin Economics Centre | Authors' modelling estimates from WA-MIDAS.

At the same time, the composition of WA's export earnings changes markedly across all scenarios (Figure 36). In 2025, fossil fuel exports generated around \$39 billion in export earnings, compared with approximately \$20 billion for transition minerals. Over time, however, export revenues increasingly shift towards commodities associated with electrification, renewable energy systems and low-emissions technologies. Under the accelerated scenario, transition mineral exports overtake fossil fuel exports in the early 2030s and reach \$100 billion by 2050. Even under the baseline and sustained scenarios, transition mineral export earnings grow strongly, increasing by around 58 per cent and 142 per cent, respectively, compared with 2025 levels.

The outlook for fossil fuel exports contrasts sharply with this growth. While export earnings continue to increase modestly under the baseline scenario, they decline under the sustained and accelerated scenarios, falling by more than 70 per cent by 2050 under the latter. Together, these trends point to a significant rebalancing of WA's export mix, with future growth increasingly driven by transition minerals and other low-emissions industries. WA is projected to

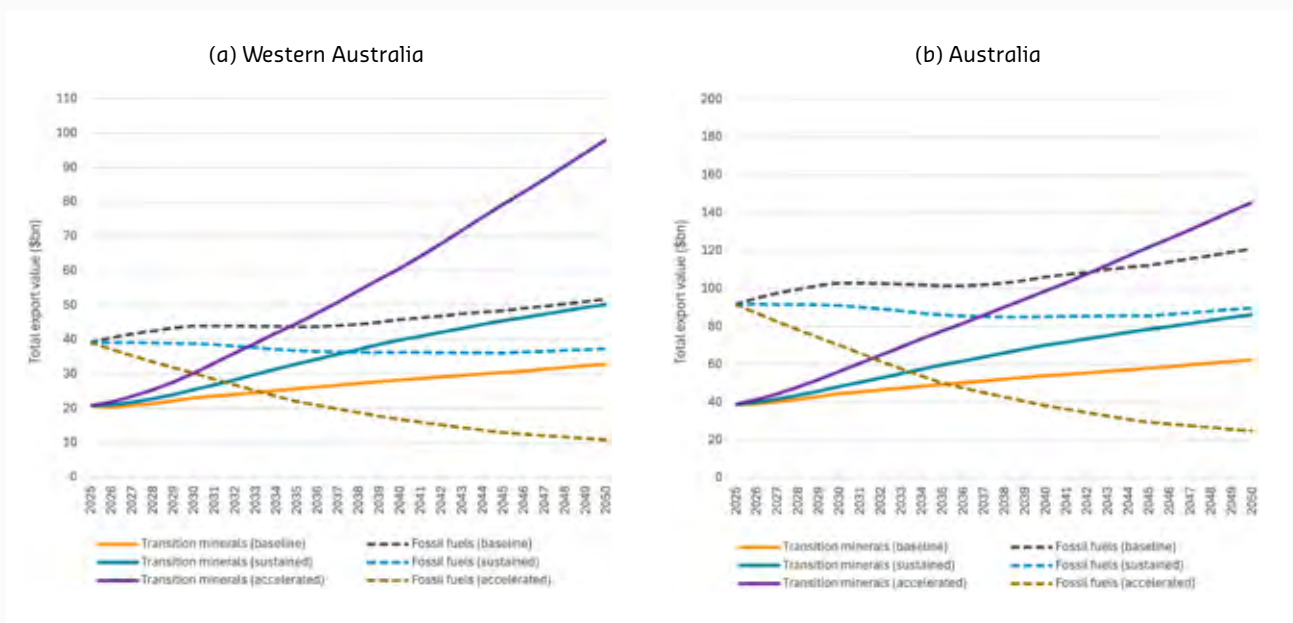
account for around \$100 billion of Australia's \$145 billion transition mineral exports by 2050 under the accelerated scenario - approximately 70 per cent of the national total - underscoring the state's central role in supplying the materials required for the global energy transition.



Over time export revenues increasingly shift towards commodities associated with electrification, renewable energy systems and low-emissions technologies while fossil fuel exports decline.

FIGURE 36

Total export value under the three different scenarios: WA and Australia, 2025 to 2050



Note: Transition minerals include alumina, nickel, lithium, rare earths, mineral sands, beneficiated and metallic iron ore. Crushed DSO iron ore and gold are excluded.

Source: Bankwest Curtin Economics Centre | Authors' modelling estimates from WA-MIDAS.

WA's commodity mix is projected to change significantly over the coming decades (Figure 37). The projected output value of WA's cornerstone commodities, including gold and iron ore, is expected to decline over the long term across all three scenarios through 2050. While output values remain highest under the baseline scenario, the accelerated scenario produces the largest reductions, reflecting weaker long-term demand for emissions-intensive commodities and increasing global decarbonisation efforts. These trends suggest that regardless of the specific scenario path adopted, the total value derived from WA's traditionally dominant commodities is expected to decrease over the next two and a half decades.

In contrast, the critical minerals sector is positioned for substantial growth through 2050, driven by WA's transition minerals such as lithium, nickel, rare earths, alumina and beneficiated iron ore increasing across all scenarios, with the strongest growth under an accelerated scenario.

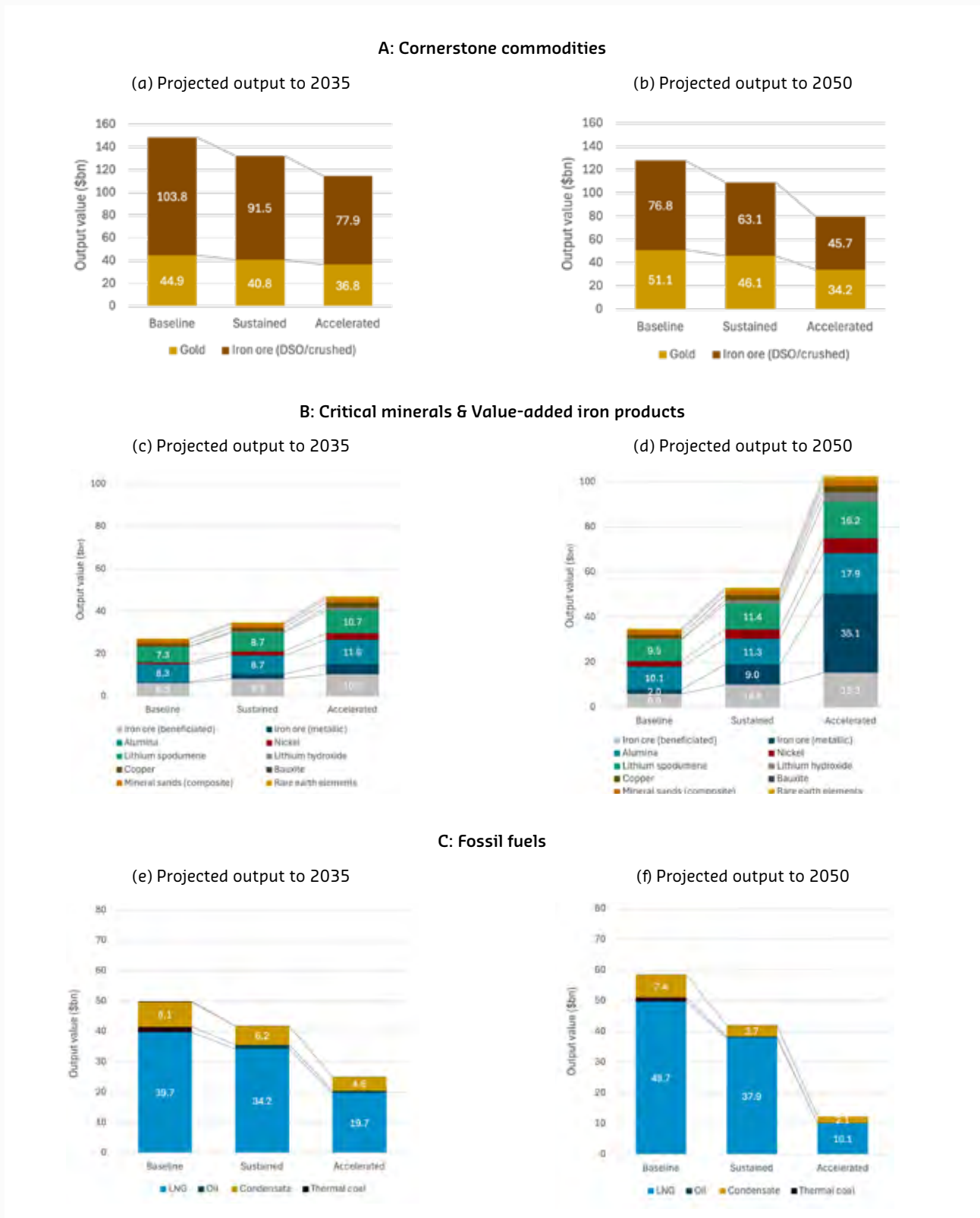
By 2050, the value of these commodities will exceed \$100 billion, more than triple its 2035 level of around \$30 billion. This reflects the growth in global demand for the minerals and processed materials required for batteries, renewable energy technology, and other low-emissions industries. The expansion of these sub-sectors underscores their increasingly important role in WA's future economy and positions the state to capture a growing share of emerging global markets as the transition accelerates.

This trend becomes increasingly pronounced by 2050, where the shift away from high-carbon exports toward minerals essential for the global energy transition is starkly illustrated. WA is among the world's leading producers of hard rock lithium, holds world-class nickel and rare earth deposits, and possesses renewable energy resources needed to support global decarbonisation efforts.



FIGURE 37

Projected future output value by commodity sub-sector under the three scenarios: WA, 2025 to 2050



Source: Bankwest Curtin Economics Centre | Authors' modelling estimates from WA-MIDAS.

The outlook for gross sales value for WA's fossil fuels shows a diverging trend under the different scenarios. Under the baseline scenario, fossil fuel output increases modestly between the two horizons (2035 and 2050), reflecting continued LNG demand as a transition fuel under a low ambition net zero transition policy environment. Across the scenarios, the projected output declines sharply as the transition scenario ambition increases, falling from approximately \$50b under the baseline to about \$25b under the accelerated scenario by 2035, and declining even more aggressively to around \$59b billion (baseline) versus approximately \$12 billion (accelerated) by 2050. This trend is primarily driven by structural shifts in global energy demand to meet the Paris Agreement targets, rapid reductions in clean technology costs, and evolving trade and climate policies (Figure 37).

LNG dominates the composition of fossil fuel output across all scenarios and both time horizons, accounting for the overwhelming bulk of output, with oil, condensate, and thermal coal contributing comparatively modest and diminishing shares. The near disappearance of thermal coal across all scenarios by both reference years reflects its position as the most vulnerable fossil fuel commodity under decarbonisation-aligned policy settings. Steep cost declines in renewable technologies are expected to accelerate substitution away from fossil fuels such as LNG, potentially weakening WA's core export demand under the accelerated scenario.





SECURING LONG-TERM VALUE: RESILIENCE AND REFORM

SECURING LONG-TERM VALUE: RESILIENCE AND REFORM

Chapter 1 demonstrated the central role the resources sector plays in the Western Australian economy, generating output, employment, exports and government revenue while also highlighting a range of broader economic, social and environmental trade-offs. Chapter 2 then examined the structural forces likely to reshape the sector over coming decades, including the global energy transition, technological change and increasing geopolitical fragmentation. These forces will influence not only what resources are produced and where demand emerges, but also the profitability of projects, patterns of investment and the extent to which value is created within Western Australia.

Against this backdrop, an important policy question is how the economic value generated from the state's resource endowment is captured and shared. Governments currently derive significant benefits from the sector through a combination of royalties, company income tax, payroll tax, the Petroleum Resource Rent Tax (PRRT) and personal income tax paid by workers employed directly and indirectly across the industry. Together, these revenue streams help fund public services and infrastructure while ensuring that a portion of the returns from the extraction of non-renewable resources accrue to the broader community.



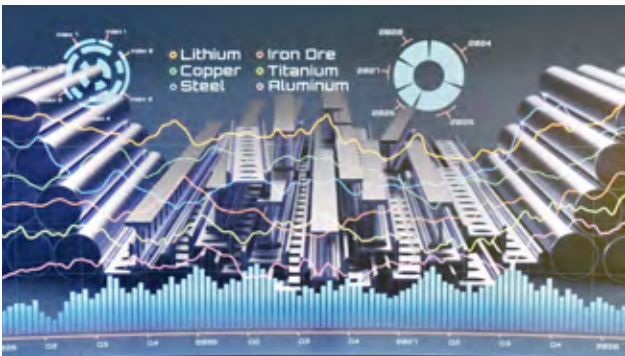
How is the economic value generated from WA's resources endowment captured?

This chapter examines how value is currently captured from the resources sector, how Western Australia's arrangements compare with those used in other resource-rich jurisdictions, and how the sector's contribution to government revenues has evolved over time. It considers the relative importance of different revenue streams across state and federal governments and explores the overall fiscal contribution made by resource companies operating in Western Australia. The chapter then turns to the future, examining how the structural forces identified in Chapter 2 may alter the composition and scale of resource revenues and assessing the implications for existing taxation and royalty arrangements. Finally, it considers alternative approaches to resource taxation and value capture that could be employed in the future as the sector and the global economy continue to evolve.



AUSTRALIA'S RESOURCE REVENUE FRAMEWORK

Resource extraction can generate significant economic rents - returns above those required to attract investment and production. Because mineral and petroleum resources are publicly owned and represent a finite endowment, governments have long sought to capture a share of these rents for the benefit of current and future generations. In Australia, this occurs through a combination of royalties, resource rent taxes, company income tax, payroll tax and other charges. Each mechanism differs in its design, efficiency and sensitivity to commodity prices and profitability. Together, they determine how the economic benefits of resource development are shared between companies, workers, governments and the broader community.



Governments have long sought to capture a share of resource sector rents for the benefit of current and future generations.

Royalty revenues – now and in the future

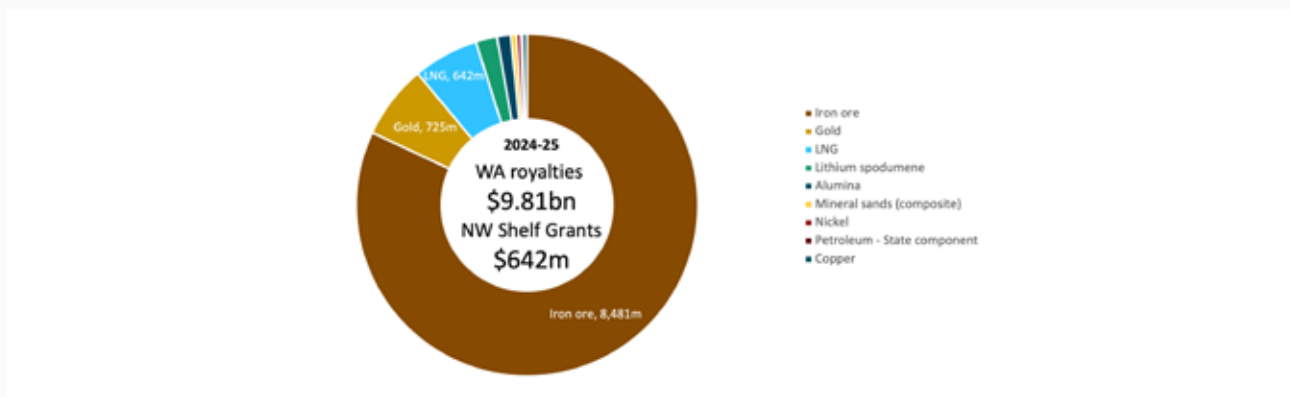
Australians are considered the owners of the resources within the country and nearby waters, where the state and Commonwealth governments are responsible for managing this ownership on their behalf. This means if a company or entity wishes to extract Australian resources, such as coal, iron ore, or gas, they must make a payment, or royalty, to do so. Australian states have different royalty schemes, both for how the royalty is calculated and which mineral it is applied to, with the Commonwealth managing ownership of offshore resources that are not subject to royalty payments.

For WA, the management of royalties was first introduced in the 1978 Mining Act, with the act and other legislation determining the specific (amount per tonne) or ad valorem (percentage of total value of mineral) royalty rate for each commodity. The ad valorem rate varies based on how the mineral is processed, for example a 7.5 per cent rate applies if sold crushed or screened, 5 per cent if sold as concentrate, and 2.5 per cent if sold in metallic form. The current specific rate applies to lower-value construction and industrial minerals, charged per tonne produced - 73 cents for Amount A minerals (common bulk minerals such as aggregate, gravel, sand, clays, rock, salt, dolomite, and gypsum) and 117 cents for Amount B minerals (building stone, talc, limestone and silica used for metallurgical purposes).

Royalty income totalled \$9.8 billion in 2024-25 for WA (Figure 38), equating to around 20 per cent of general government operating revenue, more than doubling from royalty payments of \$4.1 billion in 2015-16. Additionally, based on the WA budget 2026-27, royalties are estimated to reach \$7.4 billion in 2029-30.

FIGURE 38

WA royalty revenues by industry sector: 2024-25



Source: Bankwest Curtin Economics Centre | Authors' calculations using data from WA Department of Mines, Petroleum and Energy (2026) and WA Treasury (2025) Overview of State Taxes and Royalties 2025-26.

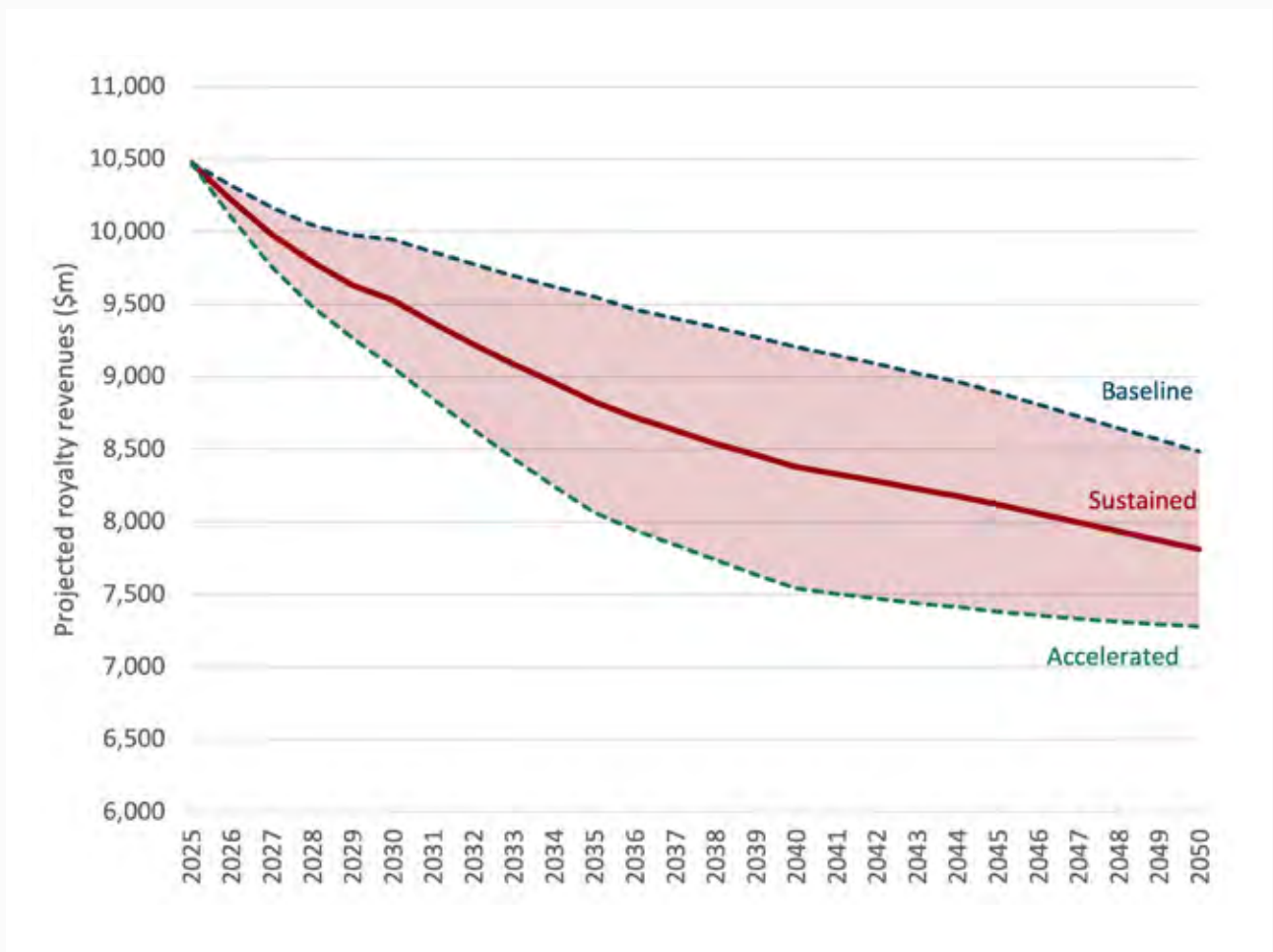
The composition of WA's resources sector is changing and will continue to evolve as global decarbonisation, shifting commodity demand and technological change reshape international markets. These structural shifts have important implications for government revenue. BCEC analysis indicates that royalty revenue declines under all three scenarios, falling from around \$10.5 billion today to between \$7.5 billion and \$8.5 billion by 2050 - a reduction of between 19 and 29 per cent in real terms (Figure 39). This reflects the expected long-term decline in some of WA's traditional royalty-generating commodities, only partly offset by projected growth in emerging transition minerals and downstream processing activities (Figure 40).



Royalty revenues fall by between 19 and 29 per cent under all future scenarios.

FIGURE 39

Scenario projections for future royalty: WA, 2025 to 2050



Note: Projected royalties revenues include NW shelf grant revenues from LNG production that sits under WA's jurisdiction for taxation purposes.

Source: Bankwest Curtin Economics Centre | Projected future royalties scenarios have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

Under all three scenarios, declining iron ore production is the primary driver of lower royalty revenues over time (Figure 40). This reflects a combination of structural shifts in global steel markets, including growing demand for higher-grade ores, the transition to lower-emissions steelmaking technologies, and increasing steel recycling rates. As a result, iron ore royalties are projected to fall from around \$5.3 billion in 2035 to approximately \$3.1 billion by 2050 under the accelerated scenario (Figure 40A), a decline of more than 40 per cent.

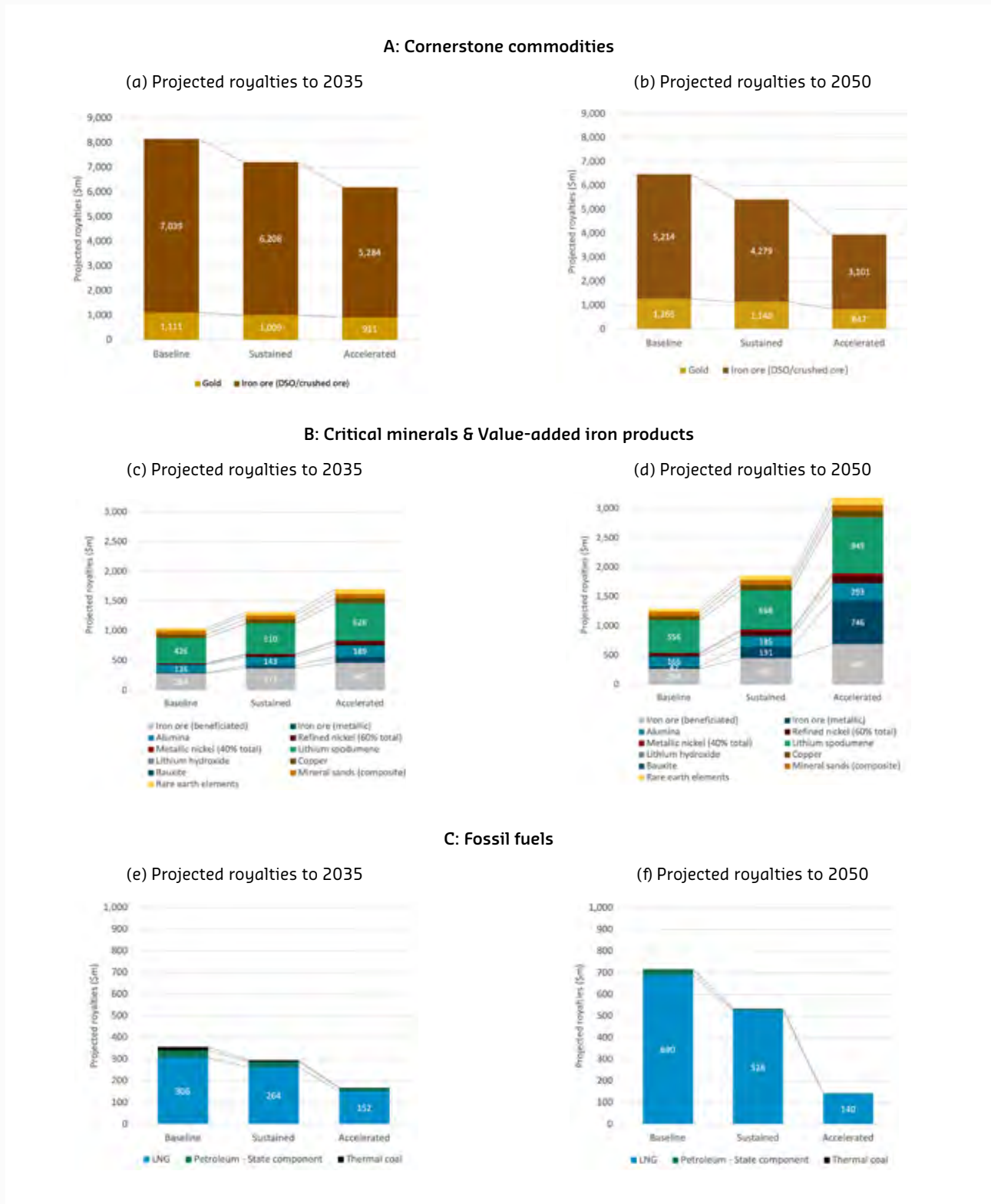
Royalties and grants from fossil fuels, particularly LNG, also decline over time as global energy systems

decarbonise. While royalty revenues from critical minerals and value-added iron products increase across all three scenarios, these gains are not sufficient to fully offset losses from WA's traditional royalty base. Growth is strongest under the accelerated scenario, reflecting higher demand for the minerals, materials and processed products required to support the global energy transition. The results highlight how the composition of government revenue is likely to shift over coming decades, with emerging industries playing an increasingly important role but not fully replacing the fiscal contribution of iron ore and LNG.



FIGURE 40

Projected future royalty revenues by commodity sub-sector: WA, 2025 to 2050



Source: Bankwest Curtin Economics Centre | Projected future royalties scenarios have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

What does WA do with royalties?

Royalties for Regions originated as a policy of the WA Nationals during the lead-up to the 2008 State Election. Following the election, securing the program in legislation was a key condition of the agreement that enabled the formation of the Liberal-National Government. The Royalties for Regions Act 2009, which came into operation in 2010, established a framework for directing a share of the state's mining and onshore petroleum royalty revenue towards regional development. At its inception, up to 25 per cent of eligible royalty revenue was allocated to the Royalties for Regions Fund to support regional infrastructure, community services and economic development projects, administered through the Department of Regional Development.

Since its establishment, Royalties for Regions has become one of the largest place-based development programs in Australia. Between 2008-09 and 2024-25, around \$14 billion was committed to regional Western Australia, funding thousands of projects including hospitals, regional health services, the Royal Flying Doctor Service, underground power initiatives, community facilities and sporting infrastructure. Expenditure through the program is estimated to have reached \$1.0 billion in 2024-25, compared with \$507 million in 2010-11, the first full year of operation.

Royalties for Regions represents only one use of royalty revenue. Mining and petroleum royalties form part of general government revenue, helping to fund public services and infrastructure including health, education, transport and public safety. During periods of strong commodity prices, royalty revenues have also contributed to budget surpluses, lower state debt and a stronger fiscal position, increasing the government's capacity to invest in long-term infrastructure and respond to economic shocks. While Royalties for Regions provides a visible mechanism for directing a share of mining wealth to regional communities, most royalty revenue is distributed through the broader budget process.

In response to concerns about fiscal sustainability and the effectiveness of some projects, reforms introduced in 2014 imposed a \$1 billion cap on both annual expenditure and the balance of the fund. While these limits have helped contain spending growth, they also mean that the real value of Royalties for Regions funding has declined over time as inflation has eroded purchasing power. As a result, the volume of infrastructure and services that can be directly funded through the program today is lower than when the cap was introduced more than a decade ago.



Unlike some major resource-producing jurisdictions such as Norway or Alaska, Western Australia does not currently channel a portion of resource revenues into a sovereign wealth fund or long-term savings vehicle. Instead, royalty revenues are largely used to fund current government expenditure and capital investment through the annual budget process.

Payroll tax receipts - now and in the future

Payroll tax is another important mechanism through which governments receive revenue from the resources sector. Unlike royalties, which are levied on the extraction of publicly owned resources, payroll tax is applied to wages paid by employers and therefore captures some of the economic activity generated by resource development and employment. Payroll tax is levied by state governments and applies across all industries, although the resources sector is a significant contributor given its relatively high wages and large workforce.

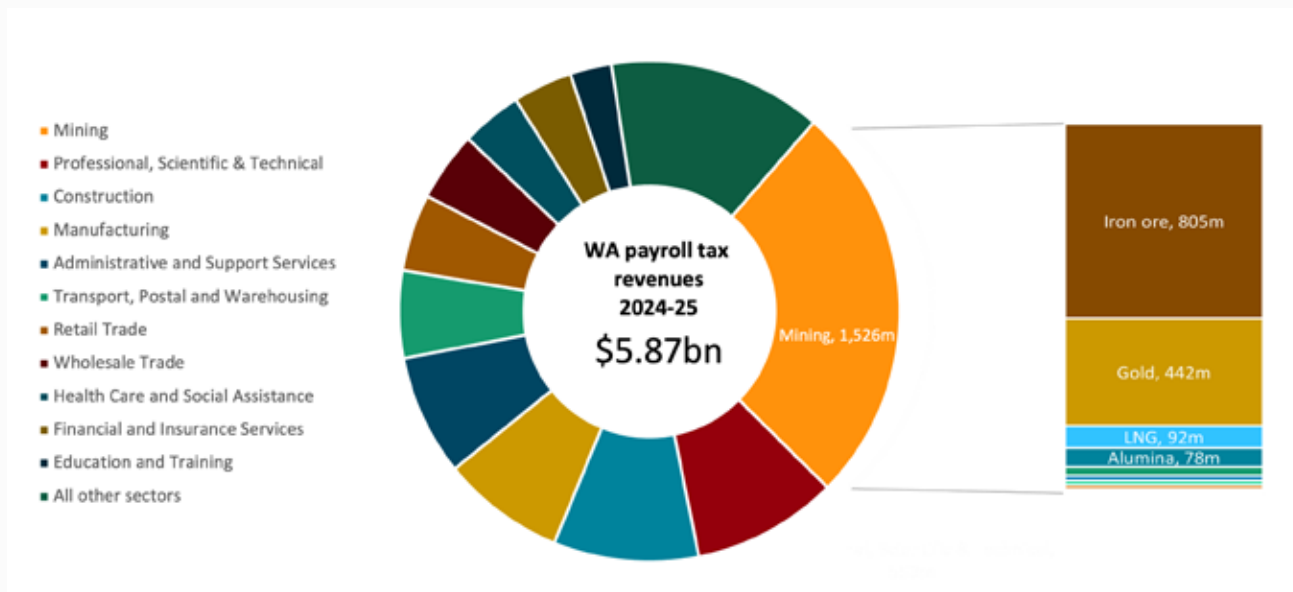
The structure of payroll tax has evolved over time, with successive governments adjusting thresholds and rates to balance revenue raising with support for business and employment growth. As of 2025-26, payroll tax in Western Australia is levied at 5.5 per cent on taxable wages - employers receive a tax-free threshold that phases out as annual Australian taxable wages increase from \$1 million to \$7.5 million, after which payroll tax is payable on all taxable wages at the standard rate. Because the tax is linked to employment rather than commodity production or profitability, payroll tax revenues tend to be more stable than royalties, although they remain influenced by economic conditions and labour market activity.

The resources sector contributes substantially to payroll tax collections due to its concentration of highly paid workers (Figure 41). During periods of strong commodity demand, mining employment and wages often increase, boosting payroll tax receipts

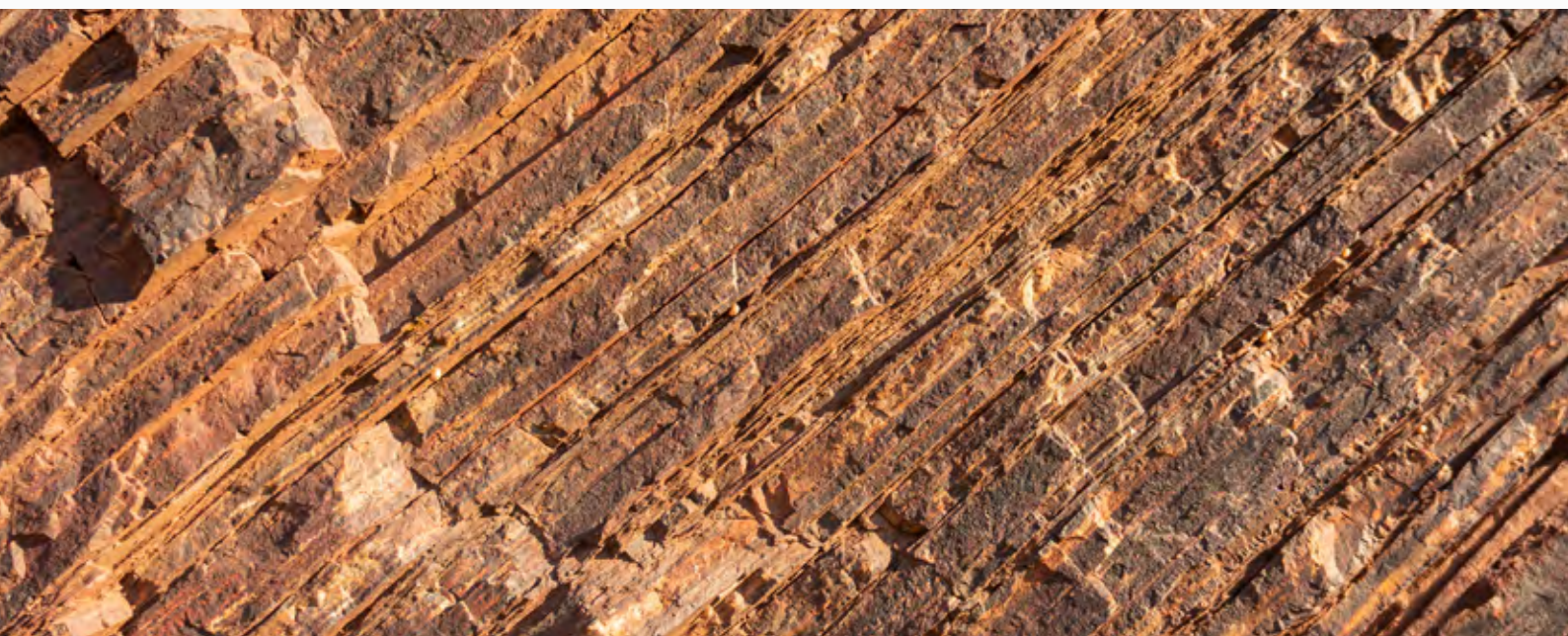
alongside royalty revenue. In this way, payroll tax provides governments with an additional channel through which the benefits of resource development are shared more broadly across the community through funding for public services and infrastructure.

FIGURE 41

WA payroll tax revenues by industry sector and main resource sub-sectors: 2024-25



Source: Bankwest Curtin Economics Centre | Authors' calculations using data from response to WA Parliamentary Question On Notice #1477 (14 April 2026). Projected resource sub-sector payroll tax shares are simulated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

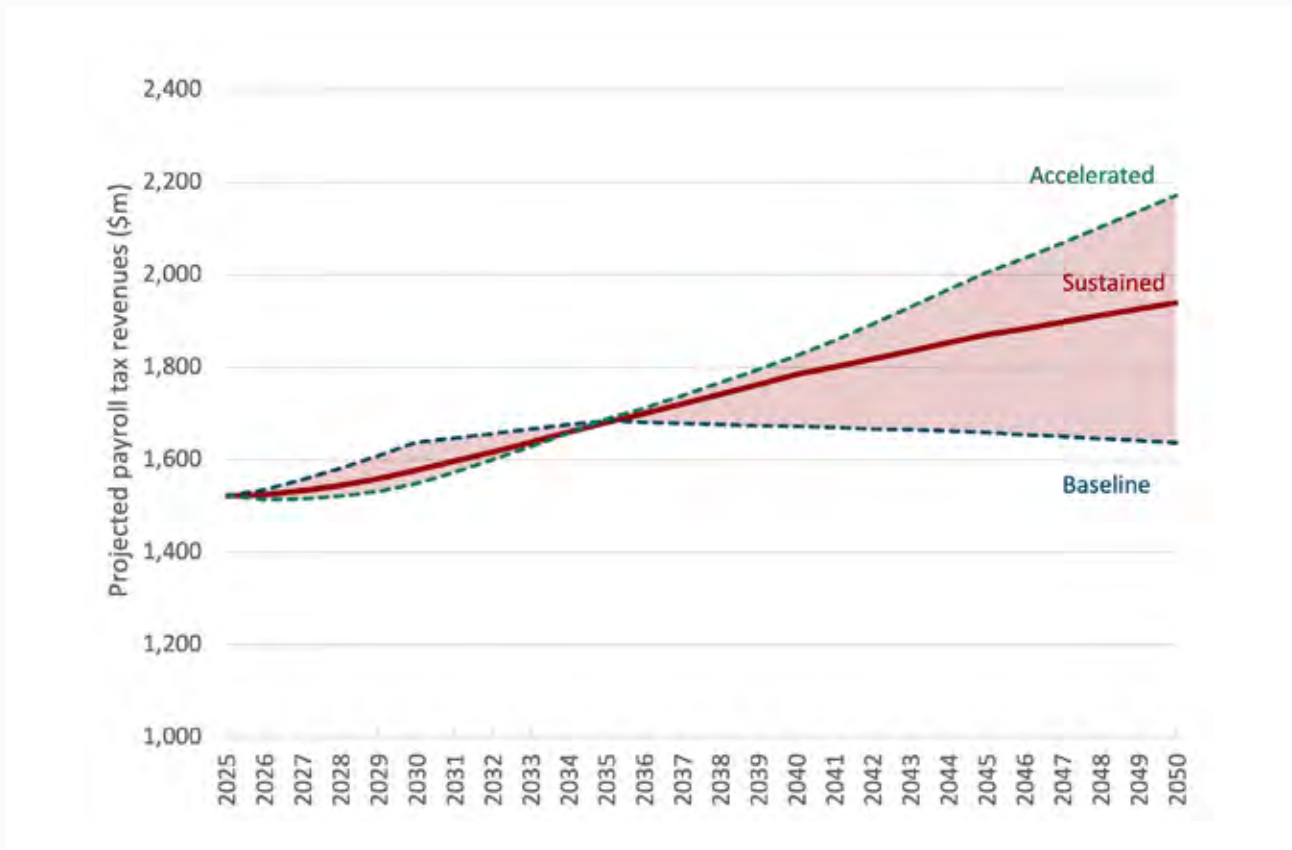


Payroll tax revenue projections are broadly similar across all three scenarios until the mid-2030s (Figure 42). This reflects the long lead times associated with major resource investments, with much of the existing

project pipeline and workforce profile remaining largely unchanged over the next decade regardless of the transition pathway.

FIGURE 42

Scenario projections for future resource sector payroll tax revenues: WA, 2025 to 2050



Source: Bankwest Curtin Economics Centre | Projected future royalties scenarios have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).



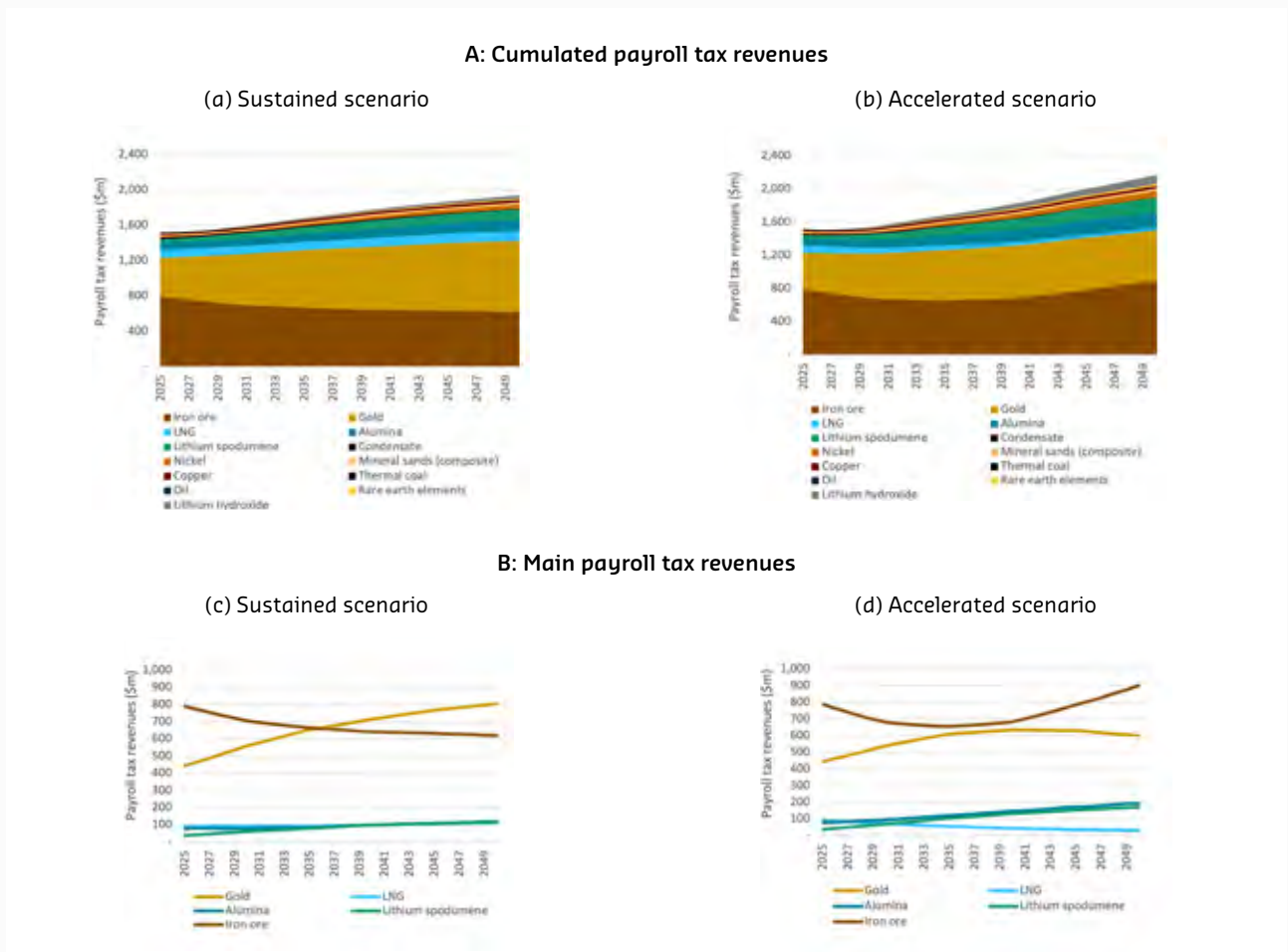
Beyond the mid-2030s, the scenarios begin to diverge significantly. By 2050, payroll tax revenue reaches around \$2.1 billion under the accelerated scenario, compared with approximately \$1.6 billion under the baseline scenario - around 30 per cent higher (Figure 42). This stronger revenue growth is driven by a shift towards higher-value activities and later stage growth in value-added iron products and other downstream processing industries (Figure 43). While these activities do not fully offset declining royalty revenues, they generate more employment and higher wages, strengthening the payroll tax base over time. They also support productivity growth by moving the sector further up the value chain and increasing the amount of economic value generated from each tonne of resource extracted.



Payroll tax revenue is 30 per cent higher under an accelerated scenario reflecting a shift towards higher-value activities and real wage growth.

FIGURE 43

Projected future payroll tax revenues by resource sub-sector: WA, 2025 to 2050



Source: Bankwest Curtin Economics Centre | Projected future payroll tax revenue scenarios have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

Company taxation - now and in the future

Company income tax is another important mechanism through which governments capture a share of the value generated by the resources sector. Unlike royalties and the Petroleum Resource Rent Tax, which are designed specifically to provide a return from resource extraction, company tax applies across all industries and is levied on taxable corporate profits.

Australia's headline company tax rate (30 per cent) remains above the OECD average of around 24 per cent, prompting debate about its impact on international competitiveness. However, deductions, tax concessions and loss carry-forward provisions mean that effective tax rates are often lower than statutory rates. For example, of the 4,110 large corporate entities that lodged tax returns in 2023-24, around 28 per cent paid no company tax, reflecting a combination of business losses, carried-forward losses and other features of the tax system.

Unlike royalties, company tax is not reported by commodity, project or state, making it difficult to identify the precise contribution of WA's resources sector. Tax payments are also influenced by commodity prices, investment cycles, deductions and carried-forward losses, causing revenues to fluctuate over time. Consequently, estimates of company tax

generated by the sector should be interpreted as indicative rather than definitive.

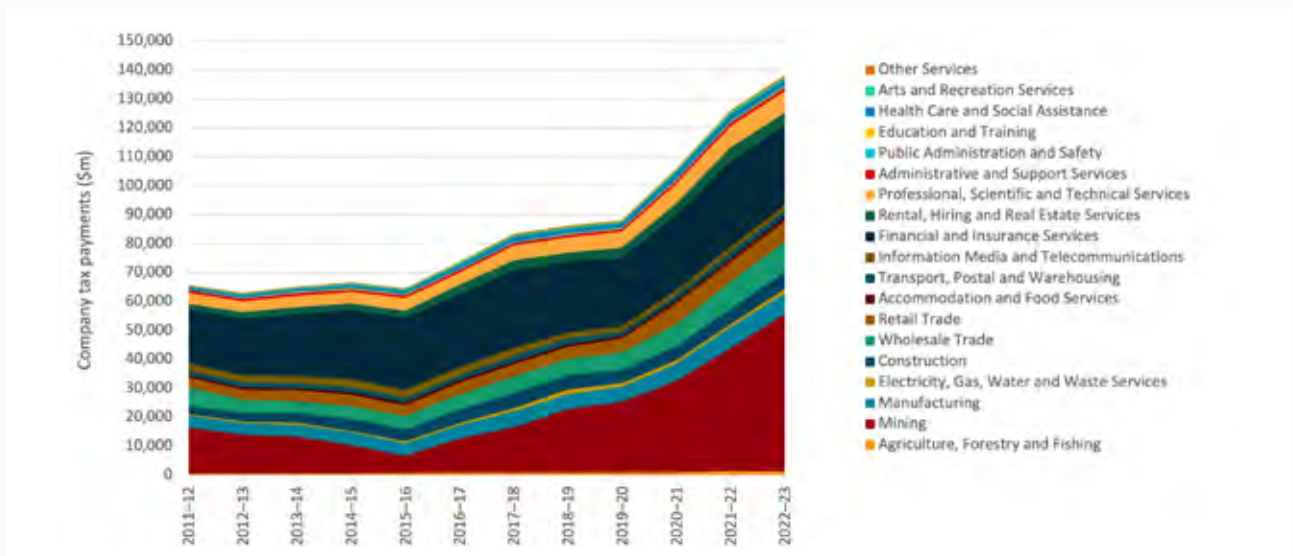
Company tax is a major source of public revenue generated by Australia's resources sector. In 2022-23, the Commonwealth collected almost \$139 billion in company tax revenue, with mining companies contributing around 39 per cent of the total (Figure 44). This represents a substantial increase from just over one-quarter of company tax receipts in 2011-12, highlighting the growing importance of the resources sector to Commonwealth revenues over the past decade.



The mining sector's share of Commonwealth company tax revenue has risen from around one-quarter to almost two-fifths over the past decade.

FIGURE 44

Company tax payments from resources industry: value and share, 2011-12 to 2022-23



Note: 2022-23 is the latest financial year for which comprehensive company tax revenues by industry are available

Source: Bankwest Curtin Economics Centre | Authors' calculations from ATO Taxation Statistics 2011-12 to 2022-23.

Unlike royalties, which are levied on production value, company tax revenues are linked directly to profitability. As a result, company tax revenues provide an important indication of the extent to which economic value generated from Western Australia's resources sector ultimately translates into taxable corporate earnings.

As many of Australia's largest resource companies operate across multiple states, company tax revenues cannot be accurately attributed to WA alone. Instead, Figure 45 provides indicative projections of national company tax revenues from the resources sector to 2050 under the three scenarios. From a common starting point of \$46 billion in annual company tax receipts in 2025, revenues diverge over time as commodity demand, industry structure and investment patterns evolve.

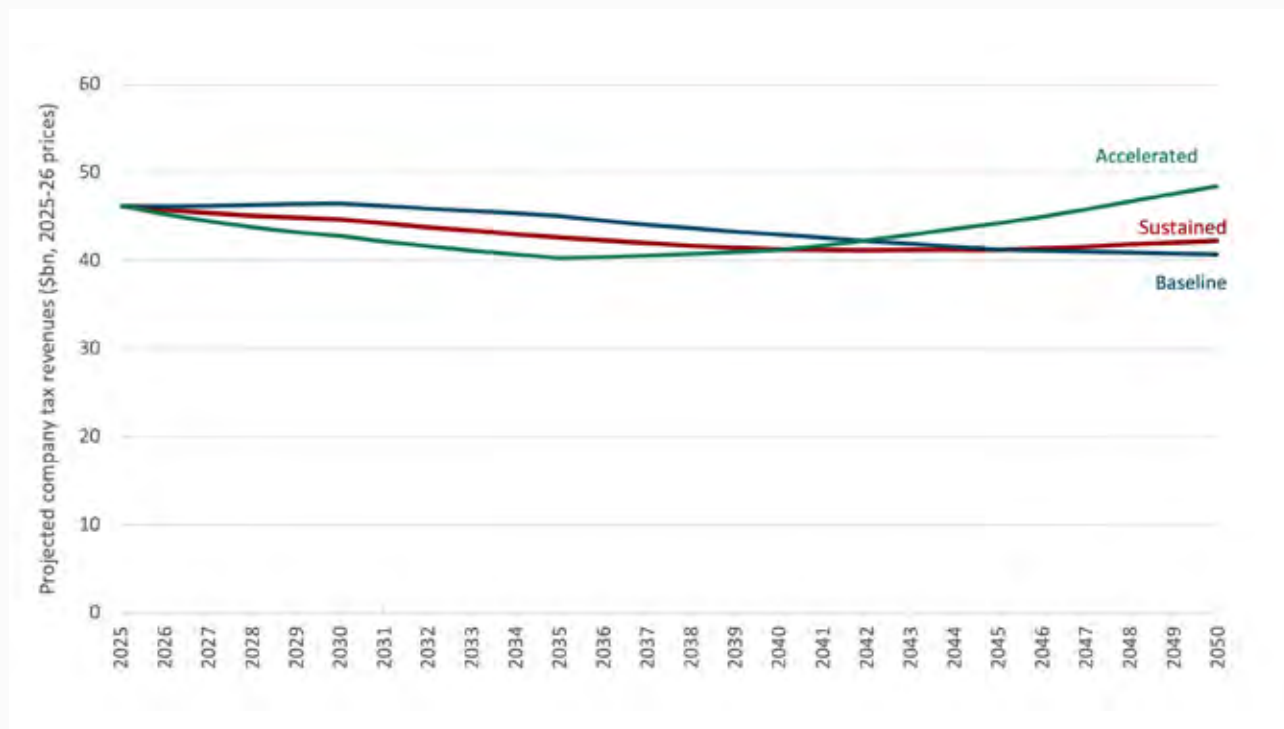
Company tax revenues decline gradually under the baseline scenario and stabilise under the sustained transition scenario. The accelerated transition

scenario records the largest initial decline, reflecting the substantial capital investment required to develop new industries, processing capacity and supporting infrastructure. During this period, taxable profits are reduced by depreciation, carried-forward losses, financing costs and other investment-related deductions.

Over time, however, this relationship reverses. As new industries mature and a larger share of value creation occurs through downstream processing and other higher value-added activities, profitability strengthens and the burden of investment-related deductions declines. By 2050, company tax revenues under the accelerated transition scenario exceed those in both the baseline and sustained scenarios. This highlights an important fiscal implication of decarbonisation: while the transition may initially reduce company tax collections, successful development of higher-value industries has the potential to generate larger and more durable public revenues over the longer term.

FIGURE 45

Scenario projections for future company tax: 2025 to 2050



Note: Dollars are in 2025-26 values.

Source: Bankwest Curtin Economics Centre | Projected company tax revenue under alternative decarbonisation scenarios have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

Petroleum Resource Rent Tax - now and in the future

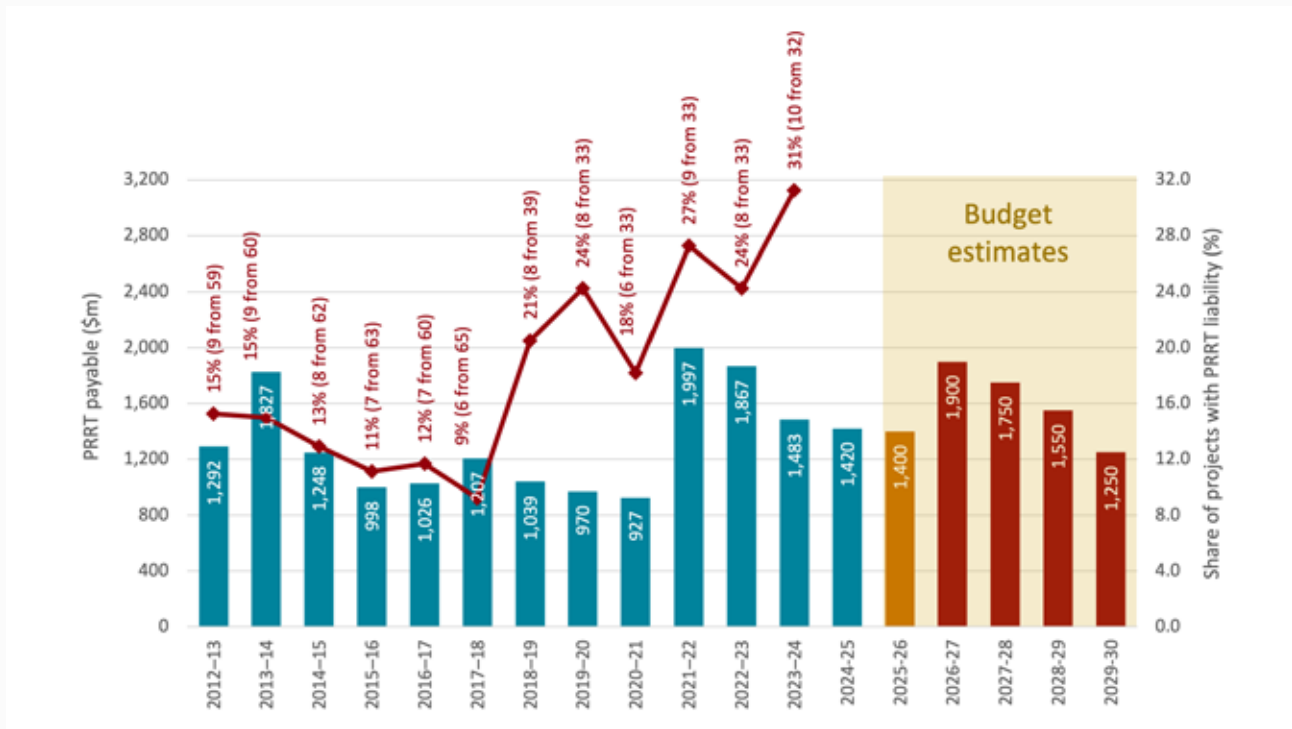
For offshore petroleum resources located in Commonwealth waters, the principal mechanism for capturing a share of resource rents is the Petroleum Resource Rent Tax (PRRT). Introduced in 1987, the PRRT is a profits-based tax that applies to most offshore petroleum projects, including major oil and gas operations in the Bass Strait and the North West Shelf. Unlike royalties, which are generally levied on the volume or value of production, the PRRT is designed to tax the economic rents generated by petroleum projects once costs have been recovered. The tax is levied at a rate of 40 per cent on taxable profits, calculated as assessable receipts less eligible exploration, development and operating expenditures, together with certain uplifted carried-forward deductions.

The profits-based nature of the PRRT has been the subject of ongoing debate. Because petroleum projects require substantial upfront investment, companies can carry forward deductions for many years before becoming liable for tax. Critics have argued that this

can significantly delay PRRT payments despite strong production and export revenues. In response, reforms introduced in 2023 limited the extent to which certain deductions can be used to reduce assessable receipts for LNG projects, effectively ensuring that at least 10 per cent of assessable receipts remain subject to taxation. The reforms were intended to bring forward tax payments while retaining the profits-based design of the system.

The share of entities paying PRRT increased from 15 to 31 per cent over the past decade, the highest number recorded (Figure 46). PRRT collections totalled approximately \$1.4 billion in 2024-25, compared with around \$1.3 billion in 2012-13. Forward estimates from the most recent 2026-27 federal budget are projecting PRRT revenue to reach around \$1.9 billion in 2026-27 before declining as commodity prices and project profitability moderate, with cumulative collections of approximately \$8 billion forecast over the five years from 2025-26 and 2029-30. While considerably smaller than state royalty revenues, the PRRT remains an important component of Australia's framework for capturing a public return from the extraction of offshore petroleum resources.

FIGURE 46
PRRT payable by resource sector companies: 2012-13 to 2029-30



Note: Data includes budget estimates (estimated actual for 2025-26 and forward estimates from 2026-27 to 2029-30).

Source: Bankwest Curtin Economics Centre | Authors' calculations using ATO Taxation Statistics 2022-23, Table 5; Resources & Energy Quarterly (for data to 2023-24) and Federal Budget 2026-27 for estimates to 2029-30 (bp1 Table 5.7).

PRRT is particularly difficult to project over the long term due to the lumpy nature of major LNG developments, the timing of new projects entering the tax base, and uncertainty around future profitability and deductible expenditures. PRRT revenues are heavily influenced by project-specific factors, including investment cycles, commodity prices and the extent of accumulated deductions that can be carried forward.

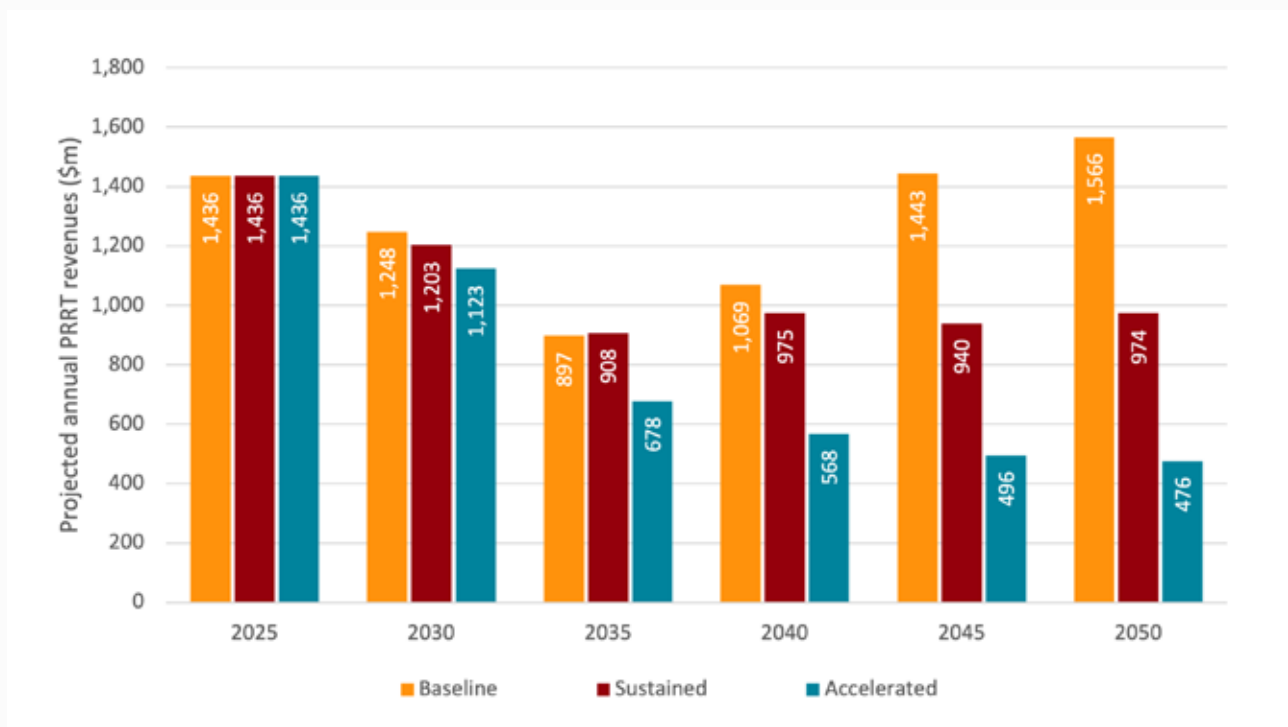
Based on current information regarding project development timelines, expected profitability and likely tax liabilities, PRRT revenues under the baseline scenario follow a broadly U-shaped profile. Receipts decline from around \$1.4 billion in 2025 to approximately \$900 million by 2035 before recovering to around \$1.6 billion by 2050 (Figure 47). This recovery reflects new projects progressively moving beyond their deduction-heavy investment phases and becoming fully taxable.

In contrast, PRRT revenues decline under both the sustained and accelerated transition scenarios, with the largest reductions occurring under the accelerated pathway. Lower global LNG demand, driven by rapid electrification, energy storage deployment and emissions reduction efforts, reduces project profitability and limits the number of new developments entering the tax base.

Under both the baseline and sustained scenarios, the continued development of the Browse project plays an important role in sustaining PRRT revenues over the longer term. Without Browse, PRRT collections would be materially lower, highlighting the significant influence that a small number of large LNG projects have on Australia's future petroleum tax revenues.

FIGURE 47

Scenario projections for future PRRT: 2025 to 2050



Source: Bankwest Curtin Economics Centre | Projected future PRRT revenues have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

HOW DO OTHER COUNTRIES CAPTURE PUBLIC VALUE FROM THE RESOURCES SECTOR?



Governments use a range of mechanisms to capture a share of the economic rents generated by their resource sectors, including royalties, profit-based taxes, and direct equity ownership. This can make comparing policies used among countries complex, with distinction arising not just from the tax rate applied, but the overall mix of instruments used and the level of government that may be applied. Additionally, the context with which the mining industry operates, and the history of the sector can influence policy choice. To provide a reasonable comparison across jurisdictions, Table 4 examines government revenue capture from the oil and gas sector in a selection of jurisdictions with either a similar resource endowment or a comparable fiscal framework to Australia.

Norway and Qatar are two countries well known for having a large government share in their oil and gas industry, largely through direct or partial ownership of companies, with Norway also known for having a high profits-based tax of 78 per cent on oil companies. Of the countries being compared, Qatar and Norway have the largest capture of government resource revenue as a share of oil and gas exports, 46 per cent and 64.9 per cent respectively, signalling potential high returns that can be derived from public ownership, making this policy attractive to other countries. For these two economies, government ownership has been successful as it was implemented at the outset of the industry - 1974 for Qatar and 1963 for Norway, giving the sector time to weather any issues, and investment becomes built around public ownership. Replicating such models in mature industries may be more challenging, as governments would need to assume greater commercial risk and potentially alter existing investment incentives.

Australia, the United Kingdom and Alberta, Canada rely more heavily on royalties, company tax and resource rent taxes to generate public revenue from resource extraction. These systems generally expose governments to less direct commercial risk than equity ownership but may capture a smaller share of resource rents during periods of high profitability.



Australia is notable as one of the world's largest LNG exporters, yet government revenue capture from petroleum exports remains relatively modest compared with some peer jurisdictions.

Another point of difference is how resource revenues are used. Australia directs most resource revenues into general government budgets, whereas Norway's Government Pension Fund Global and Alberta's Heritage Savings Trust Fund invest a portion of resource revenues for the benefit of future generations. These contrasting approaches highlight that resource policy involves not only decisions about how rents are collected, but also how the proceeds are managed and distributed over time.



TABLE 4
Comparison of fiscal policy for the oil and gas industry across countries

	Mechanism	Importance of industry	Tax rate	Tax base	Royalty rate	Royalty base	State ownership	Resource revenue as share of exports	Use of collected funds	Trade off
Australia	PRRT, company tax, and royalties	Moderate	40% (PRRT) + 30% (company tax)	Taxable income (company tax), project level petroleum profits (PRRT)	10-12.5% (WA)	Value of mineral at extraction or sale	-	~16.1%	Allocated to general government budget to support spending	PRRT design delays capture of tax through high level of deductibles
Norway	Cash flow tax, public ownership and equity stakes	Extremely High	78% marginal tax (22% company tax + 71.8% special tax)	Taxable profits (company tax), net profits (special tax)	-	-	67% share in Equinor, partial ownership of mineral extraction sites	64.9%	Majority of revenue invested in Sovereign Wealth Fund for future use	High tax rate may turn off investment, reliance on state ownership
Alberta (Canada)	Income tax and royalties	Extremely High	15% (Federal) + 8% (Provincial)	Taxable income (federal tax), taxable income located in Alberta (Provincial tax)	5-40%	Gross revenue	-	~14.2%	Revenue directed to Alberta Heritage Savings trust fund, most is spent through provincial budget	Complicated system that differs by province, no specific mining tax
United Kingdom	Company tax and windfall levy	Relatively Low	30% ring fence company tax, 10% supplementary charge, 38% energy profits levy	Ring fence profit (company tax + supplementary charge), Levy profit (energy profits levy)	-	-	-	26.2%	Allocated to general government budget to support spending	Energy levy moves with prices which may be seen as less stable and discourage investment
Qatar	Public ownership, company tax, and royalties	Extremely High	>35% (company tax)	Taxable profits	12.5% (oil), 20% (LNG)	-	50-100% ownership of all LNG companies	46.0%	Heavily relies on hydrocarbon revenue to support government spending	High reliance on state ownership, company taxes only apply to non-Qatari owned businesses

Note: Resource revenue as a share of oil and gas exports includes any government revenue received from the oil or gas industry (taxes, royalties, equity, etc), as a share of oil and gas exports, focusing on the period 2023-24 or 2024. Companies in Norway are able to deduct corporate tax from the special tax base, making the effective company tax rate 6.2%. A ring fence prevents taxable profit from oil and gas activities being reduced substantially by losses from other activities or interest payments. Calculations and details for Qatar's royalties are not publicly available, only briefly mentioned in https://www.wto.org/english/tratop_e/trpr_e/tp244_e.htm. Royalty revenues for Australia includes petroleum royalties for SA, QLD, and WA, North West Shelf project grants for WA, and mining and petroleum royalties for NT. Data on company tax and PRRT is taken from the ATO, all for 2023-24. Oil and gas exports are taken from Resources and Energy Quarterly (September 2025) for crude oil, LPG, Bunker fuel, other petroleum products, and LNG in 2023-24. Data for Norway can be downloaded from <https://www.norskpetroleum.no/en/interactive-map-quick-downloads/quick-downloads/> for 2024. Oil and gas exports for Alberta are calculated from the Canadian International Merchandise Trade Application, and include categories 2709.00.10, 2709.00.21, 2709.00.22, 2709.00.29, and 2711.21.00 for 2024. Oil and gas revenue, from <https://open.alberta.ca/opendata/historical-royalty-revenue> 2024-25 release, includes Natural Gas & By-product Royalty, Conventional Oil Royalty, and Oil Sands Royalty for 2023-24. Oil and gas exports for the United Kingdom (ONS national accounts) include 06 Crude petroleum & natural gas only for 2024. The value of oil and gas revenue collection is taken from <https://www.gov.uk/government/statistics/government-revenues-from-uk-oil-and-gas-production--2> (September 2025 release, Table 2) for 2023-24. Calculation for Qatar's exports (<https://www.npc.qa/en/statistics/Pages/ft/default.aspx>) includes HS4 code categories 2709, 2710 and 2711 for 2024. Government revenue from oil and gas is taken from <https://www.mof.gov.qa/en/statebudget2025> for 2024.

CAPTURING PUBLIC VALUE FROM THE WA RESOURCES SECTOR: CONSIDERATIONS AND SOME EXPERIMENTS

Western Australia's resources sector has been a cornerstone of the state's economic prosperity for more than half a century. The sector generates export earnings, employment, business investment and substantial public revenues through royalties, taxation and other fiscal contributions. These revenues help fund public services and infrastructure today, while also providing an opportunity to convert the value of finite natural resources into long-term economic and social benefits.

As global commodity markets evolve and the composition of Western Australia's resources sector changes, the policy challenge extends beyond the traditional question of whether governments are collecting enough revenue. And this observation invites a broader and more fundamental question: *how can governments maximise the long-term public value generated from the extraction of finite, publicly owned resources?*

Resource taxation is one mechanism through which value is captured, but in no sense is it the only one. Governments may also benefit through company taxation, payroll taxation, equity ownership, downstream processing activities, sovereign wealth funds and broader economic development outcomes. These mechanisms collectively determine how resource wealth is shared between investors, governments, current citizens and future generations.

This distinction is important because public value capture is not solely about maximising revenue. Well-designed fiscal systems seek to balance multiple objectives. They must provide a fair return to the community for the depletion of publicly owned resources, support investment and economic growth, generate stable and predictable revenues, manage fiscal risks and ensure future generations benefit from the extraction of non-renewable assets.



Public value capture is not solely about maximising revenue: well-designed fiscal systems seek to balance multiple objectives.

Different fiscal instruments perform these functions in different ways. Production-based royalties provide relatively immediate and predictable revenues but may not fully capture periods of exceptional profitability. Profit-based taxes such as the PRRT are designed to capture economic rents more efficiently but often generate revenues much later in a project's life. Direct equity participation can increase public exposure to project returns but also transfers a greater share of commercial risk to governments. Future funds and sovereign wealth funds provide mechanisms to transform finite resource wealth into enduring financial assets.

The challenge for policymakers is not simply determining how much value should be captured, but deciding when it should be captured, who should receive it, how risks should be allocated, and how resource wealth can be converted into lasting public benefit.

To assess alternative approaches to resource taxation and value capture, this chapter adopts a framework based on a series of **public finance principles** to be applied to the management of non-renewable resources (Table 5).

TABLE 5

Principles to guide public value capture from resources

Principle	Key policy question
Revenue adequacy	Does the system generate sufficient revenue to support public services and infrastructure?
Economic efficiency	Does the system minimise distortions to investment and production decisions?
Rent capture	Does the community receive an appropriate return from publicly owned resources?
Revenue phasing and certainty	When are revenues from resource capture received, and how predictable is it?
Progressivity	Does government receive a greater share of windfall gains during periods of higher profitability?
Intergenerational equity	Are future generations benefiting from the depletion of finite resources?
Risk-sharing	How are risks - and rewards - distributed between governments and investors?
Fiscal resilience	Can revenues withstand commodity cycles, project delays and structural change?

The preceding discussion highlighted that there is no single "best" approach to taxing natural resources. Resource taxation systems are typically assessed against a number of competing principles, including efficiency, equity, revenue stability, administrative simplicity and the ability to provide a fair return to the public for the extraction of finite, publicly owned resources.

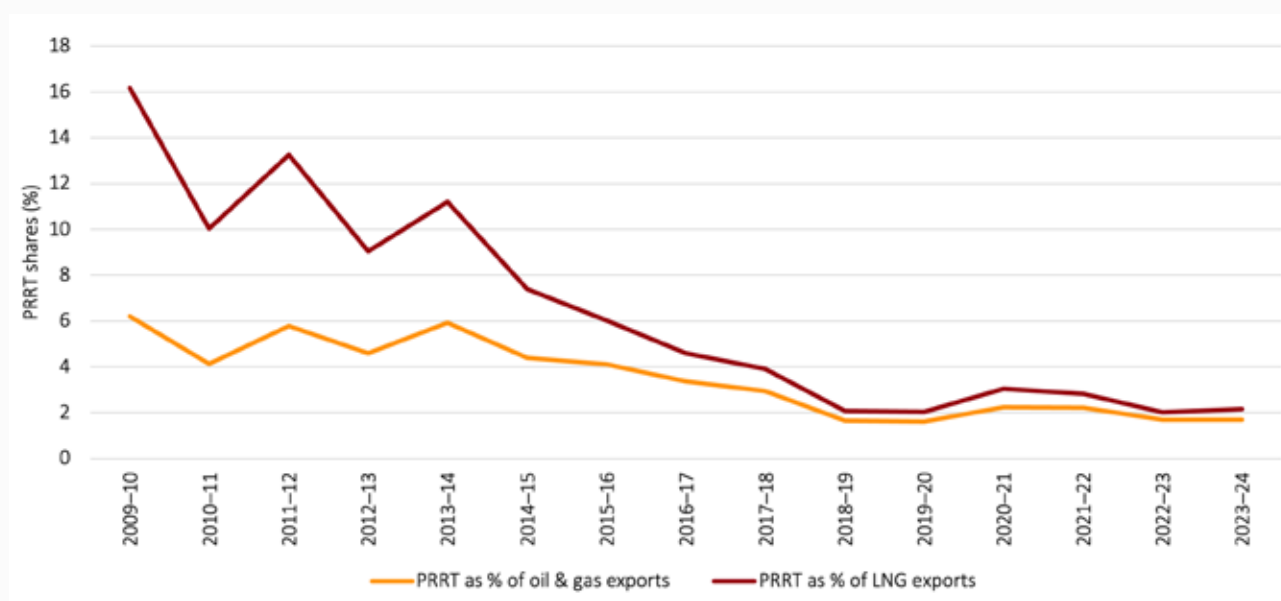
Australia has historically favoured a combination of production-based royalties and profits-based taxation. The transition scenarios developed in this report provide an opportunity to explore how these

existing revenue mechanisms may perform under different futures, including a world characterised by declining fossil fuel demand, growing critical minerals production and greater levels of domestic value-adding and processing.

Recent debate has focused on whether this balance remains appropriate for Australia's petroleum sector. Although LNG exports have grown substantially over the past decade, PRRT receipts have fallen as a share of export values, reaching around 2 per cent of petroleum export earnings in 2023-24 (Figure 48).

FIGURE 48

PRRT receipts as a share of LNG and oil/gas exports: Australia, 2009-10 to 2023-24



Source: Bankwest Curtin Economics Centre | Authors' estimates based on ATO Taxation Statistics 2023-24, Table 5; Resources & Energy Quarterly.

This outcome reflects the design of the tax. The PRRT is intended to tax economic rents rather than production and allows companies to deduct exploration, development and capital costs before becoming liable for tax. Given the scale and risk profile of LNG investments, many projects accumulate large stocks of carried-forward deductions that can defer tax payments for extended periods (Figure 49). Supporters argue that these provisions are necessary to encourage investment in capital intensive projects, while critics contend that the resulting revenues appear low relative to the value of publicly owned resources being extracted.

Successive reviews, including the 2017 Callaghan Review and later Treasury reviews, concluded that a profits-based resource rent tax remains an appropriate mechanism for capturing petroleum rents but identified concerns around the timing of payments, the treatment of deductions and the operation of the tax for integrated LNG projects. Reforms introduced in 2023 sought to address these issues by limiting the use of deductions and bringing forward PRRT payments.

A more incremental approach to strengthening resource rent capture would be to build on these reforms through further adjustments to deduction rules, uplift rates or transfer pricing arrangements. More substantial changes could include introducing a hybrid model that combines the PRRT with a modest royalty floor for future projects, ensuring a minimum public return while retaining a mechanism to capture supernormal profits. Alternatively, governments could adopt more progressive royalty systems similar to Queensland's coal royalty reforms, where rates increase as commodity prices rise, allowing a larger

share of windfall gains to be captured during periods of exceptionally strong market conditions.

At the more interventionist end of the spectrum are models involving direct government participation in resource projects. Proposals such as government equity stakes in new petroleum developments and the establishment of sovereign wealth funds draw inspiration from countries such as Norway, where public ownership and resource taxation have been used to convert non-renewable resource wealth into long-term financial assets.

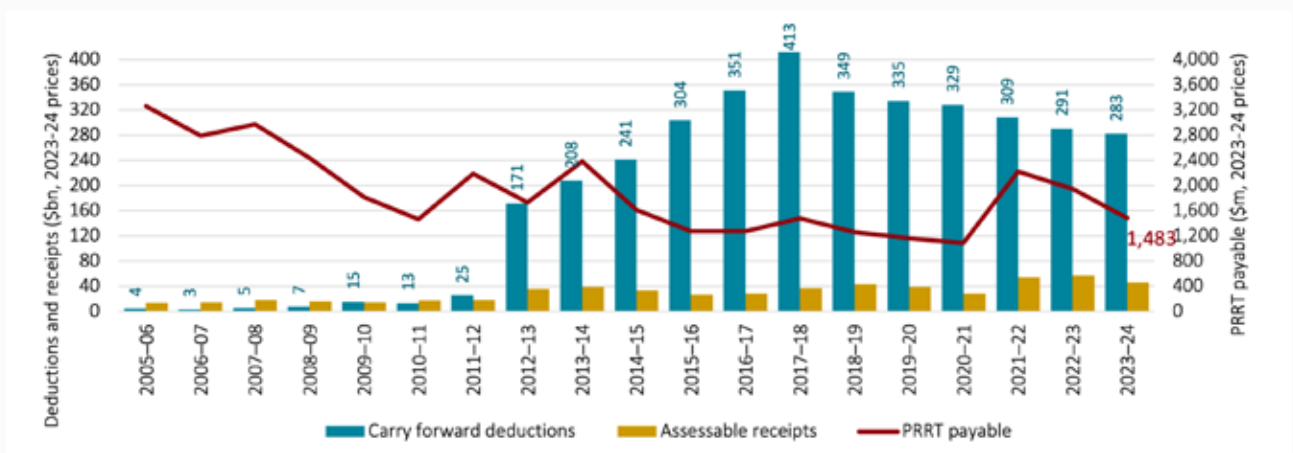
Ultimately, each option reflects different trade-offs between efficiency, equity, revenue stability and investment competitiveness.



The policy challenge is not simply whether governments should capture more value from natural resources, but how fiscal systems can evolve to ensure the benefits of resource extraction are shared across both current and future generations while maintaining a globally competitive investment environment.

FIGURE 49

Carry-forward deductions, assessable receipts and PRRT payable (\$bn, 2023-24 prices)



Source: Bankwest Curtin Economics Centre | Authors' estimates based on ATO Taxation Statistics 2022-23, Table 5; ABS CPI.

FISCAL EXPERIMENTS IN THE CAPTURE OF PUBLIC VALUE FROM RESOURCES ACTIVITIES

Assessing the strengths and weaknesses of different resource taxation arrangements requires consideration of how they perform under changing economic conditions. To that end, a series of stylised fiscal experiments are used to examine alternative

approaches to public value capture under different future scenarios for Western Australia's resources sector. The policy questions examined, and the taxation principles they seek to address, are outlined in Table 6.

TABLE 6

Resource value capture: stylised experiments

Experiment	Key policy question	Primary taxation principle(s)
1. Alternative royalty structures	What royalty settings would be required to maintain public revenues as the commodity mix shifts away from iron ore? Could more value be captured during periods of exceptionally high commodity prices?	Revenue adequacy, fiscal resilience, progressivity
2. PRRT modifications	How would alternative deduction or netback arrangements affect the timing and scale of petroleum tax revenues?	Rent capture, efficiency, revenue timing
3. Browse development sensitivity	How exposed are future public revenues to major LNG developments proceeding as expected?	Fiscal resilience, revenue certainty
4. Future Fund savings options	What would be the long-term implications of saving a portion of resource revenues rather than spending them immediately?	Intergenerational equity, fiscal sustainability

These experiments are not intended to represent policy recommendations. Rather, they provide a framework for assessing how alternative fiscal arrangements perform against the principles outlined above. Specifically, the experiments focus on five broad questions:

1. Could direct public ownership and a Future Fund convert finite resource wealth into long-term public assets?
2. How exposed are future public revenues to major LNG investment decisions such as Browse?
3. What royalty arrangements would be required to maintain public revenues as the commodity mix evolves?

4. Could reforms to PRRT deductions improve the timing and certainty of resource rent capture?
5. Should governments receive a larger share of windfall gains during commodity price booms through more progressive royalty structures?

Together, these experiments examine whether existing arrangements are likely to provide an adequate and resilient revenue base, whether alternative approaches could improve public value capture, and how resource wealth might be transformed into enduring prosperity for future generations.

Experiment 1: Alternative royalty rate structures

We showed earlier in this *Focus on Industry* report how the revenue accruing to the WA government through the royalty system could decline over the next 25 years if - as has been foreshadowed - the commodity mix of the state's resources sector shifts from high-volume iron ore towards lower-volume, higher-value processed and metallic products.

Under the principles of **revenue adequacy** and **fiscal resilience**, this invites consideration of whether the royalty system should be rebalanced so that public revenues remain adequate, stable and aligned with the value of finite resources being depleted.



There is a credible economic case for rebalancing Western Australia's royalty settings as the resources sector shifts toward decarbonisation, processing and higher value-added production.

The current royalty structure applies higher rates of 7.5 per cent to unprocessed ore, and lower rates to processed or metallic products (5 per cent and 2.5 per cent respectively). This reflects a long-standing policy objective to encourage downstream processing by reducing the royalty burden where firms undertake additional transformation within Western Australia. In principle, this concession can be justified where processing activity generates wider public benefits through employment, investment, skills formation, energy infrastructure, regional development and industrial diversification.

However, the economic case for maintaining large royalty discounts weakens if processed and metallic products become a growing share of the state's future resource base. If lower royalty rates apply to an increasing share of production value, WA may face a

structural decline in royalty revenue even where total resource activity remains strong. This would weaken the state's capacity to fund public services and infrastructure from the extraction of finite resources.

A rebalanced framework could be considered that increases royalty rates on processed and metallic products by more than for crushed ore, while still preserving rate differentials to support value-adding activity. The policy objective is not to remove the incentive for downstream processing, but to ensure the discount is no larger than needed to secure the desired economic activity.

The question of how much to change rates is ultimately an empirical one, but as an experiment for this report we explore two sets of rate changes for royalties:

- Revenue increasing schema:** The first experiment progressively applies a 0.05 percentage point (ppt) increase each year to the unprocessed 7.5 per cent royalty rate, a 0.1ppt increase to the 5 per cent processed rate, and a 0.15ppt per cent to the 2.5 per cent downstream/metallic rate. This has the effect of increasing the three rates to 8 per cent, 6 per cent and 4 per cent respectively by 2035, and to 8.75 per cent, 7.5 per cent and 6.25 per cent respectively by 2050.
- Approximate revenue neutral schema:** The second schema progressively leaves the unprocessed rate at 7.5 per cent, increases the processed rate by 0.0375ppt per annum, and increases the downstream/metallic rate by 0.075ppt per annum. Under this schema, the processed and downstream rates would rise to 5.75 per cent and 4 per cent by 2035, and to 6.9 per cent and 6.25 per cent respectively by 2050.

Under the **revenue increasing schema** - royalty revenues increase over the next 25 years under all scenarios, although gains are largest under the baseline and accelerated scenarios when comparing outcomes in 2050 with 2025 (Figure 50A). However, under the accelerated scenario royalties decline over the next 15 years before recovering in the 2040s, reflecting higher-value processed and downstream commodities coming on line. For the baseline scenario, higher royalties reflect the maintained role that cornerstone commodities play over the period.

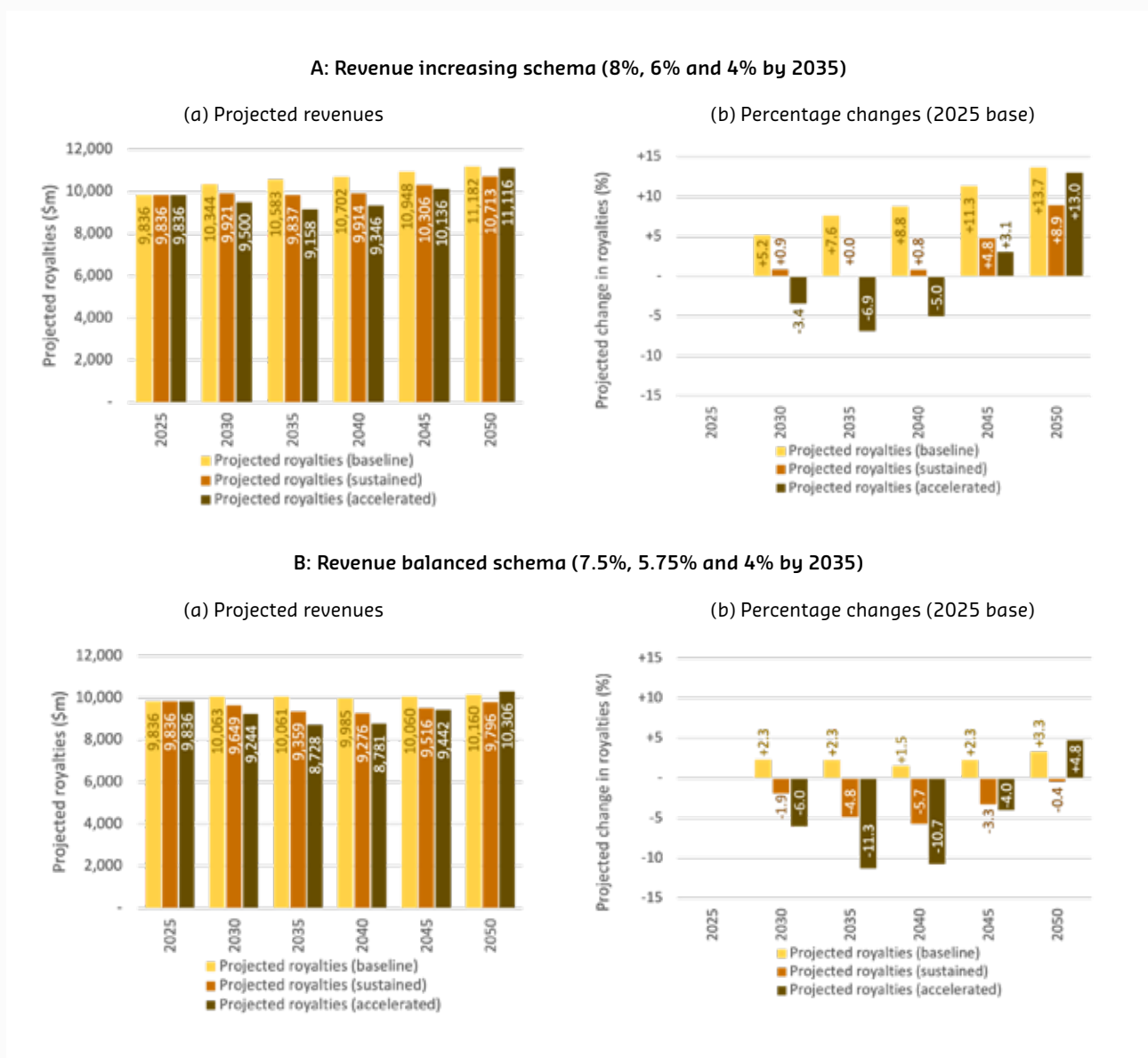
The **revenue balanced schema** seeks to keep overall royalty revenues broadly the same in real terms over the period to 2050 (Figure 50B). This is achieved by keeping the unprocessed royalty rate at 7.5 per cent and graduating the increased rates for processed and downstream activity to 5.75 and 4 per cent respectively by 2035. This better aligns the royalty system with the projected evolution of WA's resources sector, helping to maintain a stable public revenue stream while continuing to reward investment in

value-adding activities. Over time, it also ensures that a greater share of the economic value generated through processing and beneficiation is reflected in royalty revenues.

Within the accelerated scenario, royalty revenues dip over the shorter term before recovering in the 2040s under both schemas. This reflects the lead time to develop downstream processing technologies and infrastructure.

FIGURE 50

Projected future royalty revenues under graduated rate increases: WA, 2025 to 2050



Source: Bankwest Curtin Economics Centre | Projected future payroll tax revenue scenarios have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

Experiment 2: Modifications to the Petroleum Resource Rent Tax (PRRT)

To simulate reforms to the PRRT, we examine two stylised policy experiments that reflect recent debates around the timing of revenue collection, the treatment of deductions and the extent to which resource rents are captured for the public:

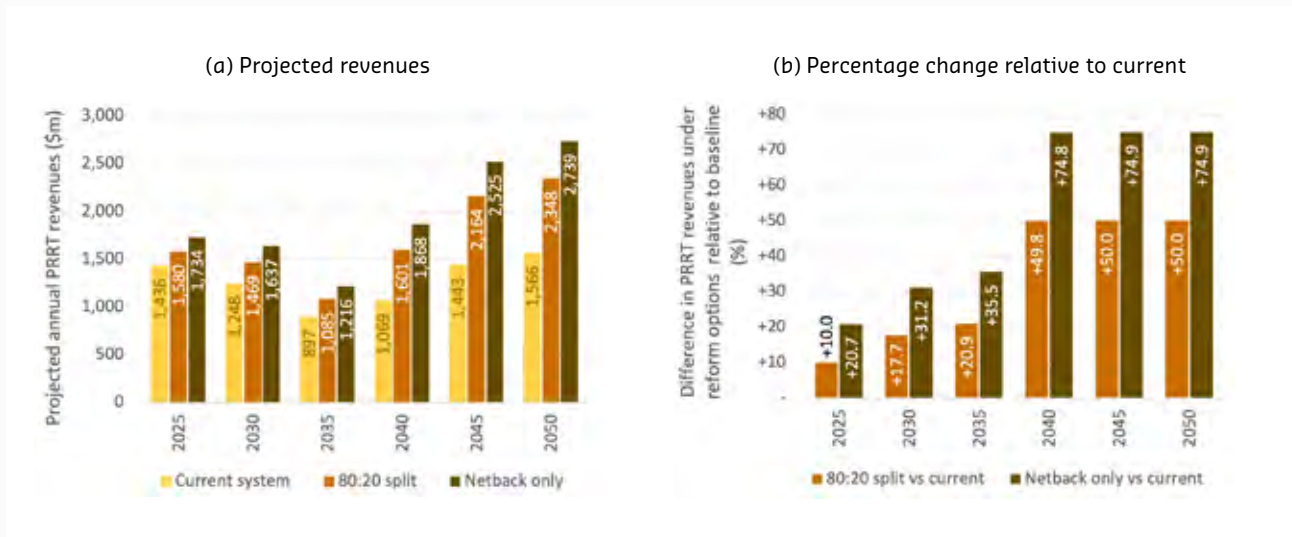
- 80:20 split:** A modification to the PRRT gas transfer pricing arrangements that allocates 80 per cent of assessable profits to the upstream component of a project and 20 per cent to downstream activities, compared with the current 50:50 split.
- Netback only:** A modification that applies the netback approach to determine the full value of gas at the taxing point, effectively attributing all resource rents to upstream extraction activities. Under current arrangements, the PRRT gas transfer pricing rules allow profits to be apportioned between upstream and downstream activities through a combination of methodologies, including the residual pricing method.

Under the 80:20 split, a larger share of project profits is allocated to upstream activities and therefore becomes subject to the PRRT. Compared to current parameters, this increases PRRT revenue by around 50 per cent (780 million) in 2050 (Figure 51). This modification increases resource rent capture while retaining a distinction between upstream extraction and downstream processing activities.

Under the netback only method, the current apportionment of profits between upstream and downstream activities is removed, with the value of production determined solely using a netback valuation. This results in a larger share of project profits being brought within the PRRT base, leading to higher revenue collections and greater public capture of resource rents over the life of a project. For example, under this modification, projected PRRT revenue would be nearly \$1.2 billion higher in 2050 compared with the current system.

FIGURE 51

Projected revenues from alternative PRRT assessment criteria: Australia, 2025 to 2050



Source: Bankwest Curtin Economics Centre | Projected future PRRT revenue scenarios have been estimated using BCEC’s WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

Experiment 3: Sensitivity of revenue streams to Browse development

PRRT revenues are typically larger than Western Australia's North West Shelf grants over the life of an LNG project because the PRRT is levied at 40 per cent of taxable profits, while royalties are generally charged at around 10 per cent of production value. In addition, jurisdictional arrangements mean that a significant share of offshore petroleum production occurs in Commonwealth waters, with around 70 per cent of production value attributed to the Commonwealth. As a result, the Commonwealth captures the majority of petroleum-related revenues through the PRRT and company income tax. This apportionment is subject to ongoing Commonwealth-state negotiations.

However, the timing of revenue collection differs markedly between the two systems. Royalties are paid from the commencement of production and provide a relatively stable and predictable revenue stream linked to output values. By contrast, PRRT liabilities often arise much later, as companies are able to deduct exploration, development and capital costs, together

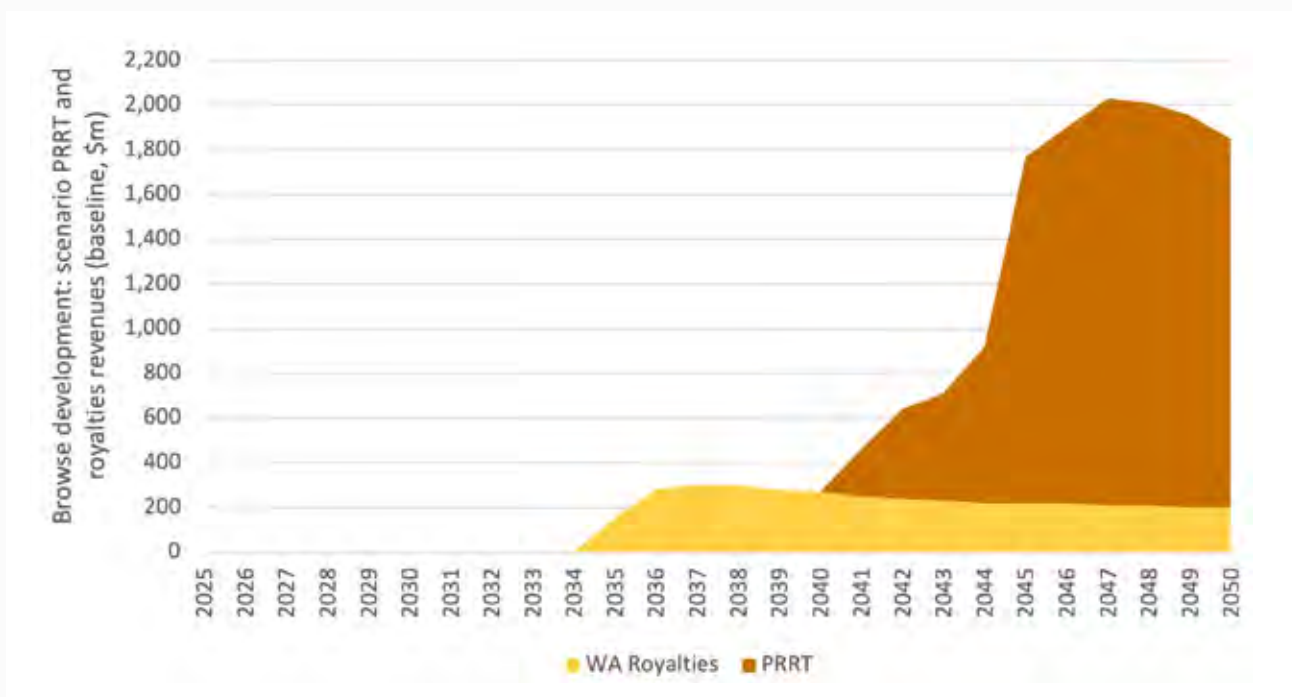
with uplifted carried-forward expenditures, before becoming liable for tax. Consequently, royalties deliver revenue earlier in a project's life, whereas the PRRT is designed to capture a larger share of economic rents once projects have recovered their costs and become highly profitable.

This distinction highlights an important trade-off in resource taxation. Royalties provide earlier and more certain revenues but are less sensitive to profitability, while the PRRT can generate larger long-term returns to the public but often with substantial delays. Reforms to the PRRT therefore affect not only the total amount of revenue collected, but also when that revenue is received. This is illustrated by the stylised revenue projections.

The timing of revenues differs markedly between the two tax instruments. Royalty revenues to Western Australia commence from the start of production and peak at around \$250 million per year, while PRRT revenues remain low initially before rising sharply as project costs and deductions are recovered. By the late 2040s, PRRT collections exceed \$1.8 billion per year, resulting in substantially larger long-term returns to the Commonwealth (Figure 52).

FIGURE 52

Change in resource tax revenues with Browse development: WA & Australia, 2025 to 2050



Source: Bankwest Curtin Economics Centre | Projected future PRRT revenue scenarios have been estimated using BCEC's WA Mining Industry Data and Scenario Simulator (WA-MIDAS).

Experiment 4: Commonwealth ownership of new LNG projects

Recent debate surrounding the PRRT has prompted consideration of alternative approaches to increasing the public return from Australia's petroleum resources. One option is direct government equity participation in future projects. The rationale for this approach is grounded in several established principles of resource taxation. Petroleum resources are finite, publicly owned assets, and equity participation can convert a portion of temporary resource wealth into a long-lived financial asset capable of generating income beyond the productive life of the resource.

This experiment examines a stylised scenario in which the Commonwealth acquires a 30 per cent equity stake in a new offshore LNG project. The project is assumed to require \$50 billion in upfront

capital expenditure, with construction commencing in 2027 and lasting five years. Production begins in the early 2030s and continues for approximately 40 years before decommissioning. Future gas prices and rates of return are drawn from the sustained scenario and underlying assumptions. Consistent with arrangements used in several resource-rich jurisdictions, including Norway's State Direct Financial Interest (SDFI) regime, Commonwealth distributions are assumed to be invested in a sovereign wealth fund.

Under this arrangement, the Commonwealth would act as a commercial co-owner rather than solely as a tax collector. It would contribute 30 per cent of construction and decommissioning costs and receive 30 per cent of net project cash flows throughout the life of the asset. The PRRT framework is assumed to remain unchanged for the remaining privately held share of the project.

TABLE 7

Stylised example of Commonwealth equity share in a large-scale LNG project and counterfactual

	30% equity stake (LNG project)	Counterfactual (same capital in super)
Capital committed	\$15bn (30% of capex, paid 2027–2031)	\$15bn (invested 2027–2031)
Returns begin	2032 (first production)	Immediately
Fund turns positive	2042	Never goes negative
Gross fund balance (2072)	\$150bn	\$151bn
Cost to offset	\$58bn (PRRT foregone, compounded)	None
True net position (2072)	\$92bn	\$151bn
Upside exposure	Yes. Benefits directly from high LNG prices	Limited. More diversified portfolio
Downside exposure	Yes. Shares cost overruns and losses	Limited to market returns
Fiscal risk	High during construction; moderate in production	Low

Note: These results are highly sensitive to future gas prices and the internal rate of return. Prices of the sustained scenario are used to model LNG prices.

The modelling suggests that a 30 per cent equity stake would generate approximately \$60 billion in net cash distributions over the life of the project. If these distributions were reinvested in a sovereign wealth fund earning a real return of 5.5 per cent per annum, the fund balance would reach around \$150 billion by the conclusion of the project in 2072.

The timing of returns differs markedly from conventional resource taxation instruments. Significant capital expenditure during construction and the early years of production means the project does not become cash flow positive until around 2042. As a result, equity participation generates limited near-term fiscal benefits and should be viewed as a long-duration investment rather than a short-term revenue source.

The financial merits of such an approach are not clear-cut. If the Commonwealth instead invested the same initial capital commitment (\$15 billion) directly into a diversified sovereign investment fund earning the same assumed rate of return, the resulting fund balance would be broadly similar by 2072. For both options to generate equivalent returns, the LNG price would need to average approximately A\$782 per tonne (US\$10.50/MMBtu) over the life of the project. However, once the forgone PRRT revenue associated with the Commonwealth-owned share of production is taken into account, the purely financial case for direct equity participation becomes weaker. Under the assumptions adopted here, direct ownership does not materially outperform a passive investment strategy of equivalent scale.

Nevertheless, equity participation may offer benefits beyond its direct financial return.

First, ownership provides exposure to project upside in periods of higher commodity prices or stronger than expected production outcomes. Second, equity returns are not affected by the timing and scale of deductible expenditures that can delay PRRT liabilities on large LNG projects. Third, an ownership stake may provide governments with greater visibility over project costs, revenues and operational performance. Finally, if distributions are channelled into a sovereign wealth fund, equity participation can help convert a finite natural resource into a diversified pool of financial assets capable of generating income for future generations.

These potential benefits must be weighed against a number of significant disadvantages. The most obvious is the substantial upfront capital commitment required from the government. For a \$50 billion project, a 30 per cent stake would require an initial investment of approximately \$15 billion, exposing taxpayers to considerable commercial risk during the highest risk phases of project development. Unlike taxation arrangements, where downside risk is largely confined to lower revenue collections, equity ownership requires the government to share directly in project losses arising from cost overruns, lower commodity prices, weaker demand or higher than expected decommissioning costs.

There are also governance considerations. Government ownership may create tensions between the Commonwealth's role as a commercial investor and its responsibilities as a regulator, environmental steward, and climate policymaker. While such conflicts can be managed through institutional design and governance arrangements, they nevertheless introduce complexities that do not arise under conventional taxation regimes.

TABLE 8

Advantages and Disadvantages of Commonwealth Equity share in LNG projects

Advantages	Disadvantages
Converts resource wealth into a long-term sovereign wealth fund.	Requires significant upfront public investment.
Captures a larger share of project profits when prices are high.	Taxpayers share project losses and cost overruns.
Returns are less affected by PRRT deductions and tax planning.	Long payback period before positive cash flows emerge.
Greater transparency and access to project information.	Opportunity cost of capital may outweigh benefits.
Creates an intergenerational income stream.	Potential conflicts between regulatory and ownership roles.
Diversifies government revenue sources.	Exposes public finances to commodity price and transition risks.

Note: These results are highly sensitive to future oil prices and the internal rate of return. Prices of the sustained scenario are used to model LNG prices.

The strategic case for establishing a Norwegian-style system today is less compelling than it was when Norway first developed its petroleum sector. Norway's state participation framework was established during the early stages of North Sea development and was accompanied by the creation of specialised state-owned institutions with deep technical and commercial expertise. Australia would be seeking to implement a similar model in a more mature industry facing greater uncertainty regarding long-term demand, decarbonisation policies and future emissions constraints. In these circumstances, the Commonwealth would likely operate primarily as a passive financial investor rather than an active strategic partner. Consequently, while direct equity participation may offer advantages in specific circumstances, the results presented here suggest it should not be viewed as a straightforward alternative to conventional resource taxation or sovereign wealth fund investment strategies.

More broadly, the intergenerational benefits associated with sovereign wealth funds are not contingent on direct government ownership of resource projects. Similar outcomes can be achieved by allocating a portion of existing resource revenues - including royalties, the PRRT or company tax receipts - into a dedicated future fund. The key policy question is therefore less about the specific mechanism used to capture resource value and more about whether a share of that value is deliberately preserved and invested for future generations. Equity participation represents one pathway to achieving this objective, but it is not the only option. Well-designed future funds can be established under a range of fiscal settings, allowing governments to convert finite resource wealth into a diversified portfolio of financial assets that continues to generate income long after resource extraction has ceased.



"RESOURCE PROJECTS LAST
DECADES. **THE WEALTH
THEY GENERATE CAN
LAST GENERATIONS.**

THE CHALLENGE IS
ENSURING THAT TODAY'S
RESOURCE WEALTH
CONTINUES TO CREATE
PUBLIC VALUE LONG
AFTER THE RESOURCES
THEMSELVES ARE GONE."

A close-up photograph of a hand with a ring on the ring finger, pointing towards a map drawn on a sandy surface. The map features white topographic contour lines. The background is a warm, orange-toned landscape, possibly a desert or beach, with shadows cast by the hand and the map.

SUMMARY AND POLICY DISCUSSION

SUMMARY AND POLICY DISCUSSION

A global resources powerhouse facing a changing future

Western Australia's resources sector remains one of the most important economic assets in Australia. Contributing around \$195 billion to the state economy and accounting for 46.3 per cent of economic activity, the sector underpins exports, employment, regional development and public finances. Western Australia generates around two-thirds of Australia's resource output and remains one of the most resource-specialised economies in the world.

The benefits extend well beyond direct mining activity. BCEC modelling estimates that the sector supports around \$241 billion in economic activity and up to 677,000 jobs nationally through supply chains, service industries and household spending. Resource development therefore remains a critical driver of prosperity not only in Western Australia but across Australia.

However, the foundations of this prosperity have become increasingly concentrated. Iron ore continues to dominate exports and royalties, while China remains the overwhelmingly dominant export market. This concentration has delivered significant benefits but also increases exposure to changes in commodity demand, technology, geopolitics and global investment flows.

The central finding of this report is that Western Australia faces both significant opportunity and increasing exposure as the global economy transitions.

Structural change is reshaping the resources sector

The future of the resources sector will be shaped by four powerful structural forces:

- Decarbonisation and the global energy transition.
- Technological change and industrial transformation.
- Geopolitical fragmentation and supply-chain security.
- Consumer, investor and regulatory pressure for lower-emissions production.

These forces create both winners and losers.

Across all scenarios modelled in this report, the resources sector remains a major contributor to economic activity. However, the composition of that activity changes substantially. Demand increasingly

shifts towards critical minerals, battery materials and processed products, while long-term demand for some fossil fuel exports becomes more uncertain.

Under accelerated transition pathways, transition mineral exports exceed \$100 billion by 2050 while fossil fuel exports decline by more than 70 per cent. Future growth increasingly comes from higher-value processing, refining and metallic products rather than raw commodity exports alone.

The challenge for Western Australia is therefore not simply to produce more resources. It is to position itself competitively within emerging value chains and ensure that the state captures a greater share of the value created by future resource development.

Fiscal resilience matters as much as economic growth

A major contribution of this report is to demonstrate the extent to which public finances are linked to the future performance of the resources sector.

Royalties currently provide around \$10 billion annually to the Western Australian budget. Resource companies also make substantial contributions through payroll tax, company tax and petroleum taxation. Yet future revenue streams become increasingly sensitive to changing commodity mixes, profitability and production patterns.

BCEC modelling suggests that traditional resource-related revenue streams are likely to become less reliable over time. Iron ore production and associated royalty revenues decline under all scenarios, while LNG-related revenues become increasingly uncertain. At the same time, payroll tax and company tax revenues become more closely linked to the growth of downstream industries and value-added processing, reflecting the increasing importance of economic diversification and the potential for stronger real wage growth across the resources sector.

The policy challenge therefore extends beyond economic diversification alone. It also involves strengthening fiscal resilience and ensuring that the benefits generated from the depletion of finite public resources continue to support future generations. As the composition of economic activity evolves, so too must the policy settings and institutions that convert resource wealth into enduring public value.

What do the fiscal experiments tell us?

The stylised fiscal experiments undertaken in this report were not designed to advocate specific reforms. Rather, they provide a framework for assessing how different policy settings perform against established principles of public value capture.

Several broad conclusions emerge.

First, relatively modest changes to fiscal settings can materially influence long-term public value capture.

Second, no single mechanism performs best against every policy objective. Production royalties, profit-

based taxes, equity participation and future funds each involve different trade-offs between efficiency, stability, risk and intergenerational outcomes.

Third, timing matters. Royalties provide earlier and more predictable revenues. Profit-based taxes capture rents more efficiently but often generate revenues much later in a project's life. Equity participation offers potentially larger long-term returns but transfers substantially more risk to governments.

Finally, future prosperity depends not only on how much revenue is collected but also on how effectively resource wealth is converted into lasting public assets.

Assessment of fiscal experiments against policy principles

Policy Principle	Royalty Reform	PRRT Reform	Browse Sensitivity	Equity Participation	Future Fund
Revenue adequacy	High	High	Moderate	High	Low
Economic efficiency	Moderate	High	Neutral	Moderate	High
Rent capture	Moderate	High	Neutral	High	Low
Revenue timing	Near term	Near term	Longer term	Longer term	Longer term
Revenue certainty	High	Moderate	Moderate	Moderate	High
Progressivity	Moderate	High	Neutral	High	Low
Fiscal resilience	Moderate	Moderate	Low	Moderate	High
Intergenerational equity	Low	Moderate	Neutral	High	Very High
Risk sharing	Low public risk	Moderate	Neutral	High public risk	Low public risk
Fiscal federalism implications	High	High	High	High	Moderate



Key insights from the experiments

Royalty reform

- Can maintain or increase long-term revenue as commodity composition changes.
- Can be designed to encourage downstream processing while preserving fiscal returns.
- Provides predictable revenue but may be less effective at capturing windfall profits.

PRRT reform

- Improvements to transfer-pricing and deduction arrangements materially increase public rent capture.
- Better aligns revenues with project profitability.
- Improves long-term revenue outcomes but does not fully address timing delays.

Browse sensitivity

- Demonstrates the extent to which future state and Commonwealth revenues remain exposed to a small number of large projects.
- Highlights the importance of diversification and fiscal resilience.

Equity participation and Future Funds

- Offer the strongest mechanism for converting finite resource wealth into enduring public assets.
- Generate little revenue during early years but potentially substantial long-term returns.
- Require governments to accept significantly greater commercial and financial risk.

Policy conclusions

Five broad policy conclusions emerge from the report.

1. Focus on value, not volume

Future prosperity will increasingly depend on higher-value products, processing, refining and advanced manufacturing rather than simply increasing extraction volumes. Policies that support competitiveness in downstream industries are likely to become increasingly important.

2. Strengthen economic and fiscal resilience

Western Australia's prosperity has grown alongside increasing concentration. Building resilience requires diversification across commodities, export markets, industries and revenue sources.

3. Preserve global competitiveness

Resource taxation and value-capture arrangements must continue to support investment and development. Capturing greater public value should not come at the expense of long-term competitiveness.

4. Improve long-term public value capture

As commodity markets evolve, governments should continue assessing whether existing fiscal arrangements appropriately balance efficiency, equity, risk-sharing and public returns from finite resources.

5. Build intergenerational wealth

The strongest long-term lesson from international experience is that resource-rich jurisdictions that successfully convert temporary resource booms into permanent financial assets are better positioned to sustain prosperity over time. Future funds, sovereign wealth funds and other savings mechanisms warrant continued consideration as part of a broader long-term strategy.

Final reflection

Western Australia's resources sector will remain central to the state's prosperity for decades to come. The question is not whether resources matter, but how the benefits of resource development are translated into lasting economic, social and fiscal value.

The opportunities presented by the global transition are substantial, but they are not guaranteed. Realising them will require deliberate policy choices, continued investment, strong institutions and a willingness to think beyond individual projects or commodity cycles.

The next chapter of Western Australia's prosperity will be defined not simply by the resources it possesses, but by how effectively it transforms resource wealth into enduring public value.



APPENDIX

TABLE 9

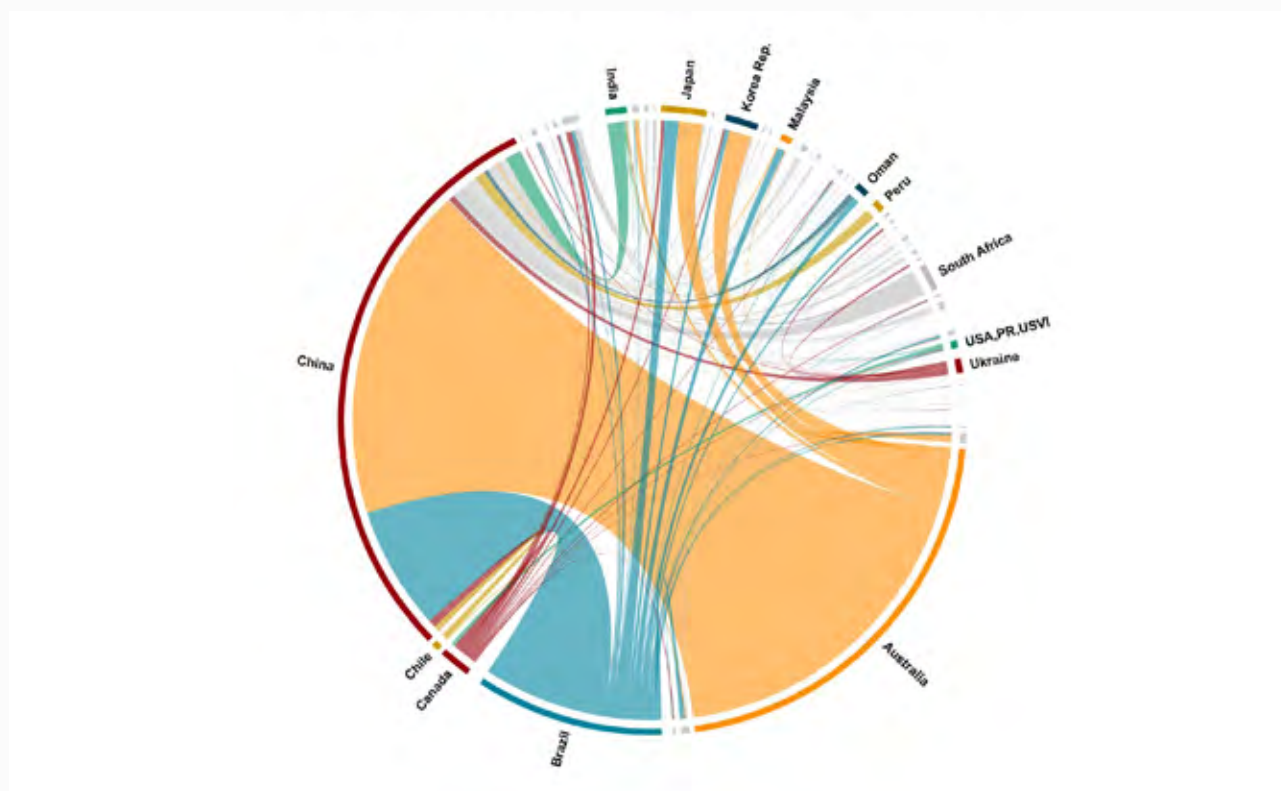
Share of iron ore exports by country

Australian Iron Ore Exports by Destination (%)			
Destination	2023	2024	2025
China (excludes SARs and Taiwan)	84.9%	84.1%	85.7%
Japan	5.9%	5.9%	5.4%
Korea, Republic of (South)	5.5%	5.8%	5.2%
Taiwan	1.6%	1.6%	1.4%
Vietnam	0.9%	1.1%	1.2%
Indonesia	0.8%	0.9%	0.8%
India	0.3%	0.4%	0.1%
Malaysia	0.2%	0.2%	0.1%

Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS: MERCH_EXP.

FIGURE 53

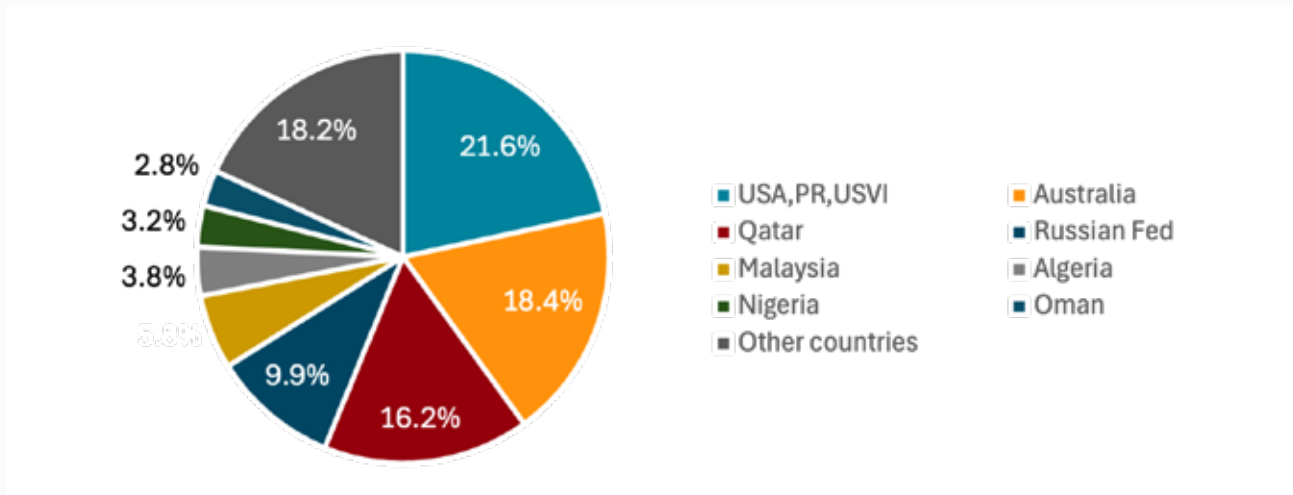
Global iron ore trade, 2024



Source: Bankwest Curtin Economics Centre | Authors' calculations based on WITS World Bank.

FIGURE 54

Share of global LNG exports by country, 2024

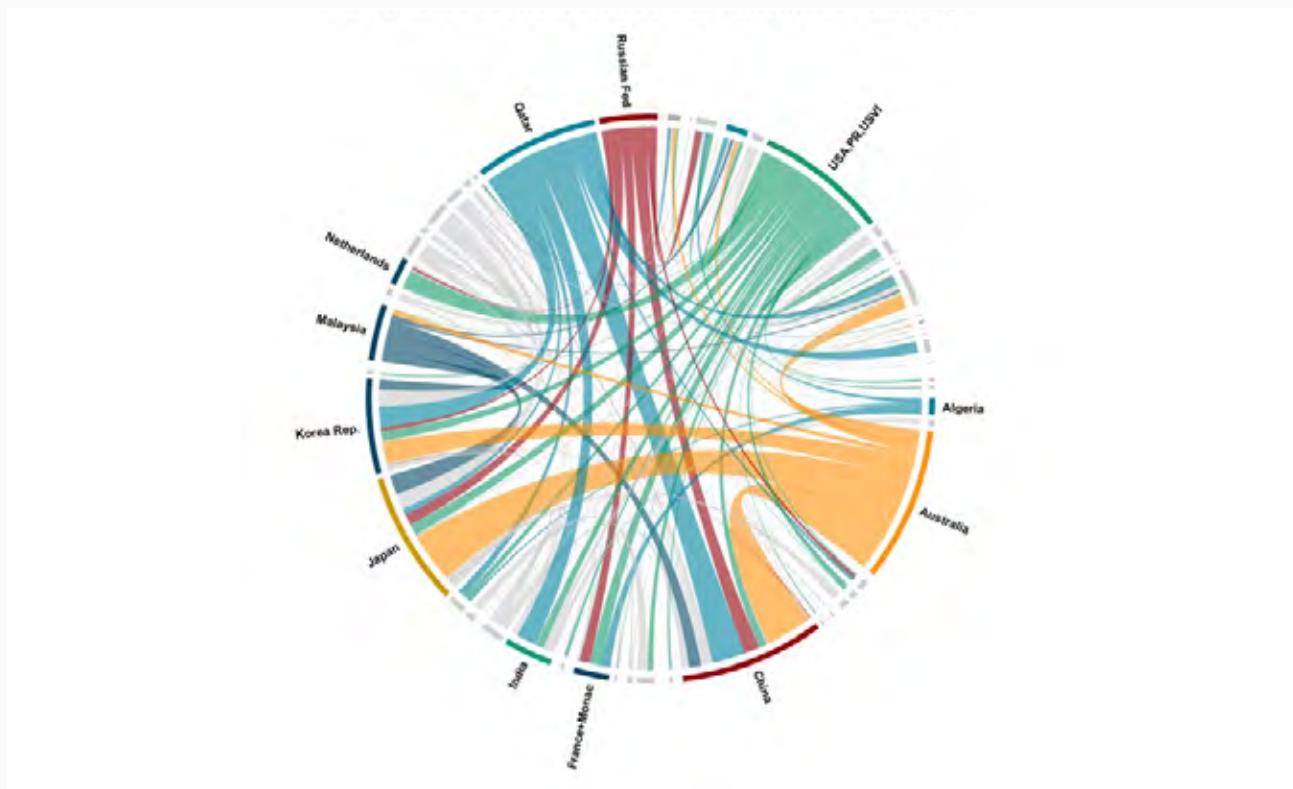


Note: LNG is part of the Confidential Commodities List (CCL), all statistic has been subject to confidentiality restrictions, and therefore may not represent the true aggregate value.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on WITS World bank.

FIGURE 55

Global LNG trade, 2024

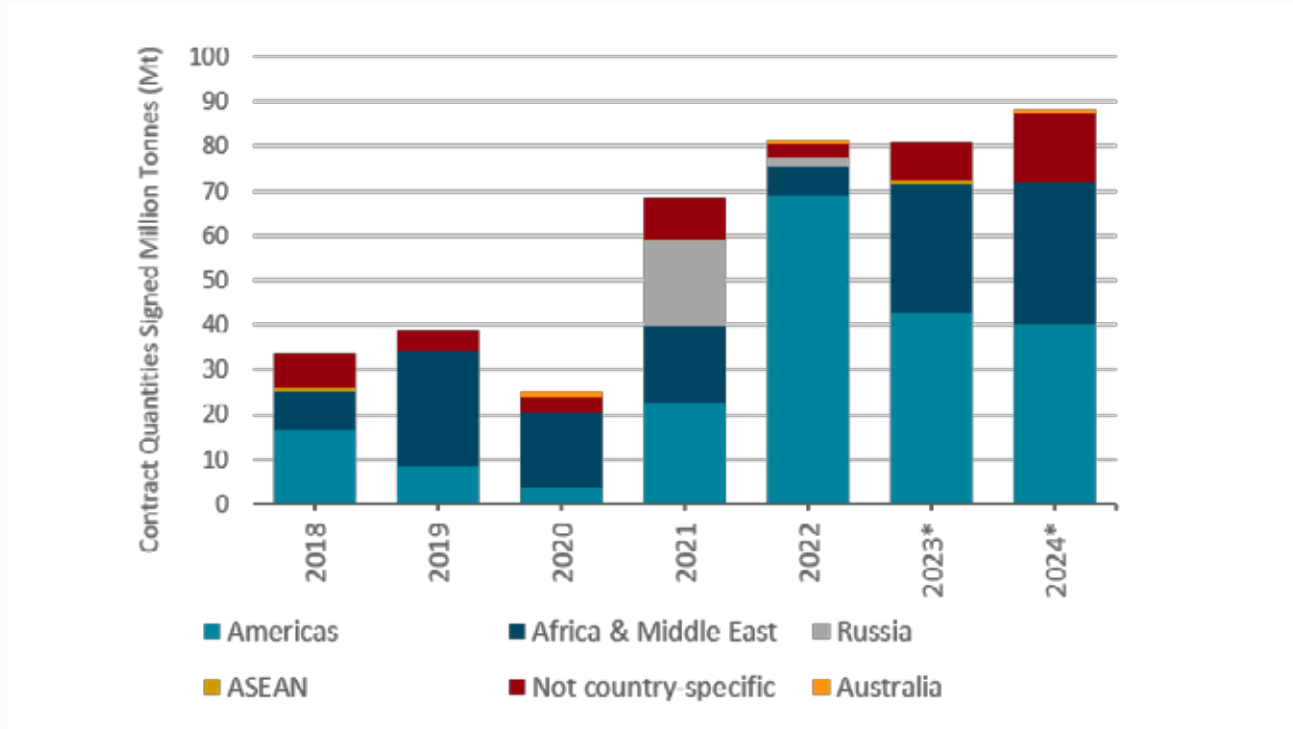


Note: LNG is part of the Confidential Commodities List (CCL), all statistic has been subject to confidentiality restrictions, and therefore may not represent the true aggregate value.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on WITS World bank.

FIGURE 56

LNG contract quantities signed by seller's country of origin, 2018 to 2024



Note: Portfolio contracts with no stated origin are included in "Not country-specific". Contracts without a stated Annual Contract Quantity are excluded from totals. Data for 2018-2022 is drawn from Figure 4.7 of the Future Gas Strategy Analytical Report; 2023-2024 extends this series based on GILGNL reports.

Source: Bankwest Curtin Economics Centre | Authors' calculations based on Department of Industry, Science and Resources (DISR) (2024) Future Gas Strategy Analytical Report. GILGNL (2023, 2024, 2025) *The LNG Industry*.





GLOSSARY AND TECHNICAL NOTES

GLOSSARY AND TECHNICAL NOTES

Beneficiation

Involves improving the quality and value of raw mineral resources through processing and upgrading prior to downstream manufacturing or export.

Critical Minerals – Geoscience Australia

A critical mineral is a metallic or non-metallic element that has two characteristics:

1. It is essential for the functioning of our modern technologies, economies or national security and
2. There is a risk that its supply chains could be disrupted.

Critical minerals are used to manufacture advanced technologies including mobile phones, computers, fibre-optic cables, semi conductors, banknotes, and defence, aerospace and medical applications. Many critical minerals are used in low-emission technologies such as electric vehicles, wind turbines, solar panels, and rechargeable batteries. While some are also crucial for common products such as stainless steel and electronics.

Risks to critical mineral supply chains can come about when mineral production or processing is dominated by individual countries or companies that could limit availability. Other risks include market immaturity, political decisions, social unrest, natural disasters, mine accidents, geological scarcity, pandemics, and war.

Australia's Critical Minerals List (Department of Industry, Science and Resources, 2024a):

High-purity Alumina, Antimony, Arsenic, Beryllium, Bismuth, Chromium, Cobalt, Fluorine, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Niobium, Platinum-group elements, Rare-earth elements, Rhenium, Scandium, Selenium, Silicon, Tantalum, Tellurium, Titanium, Tungsten, Vanadium, Zirconium.

Strategic Minerals – Department of Industry, Science and Resources

The Strategic Materials List contains minerals:

- that are important for the global transition to net zero and broader strategic applications, specifically the priority technologies set out in the Critical Minerals Strategy
- for which Australia has geological potential for resources
- in demand from our strategic international partners.

However, their supply chains are not currently vulnerable enough to meet the criteria for the Critical Minerals List.

Australia's strategic minerals are aluminium, copper, phosphorous, tin and zinc.

ESG

Environmental, Social, and Governance (ESG) - a framework used to measure the sustainability and ethical footprint of resources.

CBAM

Carbon Border Adjustment Mechanism (CBAM) - carbon tariffs applied to carbon-intensive imports to prevent carbon leakage.



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