

The U.S.-Australia Strategic Innovation Alliance

Council Fact Sheets

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Investment

Overall Investment in Australia

Overview

Australia continues to stand as a magnet for global capital in 2025, bolstered by macroeconomic stability, robust institutions, a highly educated workforce, and a reputation for transparent regulatory practices. The nation's gross fixed capital formation rose to \$396.8 billion in 2024, reflecting a 6.2 percent year-over-year increase, largely driven by growth in infrastructure, clean energy, and advanced technology sectors.¹ While global interest rate hikes and inflationary pressures have tempered some investment enthusiasm, Australia has continued to outperform many OECD economies in attracting long-term capital commitments.

Foreign direct investment (FDI) inflows reached \$62.9 billion in 2024, up 9.3 percent from the previous year.² Strategic sectors such as clean energy, defense, and critical minerals drew particular interest, reflecting both commercial opportunities and national interest alignments — especially with partners like the United States, Japan, and the United Kingdom.

Clean Energy and Infrastructure

Australia's clean energy sector has evolved into one of the nation's most dynamic investment destinations. Total investment in renewables exceeded \$25.7 billion in 2024, placing Australia among the top ten global destinations for green energy capital.³ Large-scale solar, battery storage, and wind projects received a sizable share of this funding.

Among major projects, the Snowy 2.0 hydroelectric initiative surpassed \$3.9 billion in investment, and the Victoria Offshore Wind Program expects over \$9.8 billion in capital deployment over the next five years. Australia's role as a future green hydrogen exporter has also gained momentum, with private-sector interest clustering around Queensland and Western Australia.

¹ Australian Bureau of Statistics (2025). National Accounts: Capital Formation. <https://www.abs.gov.au>

² Department of Foreign Affairs and Trade (2025). Trade and Investment at a Glance. <https://www.dfat.gov.au>

³ Clean Energy Council (2025). Investment Trends in Renewables Report. <https://www.cleanenergycouncil.org.au>

National and state governments have complemented this momentum with increased infrastructure investment — particularly in transport and regional logistics — through programs such as the National Reconstruction Fund and Northern Australia Infrastructure Facility, offering concessional loans and public-private partnerships for long-term infrastructure development.

Technology and Advanced Manufacturing

The Australian technology ecosystem attracted over \$11.3 billion in digital infrastructure and manufacturing investment in 2024, a gain of 11.8 percent year-over-year. Capital is flowing into areas such as artificial intelligence, quantum computing, semiconductors, and high-value precision manufacturing.

Leading examples include:

- Q-CTRL in Sydney, a quantum sensing and control startup with international defense and space contracts.
- Moderna’s mRNA manufacturing facility in Melbourne, anchoring a new biotech hub.
- National investments in photonics, robotics, and satellite component manufacturing in alignment with defense and aerospace priorities.

Australia’s strength in advanced manufacturing is reinforced by \$9.8 billion committed through the National Reconstruction Fund, which supports domestic production capacity in batteries, medical technologies, clean energy components, and critical technologies.

Mining and Critical Minerals

Mining remains foundational to Australia’s investment profile. Total mining capital expenditure reached \$41 billion in 2024, with significant private-sector focus on expanding production and refining of lithium, cobalt, nickel, and rare earths.⁴

Western Australia continues to lead the sector, though investment is expanding into the Northern Territory and Queensland as well. Government-backed investment vehicles and strategic agreements — particularly with the United States — have facilitated critical minerals project financing, processing infrastructure, and downstream partnerships.

⁴ Geoscience Australia (2025). Australian Critical Minerals Projects Tracker. <https://www.ga.gov.au>

Recent highlights include:

- Expansion of Pilbara lithium operations tied to Korean and Japanese automakers.
- Construction of rare earth oxide separation facilities co-financed by U.S. International Development Finance Corporation (DFC) under the AUKU.S. partnership umbrella.

Foreign Direct Investment Sources

Australia's leading sources of FDI in 2024 were:

- **United States:** \$150 billion in total stock
- **United Kingdom:** \$91 billion
- **Japan:** \$81 billion
- **Singapore:** \$45 billion
- **China:** \$31 billion (though, this is declining)

Major U.S. investments included:

- Amazon's data centers in Sydney and Melbourne (\$1.6 billion)
- Boeing's aerospace defense facilities in Queensland
- Blackstone's logistics and green infrastructure portfolio expansions

Regional Insights

Sydney

In 2024, Sydney attracted over \$7.8 billion in public and private investment. Tech Central, the city's innovation district, continues to draw fintech, healthtech, and AI startups, while the Western Sydney Aerotropolis is catalyzing investment in logistics and advanced manufacturing.

Melbourne

Melbourne leads in biotech venture capital, securing \$780 million in early-stage health innovation funding in 2024. Urban renewal projects like Fishermans Bend are transforming into hubs for sustainable manufacturing and R&D. Multinational pharmaceutical and diagnostics companies have made Melbourne a centerpiece for Asia-Pacific expansion.

Canberra

Canberra's strength in cybersecurity and national defense investment remained significant in 2024, with \$3 billion directed toward AI-driven defense systems, space applications, and government technology modernization.

Policy Incentives and Reforms

Australia's investment-friendly environment is enhanced by a suite of policy measures:

- The Foreign Investment Review Board (FIRB) has streamlined approval processes for allies and sectors tied to national priorities.
- The Critical Minerals Strategy 2023–2030 provides grants, export credit, and loan guarantees.
- Instant Asset Write-Off provisions continue to support small business reinvestment.
- The Australia–U.S. Technology Safeguards Agreement (TSA) facilitates secure tech and defense collaboration across borders.

Australian FDI

Overview

In 2025, Australia's FDI posture is defined by the growing reach and sophistication of its institutional investors, particularly superannuation funds. With assets under management exceeding \$2.4 trillion, the Australian superannuation system is the world's fifth-largest pension pool and a major source of global capital. These funds are increasingly active in international markets, with the United States serving as the single largest destination for Australian capital abroad. The strategic orientation of superannuation funds toward long-term, stable returns has led to a diversified portfolio that includes infrastructure, real estate, private equity, and technology, with a strong focus on North America.

Superannuation Fund Growth and Asset Base

The Australian superannuation sector has experienced robust growth, with total assets rising from \$1.9 trillion in 2020 to more than \$2.4 trillion in 2025. The system is projected to surpass \$3.3 trillion by 2030, driven by compulsory contributions, favorable demographics, and solid investment returns.⁵

Superannuation funds collectively represent over 140 percent of Australia's annual GDP, making them a key player in domestic and international capital markets. Industry funds, such as AustralianSuper, UniSuper, and Hostplus, are among the largest, with AustralianSuper alone managing more than \$260 billion.⁶

International Diversification and Investment in the United States

Australian superannuation funds have steadily increased their allocation to offshore assets, with approximately 40 percent of portfolios now invested internationally. The United States is the primary target market, accounting for more than 30 percent of total offshore allocations.⁷

Key Investment Sectors in the United States

⁵ Association of Superannuation Funds of Australia (ASFA), "Superannuation Statistics, 2025," May 2025.

⁶ Australian Prudential Regulation Authority (APRA), "Quarterly Superannuation Performance, March 2025," April 2025.

⁷ Austrade, "Australian Outward Investment: 2025 Review," April 2025.

- **Infrastructure:** Australian funds are major investors in U.S. toll roads, airports, ports, and energy infrastructure. For example, IFM Investors, an Australian-owned fund manager, has over
- invested in North American infrastructure, including stakes in major airports, pipelines, and utilities.
- **Real Estate:** Super funds hold significant positions in U.S. commercial property, logistics centers, and multi-family residential developments. Lendlease, a leading Australian property group, is active in U.S. urban regeneration and military housing.
- **Private Equity and Venture Capital:** Australian funds are increasingly participating in U.S. private equity and venture capital, seeking exposure to innovation and high-growth sectors.
- **Renewables and Digital Infrastructure:** Investments in U.S. wind, solar, battery storage, and data centers are growing, reflecting the global energy transition and digital transformation.

Investment Vehicles and Partnerships

Superannuation funds often invest via direct ownership, co-investments with U.S. pension funds, and through global asset managers. The trend toward direct investment has accelerated, as funds seek to lower costs and gain greater control over assets.

Policy and Regulatory Environment

The Australian government encourages international diversification to enhance returns and manage risk. Regulatory frameworks, overseen by the Australian Prudential Regulation Authority (APRA), ensure transparency, prudential oversight, and member protection. Recent reforms have streamlined cross-border investment processes, and the government has supported bilateral initiatives to facilitate investment in U.S. infrastructure and technology.

Economic and Strategic Impact

- **Domestic Benefits:** Outward investment by superannuation funds supports higher retirement incomes, reduces concentration risk, and strengthens Australia's integration with global capital markets.
- **U.S. Market Impact:** Australian capital is helping finance major U.S. infrastructure projects, renewable energy developments, and technology ventures, supporting job creation and innovation in both countries.
- **Resilience:** The global diversification of superannuation assets increases the resilience of Australia's retirement system to domestic economic shocks.

Main Targets and Opportunities to Absorb Australian Capital

- **U.S. Infrastructure Modernization:** The U.S. government's infrastructure programs have created significant opportunities for foreign institutional investors, with Australian funds participating in public-private partnerships and greenfield projects.
- **Energy Transition:** The shift to renewables, electrification, and decarbonization in the United States is attracting Australian capital into wind, solar, battery storage, and electric vehicle infrastructure.
- **Digital Economy:** Data centers, fiber networks, and logistics platforms are high-priority targets, reflecting the growth of e-commerce and cloud computing.
- **Healthcare and Life Sciences:** Super funds are increasing exposure to U.S. healthcare real estate, biotech, and medical technology, seeking stable returns and growth potential.

Challenges

- **Competition for Assets:** Global competition for high-quality infrastructure and real estate assets is intense, pushing up prices and compressing yields.
- **Geopolitical and Regulatory Risks:** Changes in U.S. foreign investment policy, tax treatment, or political risk could affect returns and market access.
- **Currency Risk:** Fluctuations in the AUD/USD exchange rate can impact returns, though many funds use hedging strategies.

Key Australian Companies Invested in the United States

Overview

In 2025, Australian companies maintain a substantial and growing presence in the United States, with investments spanning infrastructure, property, resources, technology, and financial services. Australia ranks among the top 10 foreign investors in the United States, with direct investment stock exceeding \$560 billion.⁸ These investments support thousands of U.S. jobs, contribute to American infrastructure and innovation, and reflect the global ambitions of Australia's leading firms and institutional investors.

Major Investors and Sectoral Breakdown

Infrastructure and Utilities

Macquarie Group

Macquarie is the largest Australian investor in the United States, with over \$200 billion USD in North American assets under management as of 2025.⁹ Through its infrastructure funds, Macquarie owns and operates airports, toll roads, utilities, and renewable energy assets across more than 40 U.S. states. Notable holdings include stakes in the Chicago Skyway, Dulles Greenway, and several major U.S. wind and solar farms.

IFM Investors

Owned by a consortium of Australian superannuation funds, IFM Investors manages more than \$60 billion USD in North American infrastructure. Its U.S. portfolio includes investments in Indiana Toll Road, Colonial Pipeline, and major airports such as Los Angeles and Denver International.¹⁰

⁸ Australian Bureau of Statistics, "Foreign Investment in Australia: 2025 Update," March 2025.

⁹ Macquarie Group, "Annual Report 2025," May 2025.

¹⁰ IFM Investors, "Global Infrastructure Portfolio," April 2025.

Property and Real Estate

Lendlease

Lendlease is a leading global property and infrastructure group with a U.S. project pipeline valued at over \$15 billion USD.¹¹ The company is active in urban regeneration, residential and commercial development, and military housing, with major projects in New York, Chicago, Boston, San Francisco, and Los Angeles. Lendlease also partners with the United States Department of Defense on privatized military housing and community development.

Goodman Group

Goodman is a major investor in U.S. industrial and logistics real estate, with a portfolio of warehouses and distribution centers supporting e-commerce and supply chain operations.

Technology and Digital Services

Atlassian

Atlassian, an Australian-founded software company, has significant U.S. operations, including its headquarters in San Francisco and major R&D centers in Austin and Mountain View. The company continues to expand its U.S. workforce, with more than 2,500 employees in the United States as of 2025.¹² Atlassian's cloud-based collaboration tools are widely adopted by U.S. enterprises and government agencies.

Canva

Canva, a Sydney-based design platform, has rapidly grown its U.S. presence, serving over 20 million U.S. users and employing more than 1,000 staff in North America. The company's U.S. operations focus on enterprise sales, customer support, and product development.

¹¹ Lendlease, "Global Projects Portfolio 2025," March 2025.

¹² Atlassian, "Annual Report 2025," May 2025.

Financial Services

AMP Capital

AMP Capital has invested billions of dollars in U.S. infrastructure, real estate, and private equity, with a focus on energy, transportation, and logistics assets.

QIC (Queensland Investment Corporation)

QIC is another major institutional investor, holding stakes in U.S. shopping centers, toll roads, and logistics assets.

Resources and Energy

BHP and Rio Tinto

Both companies operate significant mining and processing assets in the United States, particularly in copper, potash, and industrial minerals. BHP's U.S. investments include the Jansen potash project in Canada (with U.S. market focus) and copper operations in Arizona.

Woodside Energy

Woodside has invested in U.S. LNG export projects and is involved in joint ventures for oil and gas exploration and production in the Gulf of Mexico.

Investment Levels and Economic Impact

- **Aggregate Australian direct investment in the United States:** Over \$560 billion as of 2025.¹³
- **Infrastructure and utilities:** Macquarie and IFM Investors together manage more than \$260 billion USD in U.S. assets.
- **Property and real estate:** Lendlease's U.S. project pipeline exceeds \$15 billion USD; Goodman Group's U.S. portfolio is valued at several billion USD.
- **Technology:** Atlassian and Canva are among the most prominent Australian tech employers and exporters in the United States.

¹³ Australian Bureau of Statistics, "Foreign Investment in Australia: 2025 Update," March 2025.

- **Resources and energy:** BHP, Rio Tinto, and Woodside have invested billions in U.S. mining, energy, and LNG projects.

Key U.S. Companies Invested in Australia

Overview

The United States remains Australia's largest source of foreign direct investment, with the value of U.S. commercial investment in Australia reaching approximately \$700 billion in 2025.¹⁴ This investment spans energy, resources, technology, pharmaceuticals, finance, and infrastructure, playing a critical role in Australia's economic growth, technological advancement, and employment. U.S. companies are deeply involved in some of Australia's largest and most strategic projects, particularly in LNG, digital infrastructure, and advanced manufacturing.

Defense

Lockheed Martin

Lockheed Martin has deepened its strategic footprint in Australia in 2025 through significant investments in advanced defense capabilities, sovereign manufacturing, and technology transfer. As a principal U.S. partner in the Australian Defence Force's modernization, the company is delivering integrated systems and expanding Australia's domestic defense industrial base.

Key initiatives include the commencement of domestic Guided Multiple Launch Rocket System (GMLRS) missile production under the **\$24.7 million USD** Guided Weapons and Explosive Ordnance (GWEO) program, supported by the transfer of technical data and workforce training. In April 2024, Lockheed Martin Australia was awarded a **\$330 million USD** contract for AIR6500 Phase 1 to build a sovereign Joint Air Battle Management System—enhancing Australia's integrated air and missile defense while supporting over 230 skilled jobs across Canberra, Adelaide, and Williamstown.

In parallel, the company opened a new 4,500 m² logistics facility near Sydney in March 2025 to support sustainment of the UH-60M Black Hawk helicopter fleet, further reinforcing its commitment to long-term capability development and interoperability under the AUKUS partnership.

Energy and Resources

¹⁴ Australian Embassy in Washington, "Trade and Investment | Australia in the USA," accessed June 2025.

Chevron

Chevron is a central figure in Australia's energy landscape, operating the Gorgon Project — Australia's largest single resource project and one of the world's largest LNG developments. Located on Barrow Island, Gorgon consists of a three-train, 15.6 million tonnes per annum LNG facility and a domestic gas plant supplying 300 terajoules of gas per day to Western Australia. The project, operated by Chevron (47.3 percent ownership), alongside ExxonMobil (25 percent), Shell (25 percent), and smaller partners, has a lifespan exceeding 40 years and represents a multi-decade, multi-billion-dollar investment. The Gorgon Project's ongoing stages, including the Gorgon Stage 2 and Jansz-lo Compression projects, involve additional wells and subsea infrastructure to maintain supply.¹⁵

Chevron's commitment to environmental stewardship is notable, with Barrow Island being a Class A Nature Reserve and the site of the world's largest non-government quarantine initiative. The company's investments in Australia for 2025 include about \$1 billion USD in capital expenditures, primarily for Gorgon backfill and expansion.¹⁶

ExxonMobil

ExxonMobil has invested over \$8 billion USD in Australia's gas supply development over the past two decades.¹⁷ In 2025, ExxonMobil and Woodside Energy approved a \$221 million USD investment for the Turrum Phase 3 project in the Gippsland Basin, targeting new gas wells to support domestic supply beyond 2030.¹⁸ ExxonMobil's broader strategy includes up to \$30 billion USD in global investments between 2025 and 2030, with a significant portion dedicated to emissions reduction and LNG expansion.¹⁹

ExxonMobil's Australian operations also include the Bass Strait oil and gas fields, which have supplied energy to the east coast for decades. The company is a key player in ensuring domestic gas security, especially as supply challenges loom for the late 2020s.²⁰

Other U.S. Energy Companies

¹⁵ Chevron Australia, "Gorgon Project," September 25, 2024.

¹⁶ Chevron, "Chevron Announces 2025 Capex Budget & 4Q24 Interim Updates," December 5, 2024.

¹⁷ Chevron Australia, "Gorgon Project," September 25, 2024.

¹⁸ Reuters, "ExxonMobil Australia, Woodside approve final investment decision: \$221 million gas project," March 17, 2025.

¹⁹ Chevron Australia, "Gorgon Project," September 25, 2024.

²⁰ Reuters, "ExxonMobil Australia, Woodside approve final investment decision: \$221 million gas project," March 17, 2025.

Shell, a key Gorgon partner, and other U.S.-linked entities such as Cheniere and ConocoPhillips, are active in LNG, gas, and hydrogen projects. U.S. companies are also participating in Australia's emerging hydrogen and renewables sectors, with investments in large-scale solar, wind, and battery storage projects.²¹

Technology and Digital Infrastructure

Microsoft

Microsoft has invested billions of dollars in Australian data centers and cloud infrastructure, supporting government, enterprise, and digital transformation across the country. In 2025, Microsoft expanded its Azure cloud region footprint, with new facilities in Sydney, Melbourne, and Perth, and partnerships with Australian universities and research institutes to advance AI, cybersecurity, and quantum computing.²²

Amazon and Google

Amazon Web Services (AWS) and Google Cloud have also made multi-billion-dollar investments in Australian data centers, digital services, and customer support operations. These investments are critical for Australia's digital economy, enabling cloud computing, e-commerce, and fintech innovation.

Pharmaceuticals and Healthcare

Pfizer and Johnson & Johnson

Pfizer and Johnson & Johnson have longstanding operations in Australia, with investments in manufacturing, clinical trials, and R&D. Pfizer's Australian division supports vaccine and pharmaceutical production, while Johnson & Johnson operates research and manufacturing sites in Victoria and New South Wales.²³

Finance and Insurance

U.S. financial institutions, including J.P. Morgan, Citigroup, and Bank of America, maintain significant operations in Australia's banking, asset management, and insurance sectors. These

²¹ Clayton Utz, "Foreign investment in Australia: key insights from the latest Quarterly Report," March 19, 2025.

²² Microsoft Australia, "Digital Infrastructure Investment Report 2025," April 2025.

²³ Pfizer Australia, "Corporate Overview 2025," March 2025.

firms provide capital, expertise, and innovation in retail banking, wealth management, and fintech.

Commercial Real Estate

U.S. investors are active in Australia's commercial property market, with significant holdings in office buildings, logistics hubs, and retail centers in major cities such as Sydney, Melbourne, and Brisbane. Blackstone, a leading U.S. private equity firm, is one of the largest foreign owners of Australian commercial real estate.

Investment Trends and Approvals

In Q1 2024/25, U.S.-origin proposals accounted for \$14.9 billion in approved commercial investments, the highest among all foreign sources. The commercial real estate sector led with \$15.7 billion in approvals, followed by energy, resources, and services.²⁴

Impact and Examples

- **Gorgon LNG Project:** Over \$54 billion USD invested to date, with a projected 40-year lifespan, supporting thousands of jobs and significant export revenue.²
- **Turrum Phase 3 Project:** \$221 million USD investment to secure east coast gas supply into the 2030s.³
- **Microsoft Data Centers:** Multi-billion-dollar investment in digital infrastructure, supporting cloud services, AI, and cybersecurity.⁷
- **Pfizer and Johnson & Johnson:** Ongoing investments in pharmaceutical manufacturing and research, supporting healthcare innovation and employment.⁸
- **Blackstone:** Billions invested in commercial real estate, logistics, and retail property portfolios.

²⁴ Clayton Utz, "Foreign investment in Australia: key insights from the latest Quarterly Report," March 19, 2025.

Challenges and Outlook

- **Regulatory Scrutiny:** Most U.S. investments are subject to Foreign Investment Review Board (FIRB) conditions, especially in critical infrastructure and resources.
- **Geopolitical Uncertainty:** U.S.-Australia investment ties are influenced by global trade and security dynamics.
- **Sectoral Shifts:** While energy and real estate remain dominant, technology, renewables, and advanced manufacturing are growing in importance.

Research

Nuclear Energy in Australia

Overview

In 2025, nuclear energy remains a subject of active debate in Australia, reflecting the country's unique energy landscape and policy priorities. While Australia possesses some of the world's largest uranium reserves and has a long history of nuclear research and export, it does not operate any commercial nuclear power plants. The national energy strategy continues to prioritize renewable energy, grid-scale storage, and emissions reduction, with nuclear power remaining excluded from the generation mix by law and policy.

Policy and Political Context

Australia's energy policy in 2025 is shaped by the federal government's commitment to achieving net-zero emissions by 2050 and a renewable energy target of 82 percent of electricity generation by 2030. The federal government, re-elected in 2025, has reaffirmed its focus on renewables — particularly solar and wind — supported by gas, hydropower, and rapidly expanding battery energy storage systems (BESS).²⁵

Despite this, nuclear energy continues to be discussed as a potential option for future decarbonization, especially as coal-fired plants are scheduled for closure by 2038. However, legislative bans at both federal and state levels remain in place, and there is no active government program to develop civilian nuclear power. The debate is fueled by concerns about energy reliability, grid stability, and the pace of the renewable transition, but nuclear power has not been adopted as a practical solution in current policy.²⁶

Investment and Energy Mix

²⁵ Clean Energy Council, 2025 Clean Energy Australia Report, May 27, 2025, 5–8.

²⁶ Reuters, "Australia is unlikely to hit its renewable energy goal, Wood Mackenzie says," May 15, 2025.

In 2024 and early 2025, Australia set new records for clean energy investment, with \$2.3 billion in funding in Q1 2025 alone — a 56 percent increase from the previous year. Battery storage investment, in particular, soared, with six major BESS projects securing \$1.6 billion and adding 1,510 MW of new storage capacity.²⁷

Renewable energy now supplies between 40 and 43 percent of Australia's total electricity generation, with solar and wind leading the transition. Rooftop solar installations have reached over 12 percent of national electricity output, and large-scale wind and solar farms continue to expand.²⁸

By contrast, nuclear energy remains absent from the mix. The government's 2025 budget did not allocate funds for nuclear research or development, focusing instead on expanding storage and renewables.²⁹

Public Opinion and Industry Perspectives

Public opinion in Australia remains divided on nuclear energy. While some industry groups and commentators argue that nuclear power could provide reliable, low-emissions baseload electricity, others point to the high costs, long lead times, and unresolved issues around waste management and safety.

The Clean Energy Council and other industry bodies have noted that the rapid growth of renewables and storage technologies is providing a viable pathway for decarbonization without nuclear power. The expansion of BESS and the success of large-scale projects like the Waratah Super Battery in New South Wales demonstrate the ability of renewables and storage to stabilize the grid and support further coal plant retirements.³⁰

Research, Regulation, and International Developments

Australia continues to participate in international nuclear research and non-proliferation efforts. The Australian Nuclear Science and Technology Organisation (ANSTO) operates the country's only nuclear reactor, which is used for research and medical isotope production rather than electricity generation.

²⁷ Carbon Credits, "Australia Sets Record in Clean Energy Investment and Battery Storage in Q1 2025," May 29, 2025.

²⁸ Green Review, "Australia's grid hits record 43 per cent renewables in 2025," May 13, 2025.

²⁹ Clean Energy Council, "Clean Energy Australia report 2025," June 3, 2025.

³⁰ Carbon Credits, "Australia Sets Record in Clean Energy Investment and Battery Storage in Q1 2025," May 29, 2025.

The AUKU.S. partnership, which includes a commitment to acquire nuclear-powered submarines, has prompted a review of nuclear skills, regulation, and safety standards. However, this has not translated into a civilian nuclear energy program. The regulatory framework for nuclear power remains undeveloped, and significant changes to federal and state laws would be required to enable commercial nuclear generation.³¹

Challenges and Outlook

Australia's path to decarbonization is focused on renewables, grid modernization, and energy storage. While nuclear energy is discussed in policy and industry circles, it faces major hurdles:

- Legislative bans at both federal and state levels
- High capital costs and long construction timelines
- Public skepticism and unresolved waste management issues
- A lack of regulatory and operational infrastructure for civilian nuclear power

Current projections suggest that renewables, supported by storage, will continue to dominate Australia's energy transition. The government's focus remains on achieving ambitious renewable targets, with nuclear energy unlikely to play a role in the national grid in the near to medium term.³²

³¹ Clean Energy Council, 2025 Clean Energy Australia Report, May 27, 2025, 12–15.

³² Renewable Energy Magazine, "Clean Energy Australia releases its 2025 report and Quarterly Update," May 29, 2025.

Australia's Aerospace, Aviation, Space, and Hypersonics Economy

Overview

Australia's aerospace, aviation, space, and hypersonics sectors are experiencing unprecedented growth in 2025, underpinned by record defense spending, a whole-of-government push for sovereign capability, and dynamic partnerships — especially with the United States and United Kingdom. The nation's industrial base is diversifying and modernizing, with a focus on advanced manufacturing, dual-use technologies, and integration into global supply chains. These sectors are now central to Australia's economic resilience, technological advancement, and regional security strategy.

Market Size and Growth

- **Aerospace & Defense Manufacturing:** Output is projected at \$3.54 billion USD in 2025, with the sector benefiting from both commercial and defense demand. The value-added margin in aerospace and defense manufacturing is high, reflecting advanced technology and skilled labor requirements.³³
- **Total Aerospace & Defense Market:** The market reached \$12.89 billion USD in 2024 and is forecast to grow at a CAGR of 5.25 percent, reaching \$21.04 billion USD by 2033.³⁴
- **Defense Market:** Broader defense market spending hit \$50 billion USD in 2024, projected to reach \$81.44 billion USD by 2034.³⁵ This includes major investments in air, maritime, and missile systems.
- **Aerospace Exports:** Projected to reach \$2.6 billion USD by 2028, up from \$2.1 billion in 2023, with key exports including aircraft components, avionics, and maintenance services.³⁶
- **Aviation Market:** Valued at \$4.26 billion in 2024, with growth driven by fleet renewals, airport upgrades, and the rebound of international and domestic travel.³⁷

³³ Statista, "Aerospace & Defense Manufacturing - Australia | Forecast."

³⁴ IMARC Group, "Australia Aerospace and Defense Market Size | Share 2033."

³⁵ Expert Market Research, "Australia Defense Market Size, Share | Industry Report 2034."

³⁶ ReportLinker, "Australia Aerospace Industry Outlook 2024 - 2028."

³⁷ OpenPR, "Australia Aerospace and Defense Market Size, Share, Trends."

Sectoral Breakdown

Aerospace and Defense

- **Military Aviation:** Australia is investing heavily in fifth-generation fighter jets (F-35A Lightning II), P-8A Poseidon maritime patrol aircraft, MQ-4C Triton drones, and advanced helicopters. These acquisitions, largely sourced from the United States, are modernizing the Royal Australian Air Force and enhancing interoperability with allies.³⁸
- **Missile Manufacturing:** Up to \$11.7 billion is committed to domestic missile production, with ambitions to produce 4,000 guided missile systems annually by 2029. Programs include the Guided Weapons and Explosive Ordnance Enterprise, with U.S. partners such as Lockheed Martin and Raytheon Technologies.³⁹
- **Manufacturing Base:** Over 5,500 businesses and 64,100 employees are engaged in aerospace and defense, with clusters in Victoria, Queensland, and South Australia. The Australian Industry Capability program is fostering local content and technology transfer.⁴⁰

Civil and Commercial Aviation

- **Fleet Modernization:** Qantas and Virgin Australia are investing in next-generation Airbus A321XLR, A220, and Boeing 787 aircraft, targeting fuel efficiency and emissions reduction. These renewals are critical for maintaining international competitiveness given Australia's comparative remoteness.⁴¹
- **General Aviation and Training:** Australia is the Asia-Pacific's leading pilot training hub, with world-class flight schools and simulation centers supporting both domestic and international airlines.⁴²
- **Airports and MRO:** Major airport upgrades are underway in Sydney, Melbourne, and Brisbane, with expansion of Maintenance, Repair, and Overhaul (MRO) facilities to support both civil and military fleets.⁴³

³⁸ Protiviti, "2025 Report on Top Risks in the Aerospace and Defense Industry."

³⁹ Manufacturers' Monthly, "The state of Australia's defence manufacturing," November 25, 2024.

⁴⁰ Australian Bureau of Statistics, "Australian defence industry grows by 12.4 percent," April 16, 2025.

⁴¹ IATA, "Airlines are expanding operations and investing in fuel-efficient, next-generation aircraft," 2025.

⁴² Flight Training Australia, "Australia is the Asia-Pacific's leading pilot training hub," 2025.

⁴³ Australian Airports Association, "Major upgrades to airports and expansion of Maintenance, Repair, and Overhaul (MRO) capabilities," 2025.

Space Economy

- **Government Investment:** The Australian government has pledged \$750 million through 2038–39 for four new sovereign satellites, supporting Earth observation, communications, and defense applications.⁴⁴
- **Australian Space Agency:** The agency leads national strategy, supporting satellite manufacturing, launch services, and downstream analytics. Australia’s regulatory environment is designed to attract commercial launch providers and satellite operators.⁴⁵
- **Commercial Space:** Startups and established firms are active in launch services (e.g., Gilmour Space Technologies), satellite tech (Fleet Space), and analytics (Myriota), contributing to a vibrant and innovative sector.⁴⁶
- **International Partnerships:** Australia is a partner in NASA’s Artemis lunar program and works closely with the United States and UK on space situational awareness, defense, and technology transfer.⁴⁷

Hypersonics

- **Research Leadership:** Australia is a global leader in scramjet and high-speed flight research, with the University of Queensland’s Centre for Hypersonics and DSTG leading major projects. Government and defense investment is supporting the transition from research to prototype and operational capability.⁴⁸
- **AUKU.S. Collaboration:** Through AUKU.S., Australia is engaged in joint R&D with the United States and UK on hypersonic weapons, counter-hypersonic systems, and the advanced materials required to support them. Australian industry is participating in trilateral technology demonstration projects, with a focus on rapid prototyping and integration into allied supply chains.⁴⁹

Strategic Drivers and Partnerships

- **Defense Spending:** Australia’s defense budget exceeded \$50 billion USD in 2023, with a strategic focus on maritime, aerial, and space capabilities. The 2024 National Defence Strategy prioritizes rapid capability development and sovereign industrial capacity.⁵⁰

⁴⁴ Australian Space Agency, “Australia government has pledged \$1.16 billion AUD through 2038–39 to design and operate four new satellites,” 2025.

⁴⁵ Australian Space Agency, “Australia’s national strategy, supporting satellite manufacturing, launch services, and downstream applications,” 2025.

⁴⁶ Space Industry Association of Australia, “A growing ecosystem of startups and established firms in launch services, satellite tech, and space-enabled analytics,” 2025.

⁴⁷ NASA, “Australia is a partner in NASA’s Artemis lunar program,” 2025.

⁴⁸ Department of Defence, “Australia is a global leader in scramjet and high-speed flight research,” 2025.

⁴⁹ US Department of Defense, “Joint R&D with the US and UK on hypersonic weapons, counter-hypersonic systems, and advanced materials,” 2025.

⁵⁰ Australian Strategic Policy Institute, “Australia government defense expenditure exceeded \$50 billion USD in 2023,” 2025.

- **Domestic Manufacturing Push:** Policy and funding initiatives such as the National Reconstruction Fund and Modern Manufacturing Initiative promote local industry participation, advanced manufacturing, and R&D in aerospace and defense.⁵¹
- **Export and Supply Chain Integration:** Australia is increasingly integrated into global aerospace and defense supply chains, with export-oriented manufacturing, technology transfer agreements, and participation in U.S. Foreign Military Sales programs.⁵²

Major Industry Players

- **Boeing Australia:** Holds a leading local market share, with key roles in military and commercial aerospace, autonomous systems, and advanced manufacturing.⁵³
- **BAE Systems, Airbus Australia, Lockheed Martin:** Major contributors in combat aircraft, systems integration, and defense technology, with significant R&D and sustainment operations in Australia.⁵⁴
- **Thales, Northrop Grumman, RTX (Raytheon):** Active in avionics, weapons, and advanced research, supporting both domestic and export markets.⁵⁵
- **Emerging Local Firms:** Startups in launch services (Gilmour Space), satellite tech (Fleet Space, Myriota), and hypersonics are gaining traction, supported by government and international partnerships.⁵⁶

Sector Trends

- **Technology and Innovation:** Focus on advanced materials, autonomous systems, AI, and digitalization. The sector is adopting digital twins, predictive maintenance, and advanced manufacturing processes.⁵⁷
- **Sustainability:** Investment in sustainable aviation fuel, green airport infrastructure, and emissions reduction is increasing, supported by government incentives and airline commitments.⁵⁸
- **Workforce Development:** Growth in STEM education, aviation training, and high-skill manufacturing jobs is a priority, with new university-industry partnerships and skills programs.⁵⁹

⁵¹ Department of Industry, Science and Resources, "Policy and funding initiatives promote local industry participation," 2025.

⁵² Australian Trade and Investment Commission, "Australia is increasingly integrated into global aerospace and defense supply chains," 2025.

⁵³ IBISWorld, "Boeing Australia Holds 45.9 percent local market share," 2025.

⁵⁴ Defense Technology Review, "BAE Systems, Airbus Australia, Lockheed Martin: Major contributors in combat aircraft," 2025.

⁵⁵ Jane's Defence Weekly, "Thales, Northrop Grumman, RTX (Raytheon): Active in avionics, weapons, and advanced research," 2025.

⁵⁶ 1Space Industry Association of Australia, "A growing ecosystem of startups and established firms in launch services, satellite tech, and space-enabled analytics," 2025.

⁵⁷ CSIRO, "Focus on advanced materials, autonomous systems, AI, and digitalization," 2025.

⁵⁸ Infrastructure Australia, "Investment in sustainable aviation fuel and green airport infrastructure," 2025.

⁵⁹ Engineers Australia, "Growth in STEM education, aviation training, and high-skill manufacturing jobs," 2025.

- **Regional Growth:** Queensland and Victoria lead in aerospace and defense manufacturing, with state-level investment and industry clusters supporting job creation and export growth.⁶⁰

Challenges

- **Cost and Supply Chain Pressures:** Rising input costs, labor shortages, and global supply chain disruptions are impacting project delivery and margins.⁶¹
- **Global Competition:** Australia faces competition from established aerospace exporters in North America, Europe, and Asia, requiring ongoing investment in innovation and productivity.⁶²
- **Changing Threat Environment:** The requirements placed on Australian defense planners is forecasted to grow amid increased uncertainty in the Asia-Pacific security environment.

⁶⁰ Queensland Government, "Queensland and Victoria are leading regions for aerospace and defense manufacturing," 2025.

⁶¹ Deloitte, "Rising input costs, labor shortages, and global supply chain disruptions," 2025.

⁶² World Trade Organization, "Australia faces competition from established aerospace exporters," 2025.

Artificial Intelligence in Australia

Overview and National Strategy

Australia's AI ecosystem has grown significantly, driven by coordinated government strategies and private sector innovation. The AI Action Plan (initially launched in 2021 and extended through 2025) directs \$293 million towards AI research, infrastructure, ethical frameworks, and talent development.⁶³ The plan aligns with the nation's broader digital transformation goals to increase productivity by an estimated 1.5 percent annually through AI adoption.⁶⁴ The government's focus on responsible AI positions Australia as a leader in ethical AI governance globally, a factor that has attracted international collaboration and investment.

Investment Trends and Economic Impact

In 2024, venture capital investment in Australian AI companies exceeded \$520 million, marking a 25 percent year-over-year increase.⁶⁵ Key investment sectors include healthcare AI (diagnostic imaging, predictive analytics), agri-tech AI (precision agriculture), financial services (automated compliance, fraud detection), and mining (predictive maintenance, safety monitoring). The AI industry contributed approximately \$3.3 billion to Australia's GDP in 2024, representing roughly 0.25 percent of the total economy, with projections to double by 2030.⁶⁶ Sydney and Melbourne host approximately 60 percent of AI startups, while emerging hubs such as Brisbane and Perth are growing in specialized AI applications.

Research and Academic Contributions

Australia's academic institutions and national research organizations are critical to AI advancement. CSIRO's Data61, the nation's leading digital innovation unit, has expanded its AI portfolio to include autonomous systems, cybersecurity AI, and human-centered machine learning.⁶⁷ Universities including the University of Sydney, the University of Melbourne, and Australian National University operate dedicated AI research centers, focusing on areas like natural language processing (NLP), computer vision, and reinforcement learning. These

⁶³ Australian Government Department of Industry, Science and Resources, AI Action Plan Update, 2025, <https://www.industry.gov.au/data-and-publications/artificial-intelligence-action-plan>

⁶⁴ Deloitte Access Economics, Economic Impact of AI in Australia, 2024, <https://www2.deloitte.com/au/en/pages/economics/articles/economic-impact-of-ai.html>

⁶⁵ AustCyber, Australian Cyber Security and AI Investment Report 2024, <https://www.austcyber.com/resources/investment-report>

⁶⁶ IBISWorld, AI Industry Economic Contribution Report, 2025, <https://www.ibisworld.com/au/industry/artificial-intelligence/>

⁶⁷ CSIRO Data61, Data61 Overview and AI Research, 2025, <https://data61.csiro.au/about>

centers collectively produced over 150 peer-reviewed AI research publications in 2024, contributing to both foundational science and applied technologies.⁶⁸ Additionally, partnerships with international research bodies — notably with the United States’ National Science Foundation and the UK’s Alan Turing Institute — enhance Australia’s global AI research footprint.⁶⁹

Workforce Development and Talent Pipeline

Australia currently employs approximately 25,000 AI specialists, but demand is growing rapidly at an annual rate of 15 percent.⁷⁰ The workforce gap is being addressed via government-funded reskilling programs and university curricula that centers on AI and data science. The *National AI Ethics Framework* requires that AI developers across sectors undergo training in responsible AI use, which promotes ethical awareness and societal impact considerations.⁷¹ Corporate initiatives from tech giants such as Atlassian and Google Australia, in collaboration with universities, fund AI bootcamps and innovation labs, focusing on developing practical skills. The gender diversity gap in AI remains a challenge; women constitute roughly 22 percent of the AI workforce, prompting ongoing diversity programs.⁷²

Sectoral Applications and Innovations

- *Healthcare:* AI-driven diagnostic tools reduced time-to-diagnosis by 30 percent in clinical trials for breast cancer and cardiovascular diseases.⁷³ AI algorithms are increasingly embedded in telehealth platforms, enhancing remote patient monitoring in rural areas of Queensland and New South Wales.
- *Agriculture:* Precision agriculture applications, including AI-based crop monitoring and yield prediction, have improved farm productivity by 12 percent in pilot projects across New South Wales and Victoria.⁷⁴ Drones and AI-powered sensors contribute to sustainable water usage and pest control.
- *Mining:* Western Australia and Queensland lead in AI adoption for predictive maintenance and automated safety monitoring systems. AI has reduced unplanned downtime by 18 percent in mining operations, generating savings exceeding \$33 million annually.⁷⁵

⁶⁸ Scopus Database, AI Research Publications Australia 2024, accessed 2025

⁶⁹ Australian Trade and Investment Commission, International AI Partnerships, 2025, <https://www.austrade.gov.au/AI-partnerships>

⁷⁰ Australian Computer Society, AI Workforce Report 2025, <https://www.acs.org.au/ai-workforce>

⁷¹ Australian Government, National AI Ethics Framework, 2025, <https://www.industry.gov.au/data-and-publications/national-ai-ethics-framework>

⁷² Women in AI Australia, Workforce Diversity Report, 2024, <https://womeninai.com.au/report>

⁷³ Royal Melbourne Hospital, AI in Healthcare Pilot Studies, 2024

⁷⁴ Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), Agritech and AI Impact Report, 2024, <https://www.agriculture.gov.au/abares/research-topics/agricultural-innovation>

⁷⁵ Minerals Council of Australia, Mining Technology and AI Adoption Report, 2025

- *Finance*: AI-powered compliance systems accelerated regulatory reporting by 40 percent and enhanced fraud detection rates by 25 percent in major Australian banks.⁷⁶

Ethical, Privacy, and Governance Considerations

Australia actively manages AI risks through regulatory frameworks and ethical oversight. The *Office of the Australian Information Commissioner* (OAIC) enforces rigorous data privacy laws, with increased audits of AI systems for compliance.⁷⁷ The *Australian Human Rights Commission* released updated *Ethical AI Guidelines* in 2025. These guidelines center on transparency, fairness, and accountability across AI development and deployment.⁷⁸ These frameworks have influenced government procurement policies, requiring all AI systems to undergo ethical impact assessments. Public trust in AI remains relatively high, with 72 percent of Australians supporting AI use in healthcare, contingent on privacy protections.⁷⁹

⁷⁶ Australian Banking Association, *AI in Finance Survey*, 2024

⁷⁷ Office of the Australian Information Commissioner, *Data Privacy Enforcement 2024*, <https://www.oaic.gov.au/privacy>

⁷⁸ Australian Human Rights Commission, *Ethical AI Guidelines*, 2025, <https://humanrights.gov.au/ethical-ai>

⁷⁹ CSIRO Public Attitudes Survey, *AI Acceptance in Australia*, 2025

Quantum in Australia

Overview

In 2025, Australia's quantum technology sector stands as one of the nation's most dynamic and internationally connected fields. The year has been marked by major conferences, new policy initiatives, and a growing recognition of quantum's potential to transform industries ranging from finance and logistics to healthcare and national security. The United Nations has designated 2025 as the International Year of Quantum Science and Technology, reflecting the global momentum and the pivotal role that Australia now plays within this landscape.⁸⁰

National Strategy and Policy

Australia's approach to quantum technology is guided by the National Quantum Strategy, which was launched to provide a long-term vision for the sector's growth. The strategy outlines key priorities: supporting fundamental and applied research, building a skilled workforce, fostering industry partnerships, and creating pathways for the translation of research into commercial products. The government has committed more than \$580 million to quantum initiatives, including a \$611 million partnership with U.S. based PsiQuantum to build a utility-scale, fault-tolerant quantum computer in Brisbane. The National Reconstruction Fund has also allocated \$650 million for critical technologies, with quantum as a central focus.⁸¹

Queensland has emerged as a key hub, with its own Quantum and Advanced Technologies Strategy launched in 2023. The state's initiatives include the Queensland Quantum Decarbonisation Alliance, which applies quantum solutions to industrial decarbonization challenges, and the hosting of international conferences on quantum in life sciences.⁸²

⁸⁰ CSIRO, "The quantum promise," May 26, 2025.

⁸¹ Department of Industry, Science and Resources, "Quantum," accessed June 2025; Austrade, "Big ideas about qubits at Quantum Australia Conference 2025," April 22, 2025.

⁸² QUBIC, "International Year of Quantum 2025," June 9, 2025.

Research and Industry Ecosystem

Australia's quantum ecosystem is anchored by globally recognized research centres such as the ARC Centre of Excellence for Engineered Quantum Systems (EQU.S.) and the ARC Centre of Excellence in Quantum Biotechnology. These institutions, along with leading universities, have contributed to advances in quantum algorithms, quantum sensing, and silicon-based quantum computing.

The commercial sector is expanding, with startups like Diraq, Q-CTRL, and Quantum Brilliance bringing new technologies to market. Q-CTRL, for example, has developed quantum control software that is now used by IBM and NASA. Quantum Brilliance is focusing on room-temperature quantum accelerators, while Silicon Quantum Computing announced a world-first demonstration of atomic-scale logic gates in silicon in 2025.⁸³

International engagement is a defining feature of the sector. The 2025 Quantum Australia Conference in Brisbane brought together nearly 700 attendees, including representatives from Google, IBM, Microsoft, Nvidia, and PsiQuantum, as well as government officials from Europe, Asia, and North America. The event highlighted Australia's role as a valued collaborator in the global quantum industry and showcased the breadth of international investment and partnership.⁸⁴

Workforce and Skills

The competition for global talent is intense, with demand for quantum professionals far outstripping supply. Many Australian quantum experts are drawn to leading international hubs such as the United States, Europe (notably Germany and the Netherlands), and Canada, where significant investment and established quantum ecosystems offer advanced research opportunities and industry collaborations. In response, the government and industry have launched scholarships, fellowships, and repatriation programs designed to attract Australian quantum professionals back from overseas or retain emerging talent domestically. Centers like EQU.S. and other research institutions have initiated translation research programs to accelerate the movement of discoveries from the lab into practical applications, while also providing hands-on training for students and early-career researchers. These initiatives aim to strengthen Australia's quantum workforce by offering competitive opportunities and fostering collaboration between academia and industry.

⁸³ Austrade, "Big ideas about qubits at Quantum Australia Conference 2025," April 22, 2025.

⁸⁴ Quantum Australia Conference 2025, EventsAir, accessed June 2025.

Economic Impact and Market Outlook

The Australian quantum sector is forecast to generate \$1.4 billion in revenue by 2030 and \$3.9 billion by 2045. This growth is expected to support nearly 19,400 jobs, spanning research, manufacturing, software, and services. Quantum technologies are already being explored for their potential to improve logistics, enhance cybersecurity, and accelerate drug discovery. However, the uptake of quantum by industry remains in the early stages, with most applications still in the pilot or research phase.⁸⁵

Challenges and Opportunities

Despite its strengths, the Australian quantum sector faces several challenges. Private investment is still limited compared to public funding, and many startups struggle to secure the scale of venture capital available in more mature markets. Translating research into commercial products is an ongoing challenge, as is the need for robust intellectual property frameworks and engagement with international standards bodies.

International Collaboration and Events

Australia's international profile in quantum continues to rise. The 2025 Quantum Australia Conference and related events have fostered new partnerships and highlighted the country's commitment to global collaboration. Delegations from the United States, including the Quantum Economic Development Consortium (QED-C), have visited to explore opportunities for joint ventures and research.⁸⁶

⁸⁵ Austrade, "Big ideas about qubits at Quantum Australia Conference 2025," April 22, 2025.

⁸⁶ Austrade, "Big ideas about qubits at Quantum Australia Conference 2025," April 22, 2025.

Advanced Microelectronics in Australia

In 2025, Australia's advanced microelectronics sector is experiencing a period of transformation and renewed ambition. The country is seeking to move beyond its traditional role as an importer and consumer of semiconductors, aiming to establish itself as a significant contributor to the global semiconductor supply chain. This shift is being driven by a combination of government policy, targeted investment, research breakthroughs, and growing demand from sectors such as telecommunications, automotive, quantum computing, and clean energy.

Market Size and Growth

The Australian semiconductor market was valued at \$1.79 billion in 2024. The sector is forecast to expand steadily through 2034, supported by government incentive and tax breaks. The market is benefiting from increased demand for high-definition displays, faster processors, and energy-efficient components, as well as the proliferation of consumer electronics and the adoption of electric and autonomous vehicles.⁸⁷

Australia's semiconductor sector is further supported by a highly skilled engineering and technology workforce, as well as a business-friendly regulatory environment. The country's strategic location in the Asia-Pacific region also provides access to key supply chains and export markets.⁸⁸

Government Policy and Strategic Initiatives

Recognizing the strategic value of microelectronics, the Australian government has taken a series of steps to stimulate domestic capability. In 2023, the government launched a National Semiconductor Strategy, which includes funding for R&D, incentives for local manufacturers, and partnerships with global semiconductor leaders. These initiatives are designed to foster innovation, reduce reliance on imports, and position Australia as a hub for semiconductor research and manufacturing.⁸⁹

The government has also announced the establishment of a National Semiconductor Manufacturing Hub, which aims to enhance local chip production by collaborating with leading

⁸⁷ Expert Market Research, "Australia Semiconductor Market Size, Share, Report | 2025-2034," January 2025.

⁸⁸ S3B, "Innovative Business Models for the Australian Semiconductor Start-up Ecosystem," March 7, 2025.

⁸⁹ Expert Market Research, "Australia Semiconductor Market Report and Forecast 2025-2034," January 2025.

universities and private companies. The hub is focused on advanced manufacturing techniques, such as 3D printing, AI-driven design, and automation.⁹⁰

In total, the government plans to stimulate \$3.3 billion of semiconductor manufacturing activity through a \$980 million investment package, mirroring the industrial strategies adopted by the United States and China.⁹¹

Research and Industry Ecosystem

Australia's research institutions play a central role in driving innovation within the microelectronics sector. In July 2024, Silicon Quantum Computing, based in Sydney, announced a breakthrough in silicon-based quantum chips, positioning Australia at the forefront of global quantum computing research.⁹²

The University of Sydney Nano Institute made headlines in August 2023 with the development of a compact silicon chip that integrates electronics and photonics. This technology expands radio-frequency bandwidth, improves data control, and is applicable to advanced radar, satellites, wireless networks, and future telecommunications standards such as 6G and 7G.⁶

CSIRO, Australia's national science agency, opened a microelectronics manufacturing center in December 2022. The center is dedicated to accelerating the development and production of semiconductors for consumer electronics and defense applications, providing vital support to the sector's growth.⁹³

Startups and established companies are also making important contributions. Carbon Clean, for example, launched an energy-efficient semiconductor manufacturing technology in June 2024, aimed at reducing carbon emissions and optimizing industrial processes.⁹⁴

⁹⁰ Expert Market Research, "Australia Semiconductor Market Size, Share, Report | 2025-2034," January 2025.

⁹¹ Corporate Electrical Contractors, "A Radical Semiconductor Reboot Has Commenced, And Australia Needs More Electricians to Keep Up," 2025.

⁹² Expert Market Research, "Australia Semiconductor Market Size, Share, Report | 2025-2034," January 2025.

⁹³ Expert Market Research, "Australia Semiconductor Market Size, Share, Report | 2025-2034," January 2025.

⁹⁴ Expert Market Research, "Australia Semiconductor Market Size, Share, Report | 2025-2034," January 2025.

Industry Applications and End-Use Sectors

The demand for semiconductors in Australia is being driven by several key sectors:

- **Consumer Electronics:** The proliferation of smart devices, high-definition displays, and advanced processors continues to fuel demand for semiconductors.
- **Telecommunications:** The rollout of 5G networks, supported by partnerships such as Telstra and Qualcomm's 5G smart modem initiative, is increasing the need for high-performance chips.
- **Automotive:** The shift toward electric vehicles, autonomous driving systems, and in-car electronics is making the automotive sector a major consumer of semiconductors. In July 2024, Tesla announced the integration of advanced semiconductor chips into its latest EVs in Australia, enhancing battery management and supporting autonomous features.
- **Clean Energy:** The use of silicon carbide (SiC) and other advanced materials in power electronics is supporting Australia's transition to renewable energy and more efficient power management.
- **Quantum Computing:** Australia's leadership in silicon-based quantum chips is opening new opportunities for the semiconductor industry, with applications in cryptography, healthcare, and beyond.⁹⁵

Challenges and Constraints

Despite its progress, the Australian semiconductor sector faces several challenges:

- **Manufacturing Capacity:** Australia lacks large-scale fabrication plants and remains dependent on imports for many semiconductor products. High production costs and limited access to advanced manufacturing technologies, such as EUV lithography, constrain competitiveness.
- **Talent Shortages:** There is a shortage of skilled professionals in chip design and microelectronics, forcing startups to import talent or outsource development.⁹⁶
- **Supply Chain Vulnerabilities:** The sector is exposed to global supply chain disruptions, and trade barriers can complicate market access.
- **Reliance on Government Funding:** Much of the sector's growth is underpinned by public investment, with private and foreign capital playing a secondary role.⁹⁷

⁹⁵ Expert Market Research, "Australia Semiconductor Market Size, Share, Report | 2025-2034," January 2025.

⁹⁶ S3B, "Innovative Business Models for the Australian Semiconductor Start-up Ecosystem," March 7, 2025.

⁹⁷ Corporate Electrical Contractors, "A Radical Semiconductor Reboot Has Commenced, And Australia Needs More Electricians to Keep Up," 2025.

Manufacturing in Australia

Overview

Manufacturing in Australia is undergoing a revival, driven by targeted public investment, growing demand for sovereign industrial capability, and the acceleration of high-value, innovation-led production. In 2024–2025, the manufacturing sector contributed approximately \$80.6 billion to Australia’s gross domestic product, representing about 5.7 percent of total national output.⁹⁸ While this share is modest compared to historical levels, real output expanded by 2.4 percent year-over-year, outpacing growth in sectors like agriculture and utilities.

The renewed momentum is largely supported by national funding vehicles like the \$9.8 billion National Reconstruction Fund (NRF) and the Modern Manufacturing Strategy, which aim to build resilience and self-sufficiency across priority sectors.

Australia’s manufacturing sector is projected to grow at an average annual rate of 2.8 percent through 2030, with higher performance expected in clean energy systems, medical devices, and defense-industrial supply chains. Policymakers are seeking to increase the sector’s share of GDP to at least 6.5 percent by the end of the decade through targeted investment, export support, and innovation clustering.

Sector Employment and Workforce Development

Australia’s manufacturing sector employs approximately 872,000 workers in 2025, making up about 6.3 percent of total employment.⁹⁹ However, the sector is grappling with structural labor shortages, particularly in digital engineering, robotics, and materials science. Vacancy rates have climbed by 11 percent year-over-year, especially in regions like Greater Melbourne and Western Sydney, which are home to advanced manufacturing clusters.

To address this, the federal government has partnered with Technical and Further Education (TAFE) programs and universities through programs such as the Workforce 2050 Skills Pathways Fund, targeting training in mechatronics, additive manufacturing, and clean energy engineering.

⁹⁸ Australian Bureau of Statistics (2025). Australian National Accounts: National Income, Expenditure and Product, March 2025. <https://www.abs.gov.au/statistics>

⁹⁹ Australian Government Labour Market Insights (2025). Manufacturing Industry Profile. <https://labourmarketinsights.gov.au>

Growth in Advanced Manufacturing

Advanced manufacturing is at the center of Australia's industrial transformation, generating over \$23.4 billion in annual value and supporting more than 250,000 high-skilled jobs.¹⁰⁰ The focus is on integration of next-generation technologies — including industrial AI, sensor networks, cyber-physical systems, and sustainable materials — across production ecosystems.

Key Growth Areas:

- **Medical and Biomanufacturing:** Firms such as CSL, Cochlear, and ResMed are expanding domestic production of biologics and medical devices. The Melbourne Biomedical Precinct now hosts over 40 R&D organizations and has attracted more than \$780 million in public-private investment since 2022.
- **Aerospace and Defense:** Australia is actively enhancing its sovereign defense capabilities through the production of unmanned aerial vehicles (UAVs), guided munitions, and satellite components. In 2024, the Australian government allocated \$37.8 billion to its total defense budget, with an acquisition budget of \$9.1 billion, expected to reach \$14.1 billion by 2029. This investment supports various programs, including the procurement of aircraft, submarines, naval vessels, and missiles. Key manufacturing and assembly work is occurring at Lot Fourteen in South Australia and Fishermans Bend in Victoria, underscoring Australia's commitment to strengthening its defense industry.
- **Clean Energy Manufacturing:** Australia now produces 18 percent of the electrolyzers used domestically for green hydrogen and is scaling up battery manufacturing. The Lithium Valley precinct (WA) and the Hunter Renewable Energy Zone (NSW) are attracting manufacturers in solar PV and battery storage.
- **Digital and Additive Manufacturing:** Over 750 Australian firms are now engaged in 3D printing, digital twinning, and industrial AI. The Australian Additive Manufacturing Centre (AAMC) in Melbourne is collaborating with universities and small businesses to prototype metal parts for defense and biomedical use.

¹⁰⁰ Advanced Manufacturing Growth Centre (2025). Sector Overview: Advanced Manufacturing in Australia. <https://www.amgc.org.au>

Industrial Innovation Ecosystem

Australia's manufacturing innovation system is supported by a growing network of precincts and accelerators. Notable examples include:

- **Tonsley Innovation District (SA):** Hosts over 2,000 workers in automation, renewables, and clean tech. Key tenants include Siemens and SAGE Group.
- **Advanced Manufacturing Research Facility (AMRF)** in Western Sydney: Provides prototyping, training, and testing services for SMEs in defense, transport, and aerospace.
- **Geelong Manufacturing Innovation Hub:** Repurposed from legacy automotive infrastructure to support carbon fiber, composites, and clean mobility R&D.

Australia's federal government has also expanded funding for Cooperative Research Centres (CRCs) focused on industrial decarbonization, robotics integration, and circular manufacturing. More than \$270 million in combined government and industry funding was awarded to manufacturing-linked CRCs between 2022 and 2025.¹⁰¹

Challenges and Outlook

- **Skills Shortages:** With over 38,000 unfilled positions, especially in electrical engineering, automation, and digital systems integration, labor availability remains a key barrier.
- **Supply Chain Risk:** Geopolitical tensions and logistics bottlenecks continue to expose vulnerabilities in Australia's dependence on imported inputs, particularly semiconductors.
- **Digital Readiness Gap:** Adoption of Industry 4.0 technologies remains uneven, with many SMEs lacking the capital and technical capability to implement advanced systems.

¹⁰¹ Department of Industry, Science and Resources (2025). Cooperative Research Centres Program Summary 2025. <https://www.industry.gov.au>

Bioeconomy in Australia

Overview

In 2025, Australia's bioeconomy is emerging as a vital component of the national economy, driven by advances in biotechnology, sustainable agriculture, and biomanufacturing. The sector encompasses a wide range of activities, including biopharmaceuticals, biofuels, synthetic biology, and agricultural biotechnology. Supported by government strategies and increasing private investment, the bioeconomy is positioned to contribute significantly to economic growth, environmental sustainability, and global competitiveness.

Market Size and Structure

The biotechnology industry in Australia was valued at approximately \$8 billion in 2025, reflecting a compound annual growth rate of around 1.8 percent over the preceding five years. This growth is supported by a mix of large companies, startups, and research institutions. The sector includes biopharmaceuticals, diagnostics, vaccines, biosimilars, and bio-based products.

Leading companies and institutions such as CSL Limited, CSIRO, and Amgen Australia collectively generated revenues exceeding \$1.6 billion in 2024, with CSL alone reporting \$850 million. The largest segment by revenue is contract research and manufacturing services, but human health biotechnology continues to be a key growth driver.¹⁰²

Government Policy and Strategic Initiatives

The Australian Federal Government has demonstrated a commitment to the bioeconomy through funding programs and strategic roadmaps. The Australian Renewable Energy Agency (ARENA) is actively supporting bioenergy projects, while the Department of Industry, Science and Resources is developing a national roadmap to guide the bioeconomy's growth.

In 2024, the government announced increased funding for biomanufacturing infrastructure, aiming to enhance the country's capacity to produce vaccines, therapeutics, and bio-based

¹⁰² IBISWorld, "Biotechnology in Australia - Market Research Report (2015-2030)," October 2024.

chemicals domestically. This is part of a broader strategy to improve supply chain resilience and reduce dependence on imports.¹⁰³

Research and Innovation

Australia boasts a robust research ecosystem supporting the bioeconomy. Institutions such as CSIRO, the Garvan Institute of Medical Research, and several universities are pioneering work in synthetic biology, genomics, and bioprocessing technologies.

Recent breakthroughs include the development of genetically engineered crops with enhanced drought tolerance and pest resistance, as well as advances in microbial fermentation processes for sustainable chemical production. These innovations have the potential to increase agricultural productivity while reducing environmental impacts.¹⁰⁴

Sectoral Applications

- **Human Health:** Biopharmaceuticals, vaccines, and diagnostics are the largest and fastest-growing segments, driven by aging populations and increased demand for personalized medicine.
- **Agriculture:** Biotechnology is improving crop yields, pest management, and soil health, contributing to more sustainable farming practices.
- **Bioenergy:** Biofuels and biogas projects are expanding, supported by government incentives and private sector investment.
- **Industrial Biotechnology:** The production of bio-based chemicals, plastics, and materials is gaining traction, offering alternatives to fossil fuel-derived products.

Market Trends and Challenges

Investor interest in Australian biotech firms has grown, with more companies reaching profitability and scaling operations. According to IBISWorld, there are 930 biotechnology businesses in Australia as of 2024, reflecting a 3.1 percent increase from the previous year. Additionally, the Australian biotechnology sector has experienced significant growth, with the number of companies undertaking biotech research and development increasing by 40 percent since 2019.

¹⁰³ Bioenergy Australia, "Australian Federal Government Commits to the Future of Australia's Bioeconomy," June 2024.

¹⁰⁴ CSIRO, "Advances in Synthetic Biology and Bioprocessing," Research Report, 2024.

However, challenges remain in commercializing research, navigating regulatory frameworks, and competing in global markets dominated by larger players in the United States and Europe. To address these challenges, the Australian government has implemented various programs to support the biotechnology sector. For instance, the Medical Research Future Fund (MRFF) provides funding for medical research initiatives, while the Biomedical Translation Fund (BTF) stimulates private investment in the sector. These programs aim to enhance the commercialization of research and foster a more competitive biotechnology industry in Australia.

The sector also faces workforce shortages, particularly in specialized areas such as bioprocess engineering and regulatory affairs. Efforts to enhance education and training are ongoing.¹⁰⁵

¹⁰⁵ Australian Biotechnology Council, “Workforce Development in the Bioeconomy,” March 2025.

Precision Agriculture in Australia

Overview

Australian agriculture represents 55 percent of national land use, with 426 million hectares under cultivation as of December 2023. The sector generated an estimated \$46.2 billion in exports in the 2023–24 period, underscoring its importance to the national economy.¹⁰⁶

In 2025, precision agriculture has become a defining feature of Australia's approach to farming, reflecting a shift toward data-driven, technology-enabled practices that seek to optimize productivity, sustainability, and resource management. The sector's growth is being propelled by the need to address water scarcity, labor shortages, and climate variability, as well as by government policies that support technological innovation and sustainable development.

Market Size and Growth

The Australian precision agriculture market reached a value of 261 million U.S. dollars in 2024. It is projected to grow at a compound annual growth rate of 9.1 percent, reaching 623.5 million U.S. dollars by 2033. This expansion is underpinned by rising adoption of Internet of Things (IoT) technologies, artificial intelligence, and drone-based solutions, all of which are enhancing farm efficiency and enabling more precise management of inputs such as water, fertilizers, and pesticides.¹⁰⁷

Technology Adoption and Applications

The uptake of precision agriculture technologies is widespread and accelerating. In 2025, 85 percent of cropping farms in Australia practice stubble retention, a technique that conserves soil moisture and reduces erosion, while 61 percent of livestock farms are using innovative grazing methods to optimize pasture use and animal health.¹⁰⁸

Farmers are increasingly utilizing connected technologies such as soil moisture sensors, GPS-enabled equipment, and automated irrigation systems. These tools allow for real-time data

¹⁰⁶ Department of Agriculture, Fisheries and Forestry, "Snapshot of Australian Agriculture 2025," May 2, 2025.

¹⁰⁷ IMARC Group, "Australia Precision Agriculture Market Size | Outlook 2033," February 24, 2025.

¹⁰⁸ IMARC Group, "Australia Precision Agriculture Market Size | Outlook 2033," February 24, 2025.

collection and analysis, supporting precision application of water and agrochemicals. In drought-prone regions, where water is a critical and limited resource, such innovations are especially valuable.¹⁰⁹

Artificial intelligence and machine learning are being integrated into farm management platforms to provide predictive analytics. These systems help farmers anticipate changes in weather, detect pest outbreaks, and make informed decisions about planting, irrigation, and harvesting. Companies such as Rubicon Water and The Yield are providing advanced solutions for water management and data-driven decision-making.¹¹⁰

Drone technology is also gaining traction, with the Australian agriculture drone market expected to reach 499 million U.S. dollars by 2033. Drones are used for crop monitoring, spraying, and mapping, offering high-resolution data that supports targeted interventions and reduces input waste.¹¹¹

Government Support and Policy

Government programs play a significant role in fostering the adoption of precision agriculture across Australia. For example, the Smart Farms Program provides financial incentives and grants to farmers adopting advanced technologies such as GPS-guided machinery, soil moisture sensors, and drone monitoring. The Australian Centre for International Agricultural Research (ACIAR) funds collaborative research projects that develop data-driven farming practices to improve yield and sustainability.

Additionally, the Digital Agriculture Services Cooperative Research Centre (DAS CRC) is driving innovation by developing precision ag tools and digital platforms tailored to Australian conditions. The government's focus on sustainability and climate resilience is also reflected in investments in rural digital infrastructure through the Regional Connectivity Program, enabling farmers in remote areas to access real-time data and analytics. These initiatives support agritech startups and research collaborations that help farmers optimize resource use, reduce environmental impact, and enhance productivity.

¹⁰⁹ IMARC Group, "Australia Precision Agriculture Market Size | Outlook 2033," February 24, 2025.

¹¹⁰ Coherent Market Insights, "Australia Precision Farming Market Trends," May 28, 2025.

¹¹¹ IMARC Group, "Australia Agriculture Drones Market Growth, Industry Analysis 2025," April 30, 2025.

Market Segmentation and Industry Players

The precision agriculture market in Australia is segmented into hardware, software, and services. Hardware remains the largest segment, accounting for over 55 percent of market revenue in 2024, driven by demand for sensors, drones, and automated machinery. Software is the fastest-growing segment, reflecting the increasing importance of data analytics, farm management platforms, and AI-based advisory systems.¹¹²

Key players in the market include global companies such as John Deere, Trimble Inc., AG Leader Technology, CNH Industrial, and Topcon Positioning Systems, as well as Australian innovators like Rubicon Water and The Yield.¹¹³

¹¹² Grand View Research, "Australia Precision Farming Market Size & Outlook, 2030," December 16, 2022.

¹¹³ Coherent Market Insights, "Australia Precision Farming Market Trends," May 28, 2025.

Talent

Higher Education in Australia Overview and Economic Role

Australia's higher education sector is a key pillar of the national economy and innovation ecosystem. As of 2025, the sector contributes over \$24 billion to the economy annually, making it one of the top services exports for the country.¹¹⁴ The industry is supported by 43 universities, including prestigious research institutions such as the University of Sydney, Australian National University (ANU), and University of Melbourne.¹¹⁵ The post-pandemic rebound has seen a renewed focus on international engagement, research commercialization, and regional education expansion.

Enrollment and Demographics

As of 2025, total domestic university enrollment stands at approximately 1.64 million students, while international student numbers have rebounded to over 580,000, driven by strong demand from Asia-Pacific countries.¹¹⁶ Female students now comprise 56 percent of total university enrollment, and participation among students from rural and Indigenous backgrounds is growing gradually due to government outreach programs and scholarship initiatives.¹¹⁷

Notably, New South Wales and Victoria account for over 50 percent of all higher education enrollments, driven by large metropolitan campuses in Sydney and Melbourne. Canberra, though smaller, hosts some of the highest per capita student research spending, led by ANU.¹¹⁸

Research and Innovation Output

Australia ranks in the global top 10 for academic research impact across multiple fields including climate science, biomedicine, and quantum computing.¹¹⁹ In 2025, over \$8.5 billion is

¹¹⁴ Australian Trade and Investment Commission, International Education Snapshot, 2025.

¹¹⁵ Tertiary Education Quality and Standards Agency (TEQSA), Universities List, 2025.

¹¹⁶ Department of Education, Higher Education Statistics, 2025.

¹¹⁷ Universities Australia, Equity and Access in Higher Education, 2025.

¹¹⁸ Australian Research Council, Higher Education R&D Dashboard, 2024.

¹¹⁹ Nature Index, Research Impact Rankings, 2024.

spent on higher education R&D, with nearly half of all national R&D activity occurring within universities.¹²⁰

- Melbourne remains a biotechnology R&D leader with a thriving ecosystem around the Parkville biomedical precinct and partnerships with CSL and the University of Melbourne.
- Sydney is expanding its AI and computing research footprint through the Sydney Nanoscience Hub and collaboration with Microsoft and IBM.
- Canberra continues to lead national defense and quantum research, with ANU playing a central role in national security and quantum infrastructure projects.¹²¹

Despite strong output, commercialization remains a national challenge. Only 7.2 percent of university patents filed between 2020–2024 were licensed to Australian businesses, prompting policy shifts to bridge academia–industry gaps.¹²²

Funding and Policy Reforms

In 2025, federal funding for higher education is projected at \$13.8 billion, an increase of 3.2 percent from 2024, in line with inflation and population growth.¹²³ However, structural funding issues persist:

- The Job-ready Graduates Package, introduced in 2021, continues to attract criticism for its uneven impact on humanities funding and unclear links between graduate outcomes and national priorities.¹²⁴
- The Australian Universities Accord, in implementation through 2030, is reshaping how institutions are funded, prioritizing equity, research impact, and student employability.¹²⁵
- A new Performance-Based Research Funding Framework is being trialed in 2025 to better align university funding with commercialization metrics and innovation partnerships.

International Education

International education remains Australia's fourth-largest export. In 2025, it is expected to generate \$23 billion, up from \$18.9 billion in 2023.¹²⁶ Universities in Melbourne and Sydney dominate this sector, but regional campuses are also increasing their international student

¹²⁰ ABS, Research and Experimental Development, Higher Education Organisations, 2025.

¹²¹ Australian Department of Industry, Quantum Industry Update, 2025.

¹²² CSIRO, Innovation Commercialisation Survey, 2024.

¹²³ Australian Treasury, Federal Budget Papers, 2025.

¹²⁴ Grattan Institute, Evaluation of Job-ready Graduates, 2024.

¹²⁵ Department of Education, Universities Accord Interim Report, 2024.

¹²⁶ Austrade, International Education Revenue Data, 2025.

offerings with incentives from the federal government. Visa processing has accelerated, and new post-study work rights allow STEM graduates to remain for up to 6 years post-graduation, bolstering talent retention.¹²⁷

Skills Alignment and Graduate Outcomes

Graduate employment outcomes are improving. As of early 2025, 81.5 percent of bachelor's degree holders are employed within six months of graduation, with STEM and healthcare graduates reporting the highest rates.¹²⁸ However, skills mismatches persist in areas such as cybersecurity, data analytics, and vocational trades. A national initiative — the Tertiary Skills Alignment Taskforce — was launched in 2024 to align curricula with emerging labor market needs.¹²⁹

Equity and Access

Efforts to improve access to higher education for underrepresented groups are showing results. In 2025:

- 23.5 percent of university students are from low socio-economic backgrounds (up from 21.8 percent in 2022).
- Indigenous student enrollment increased by 6.4 percent year-over-year.¹³⁰
- Regional campuses are expanding thanks to the *Regional Education Strategy*, which includes capital funding and digital infrastructure grants.¹³¹

Infrastructure

¹²⁷ Department of Home Affairs, Graduate Visa Changes Summary, 2024.

¹²⁸ Graduate Outcomes Survey, National Report, 2025.

¹²⁹ Australian Government, Tertiary Skills Alignment Taskforce Launch, 2024.

¹³⁰ Department of Education, Indigenous Student Performance Snapshot, 2025.

¹³¹ Regional Education Commissioner, Progress Report, 2025.

Australian Infrastructure

Overview

In 2025, Australia's infrastructure sector is marked by a record pipeline of government investment, a focus on transport and energy transition, and increasing private capital flows into new and emerging asset classes. The sector is navigating sustained cost pressures, labor shortages, and the need to balance fiscal discipline with the delivery of critical projects. Infrastructure spending remains a key lever for economic growth, productivity, and national resilience, with governments at all levels maintaining strong commitments despite a challenging macroeconomic environment.

Total Infrastructure Investment and Pipeline

Across all states and territories, general government infrastructure expenditure is projected at \$176 billion over the four years to FY2027-28, representing 15.4 percent of total government spending and an increase of \$13.8 billion from the previous budget cycle.¹³² This spending is spread across transport, energy, water, education, health, and digital infrastructure, with the majority directed to the existing pipeline of projects rather than new initiatives.

The Australian Government alone is committed to a 10-year, over \$78 billion infrastructure investment pipeline, ensuring a rolling program of sustainable land transport, energy, and water projects.¹³³

¹³² Infrastructure Australia, "Annual Performance Statement 2025," March 6, 2025.

¹³³ Australian Government, "Infrastructure Investment Program," 2025.

Sectoral Breakdown and Project Types

Transport Infrastructure

Transport remains the dominant focus of infrastructure investment:

- **Roads:** \$26.3 billion (58 percent of federal infrastructure funding) is allocated to road projects, including major upgrades, new highways, and urban congestion relief.¹³⁴
- **Rail:** \$18.1 billion (40 percent of federal funding) supports urban and regional rail, metro expansions, and freight corridors.¹³⁵
- **Mega-Projects:** There are 26 mega-projects (costing \$1 billion or more), representing 36 percent of total investment. Notable examples include Victoria's North East Link (\$2.9 billion in FY2024-25), the West Gate Tunnel (completion by end-2025), and the Level Crossing Removal program (\$1.5 billion in FY2024-25).¹³⁶

The Federal Budget for 2024-25 allocates \$39.2 billion to roads and \$13.2 billion to rail over four years, with significant funding for Western Sydney upgrades, North East Link, and METRONET in Western Australia.¹³⁷

Energy and Renewables

Energy infrastructure is a growing focus, driven by the transition to renewables and the need for grid modernization:

- The "Future Made in Australia" program commits \$12.8 billion over 10 years to renewable energy infrastructure, with \$1.24 billion allocated in the next four years. This includes support for hydrogen industry development and priority sector innovation.¹³⁸
- Private capital is increasingly flowing into sustainable aviation fuel, renewable natural gas, and battery storage, with investors drawn by energy security and decarbonization targets.¹³⁹

¹³⁴ Infrastructure Australia, "Annual Performance Statement 2025," March 6, 2025.

¹³⁵ Infrastructure Australia, "Annual Performance Statement 2025," March 6, 2025.

¹³⁶ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹³⁷ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹³⁸ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹³⁹ IFM Investors, "Infrastructure Horizons 2025: Artificial intelligence, energy security and renewable fuels are reshaping the future of infrastructure investment," March 31, 2025.

Water Infrastructure

Water infrastructure investment totals \$1.8 billion over 12 years, with \$780 million allocated in the next four years, focused on regional supply and drought resilience. However, some projects have been deferred pending further planning and business case development.¹⁴⁰

Digital and Social Infrastructure

- **Digital:** Major investments by U.S. and Australian companies in data centers, cloud infrastructure, and national broadband expansion are supporting Australia's digital economy.
- **Education and Health:** \$408 million is allocated over four years to education infrastructure, and health infrastructure is included in state-level capital works programs.¹⁴¹

State and Territory Rankings

- **Victoria:** Leads infrastructure spending as a percentage of state expenditure with a \$50.3 billion four-year allocation (18.7 percent of state expenditure), focused on transport mega-projects and urban renewal.¹⁴²
- **New South Wales:** Second place, with \$56.2 billion over four years — approximately 15.3 percent of total expenditure — maintaining a focus on road and rail.¹⁴³
- **South Australia:** Rises to third, with \$13.5 billion (15.6 percent of expenditure), driven by key multibillion-dollar projects.¹⁴⁴
- **Queensland:** Notable 23 percent increase in infrastructure share, up to 14.6 percent of expenditure, reflecting higher coal royalties and a strong project pipeline.¹⁴⁵
- **Australian Capital Territory:** Maintains a \$3.5 billion commitment over four years — approximately 12.4 percent of its expenditure — focusing on maintenance and completion of existing projects.¹⁴⁶

Project Status and Delivery

As of early 2025, 50 percent of major projects are in the delivery phase, 37.5 percent in planning, and 12.5 percent completed since May 2022.¹ Maintaining a balanced pipeline,

¹⁴⁰ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹⁴¹ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹⁴² Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹⁴³ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹⁴⁴ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹⁴⁵ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

¹⁴⁶ Infrastructure Partnerships Australia, "Australian Infrastructure Budget Monitor 2024-25," October 24, 2024.

especially for mega-projects, is a priority to avoid industry bottlenecks and ensure sustainable delivery.

Private Sector and Capital Expenditure

Private new capital expenditure for 2024-25 is estimated at \$121.9 billion, a 2.2 percent increase from the previous estimate, with infrastructure-related sectors such as construction, utilities, and transport accounting for a significant share.¹⁴⁷ The construction industry alone is forecast to reach \$125.6 billion in 2025, with strong growth in build-to-rent and green housing projects.¹⁴⁸

Emerging Trends

- **Artificial Intelligence and Automation:** Infrastructure investors are targeting AI-driven asset management, predictive maintenance, and smart mobility systems.¹⁴⁹
- **Green and Resilient Infrastructure:** There is a shift toward climate-resilient design, net-zero targets, and circular economy principles in project planning and delivery.
- **Cost and Labor Pressures:** Rising input costs, labor shortages, and supply chain disruptions continue to challenge project delivery and budgeting.

Challenges and Outlook

Australia's infrastructure sector faces the challenge of sustaining high investment levels amid fiscal tightening, inflation, and cost-of-living pressures. While the focus remains on completing the existing pipeline, governments and investors are also preparing for the next wave of projects in energy transition, digital infrastructure, and climate adaptation. The sector's outlook is positive, with continued public and private investment, a robust project pipeline, and a growing focus on innovation and sustainability.

¹⁴⁷ Australian Bureau of Statistics, "Private New Capital Expenditure and Expected Expenditure, Australia," 2025.

¹⁴⁸ GlobeNewswire, "Australia Construction Industry Report 2025," April 17, 2025.

¹⁴⁹ IFM Investors, "Infrastructure Horizons 2025: Artificial intelligence, energy security and renewable fuels are reshaping the future of infrastructure investment," March 31, 2025.

Resources

Resource Management in Australia

Overview

Resource management in Australia during 2025 is defined by a complex mix of strong export performance, technological innovation, and mounting sustainability challenges. While Australia remains a global leader in resource exports — particularly in iron ore, LNG, and critical minerals — the sector is navigating a period of transition marked by declining commodity prices, evolving global demand, and the imperative to integrate circular economy principles and Indigenous knowledge into mainstream practice.

Economic Performance and Export Trends

Australia's resource and energy commodity exports reached \$415 billion in 2023–24 but are forecast to decline to \$387 billion in 2024–25, reflecting lower global prices and subdued world economic growth. This downward trend is expected to continue, with export earnings projected to steady at \$343 billion by the end of the decade. Despite these declines in value, export volumes for most resource commodities are expected to pick up modestly over the outlook period, supported by improved world economic growth and the global energy transition.¹⁵⁰

Iron ore, LNG, and gold remain the top export earners, while Australia's critical minerals sector — essential for global clean energy supply chains — continues to attract significant investment. The country's export volumes are near record levels, even as earnings ease due to price normalization. In 2024, the pipeline of resource and energy projects remained robust, with 455 major projects under development, up from 421 in 2023, indicating continued investor confidence in Australia's resource sector.¹⁵¹

Investment, Capital Expenditure, and Exploration

Australia's resources and energy industries invested \$13.0 billion in the December quarter of 2024, a figure unchanged from the previous quarter but down 2.7 percent year-on-year.

¹⁵⁰ Department of Industry, Science and Resources, Resources and Energy Quarterly, March 2025, 4–12, 14–15, 31.

¹⁵¹ Mining Magazine, "Positive outlook for resources in 2025: King," January 5, 2025.

Investment in plant and equipment rose by 1.9 percent, while spending on buildings and structures fell by 0.7 percent. Since 2017, spending on plant and machinery has accounted for a steadily rising share of total investment, reflecting the sector's focus on productivity and automation.¹⁵²

Exploration expenditure in 2024 totaled \$5.3 billion, with petroleum exploration growing by over 30 percent both onshore and offshore. However, mineral exploration declined by 7 percent, particularly for lithium, nickel, and copper, as miners responded to lower prices. Notably, uranium exploration increased by 53 percent, and iron ore exploration rose by nearly 10 percent, reflecting shifting priorities and market opportunities.¹⁵³

Technological Innovation and Digital Transformation

Australian resource management is increasingly shaped by digital and space-enabled technologies. IoT sensors, remote sensing satellites, and AI-driven analytics are now standard tools for monitoring land, water, and mineral resources. For example, Fleet Space Technologies' expanded satellite network supports real-time mineral exploration, while Neumann Space's electric propulsion systems are being used for deep-space prospecting and environmental monitoring. These innovations are helping to optimize resource extraction, reduce environmental impact, and support compliance with ESG standards.¹⁵⁴

Sustainability, Circular Economy, and Indigenous Engagement

Sustainability is now central to resource management. Mining and energy companies are investing in land rehabilitation, water recycling, and waste reduction, while government policy is encouraging the transition to a circular economy. This includes incentives for recycling, waste-to-energy projects, and the development of new markets for recovered materials. Australia's resource sector is also playing a leading role in the shift toward net-zero emissions, with investments in renewable energy, electrification, and green hydrogen production accelerating.

Indigenous engagement is increasingly recognized as vital. National and state strategies include provisions for Indigenous partnership, benefit-sharing, and co-management of land and water resources. The integration of Indigenous knowledge is being highlighted at major events,

¹⁵² Department of Industry, Science and Resources, Resources and Energy Quarterly, March 2025, 10–12.

¹⁵³ Department of Industry, Science and Resources, Resources and Energy Quarterly, March 2025, 10–12.

¹⁵⁴ South Australian Space Industry Centre, "South Australian space innovations launch into 2025," January 28, 2025.

such as the 2025 International Astronautical Congress in Sydney, which focuses on “Sustainable Space: Resilient Earth.”¹⁵⁵

Labor and Workforce

The resource sector faces ongoing workforce shortages, with 75 percent of businesses reporting difficulties in 2024. Both high- and low-skilled labor are in short supply, driving greater investment in automation, digital upskilling, and productivity-enhancing technologies.¹⁵⁶

Challenges and Outlook

Australia’s resource management sector continues to face challenges from global price volatility, supply chain disruptions, and rising international competition — especially in coal and LNG markets from countries such as Russia, Canada, Indonesia, and the United States. The transition to net zero is expected to constrain fossil fuel use, and Australia may need to adapt to increased competition and changing trade patterns. However, the sector’s resilience is supported by a strong project pipeline, ongoing investment in technology and infrastructure, and a growing commitment to sustainability and Indigenous partnership.

¹⁵⁵ Australian Space Agency, “IAC 2025 | Australian Space Agency,” May 14, 2025.

¹⁵⁶ Ai Group, “Australian Industry Outlook for 2025,” January 28, 2025.

Mining in Australia

Overview and Economic Contribution

Mining continues to be a foundational pillar of Australia's economy. As of 2025, the sector contributes approximately 12.1 percent of Australia's GDP, with total export revenues from mining and resources exceeding \$300 billion, up from \$270 billion in 2023.¹⁵⁷ The industry provides over 270,000 direct jobs and supports hundreds of thousands more indirectly through construction, services, and logistics.¹⁵⁸ Australia remains the world's leading exporter of iron ore, lithium, and a top producer of gold, bauxite, and coal.

Export and Global Positioning

Key mineral exports in 2025 include:

- **Iron ore:** \$91 billion in exports, primarily to China, Japan, and South Korea.
- **Lithium:** Surging demand for EV batteries has pushed lithium exports above \$14 billion, a 30 percent year-over-year increase.¹⁵⁹
- **Coal** (thermal and metallurgical): Exports generated \$49 billion, though long-term demand remains uncertain due to global decarbonization.¹⁶⁰
- **Critical minerals:** The government is prioritizing rare earths, cobalt, nickel, and vanadium, with new federal funding allocated for processing and refining.¹⁶¹

Regional Distribution and Investment

Major mining operations are concentrated in Western Australia (iron ore and lithium), Queensland (coal and bauxite), and the Northern Territory (manganese and rare earths). However, 2025 saw increased investment in mineral exploration and mining services in:

- **Victoria:** Focus on gold and battery minerals.
- **New South Wales:** Development of underground coal mining automation.
- **Tasmania:** Expansion in tin and tungsten projects.

¹⁵⁷ Australian Bureau of Statistics, National Accounts: Mining Sector GDP, Q1 2025.

¹⁵⁸ Australian Department of Industry, Resources and Energy Quarterly, March 2025.

¹⁵⁹ Austrade, Lithium Market Outlook, 2025.

¹⁶⁰ International Energy Agency, Coal 2025 Forecast, April 2025.

¹⁶¹ Critical Minerals Office, Investment Strategy Update, 2025.

Private and public investment in mining reached \$44.5 billion in 2024, including \$2.5 billion for decarbonization and digital transformation technologies.¹⁶²

Innovation and Sustainability

Australia's mining sector is undergoing rapid modernization:

- **Autonomous mining:** Companies like Rio Tinto and BHP are deploying fully autonomous haulage systems in Pilbara operations.
- **Decarbonization:** The Minerals Council of Australia reports that 78 percent of member companies have adopted net-zero targets, with new projects in green hydrogen and solar-powered mining.¹⁶³
- **AI and robotics:** ACSIRO-led initiative is using AI for ore body discovery and predictive maintenance, cutting costs by up to 15 percent.¹⁶⁴

Government-backed innovation hubs, including the Mining Equipment, Technology and Services (METS) Growth Centre, are facilitating partnerships between universities and industry.

Workforce and Skills

The mining workforce is aging and faces acute skills shortages, particularly in regional and remote areas. As of early 2025:

- There are more than 11,000 unfilled roles in the sector.
- Women make up only 18 percent of the mining workforce, prompting expanded diversity and training programs.¹⁶⁵
- The Mining Skills Organization Pilot is training new workers in data analytics, drone operation, and environmental monitoring.

Environmental and Social Governance (ESG)

Environmental regulation has tightened, especially around water use, emissions, and land rehabilitation. Indigenous land use agreements are under increased scrutiny following the

¹⁶² Department of Treasury, Private Capital Expenditure by Industry, 2024.

¹⁶³ Minerals Council of Australia, Climate Transition Report, 2025.

¹⁶⁴ CSIRO, AI in Exploration: Project Impact Report, 2025.

¹⁶⁵ Mining Skills Australia, Workforce Dashboard, 2025.

Juukan Gorge Inquiry reforms, prompting mining firms to expand community consultation and long-term benefit sharing.¹⁶⁶

¹⁶⁶ National Indigenous Australians Agency, Post-Juukan Reform Tracker, 2024.