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IDEA

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Australia Macro Matters | Asia Pacific

Future of Energy - Mix and Effects

Our Future of Energy theme explores the debate around source, supply chain and mix. Policy development is hitting a critical juncture to secure long-term objectives. Energy is increasingly being viewed as strategically important given its significance in meeting already large and growing power needs

Key Takeaways

- This theme encompasses energy security, AI infrastructure, the globalization of natural gas, the falling cost of decarbonization, and increased electrification.
- Technology diffusion is generally adding to global energy demand particularly for AI, which leads to increased electrification, and policy focus on stability.
- The future of energy remains dynamic, with geopolitics and the energy transition driving changes in fuel mix, pricing conventions, and global materials demand.
- The majority of new entrant power is weather dependent, requiring ~3GW for every 1GW of thermal retirements required.
- Constraints on new entrant construction include access to transmission, land, labour, and equipment leading to material over-runs in time and costs.

In Australia, a key constraint is labour (not enough electricians); returns from large-scale batteries are attractive; and the Australia East Coast domestic gas market continues to evolve, increasingly competing with gas exports: Australia Macro+: Thematic Investing And The Key Debates Down Under (4 Jun 2025).

Transmission – Labour market tightness and supply chain weakness dominate investor concerns. Batteries are an emerging theme for investors – subsidised home batteries have fewer connection constraints, and may help reduce the level of grid-scale batteries required. Battery pack prices have halved over the past two years, partly on lower lithium prices. Management software tech continues to improve, as well as power cell efficiency.

Gas – We forecast growth in Asia natural gas demand, underpinning Australian export marketing. Domestically, the East Coast domestic market remains stable at ~500PJ p.a., with gas powered generation focused on 'dunkelflaute' (periods of low wind and sun) events, and the supply side potentially bolstered by LNG terminals in southern Australian states. Our base case remains that East Coast domestic gas prices remain on a broadly LNG netback basis to 2030, but import parity pricing and/or policy intervention scenarios are increasingly in focus.

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Future of Energy – Australia vs. The World

In the increasingly dynamic global energy market, we explore three key investor debates:

1. Assessing the outlook for Australia's energy exports and the subsequent trade balance implications;
2. Our framework for LNG and domestic gas prices, which drive company earnings; and
3. Assessing the balance of power in electricity markets, where increasing demand for data centres meets increasingly weather-driven supply.

Key Theme Summary

- The multipolar world drives a policy focus on: (1) energy independence and security, with implications for the globalisation of natural gas; as well as (2) supply chain reconfiguration, which generally adds to construction costs, but may also be deflationary for some parts of the renewables and EV value chain in some markets.
- Technology diffusion is generally adding to global energy demand at this time, particularly for AI infrastructure, which leads to increased electrification, and a policy focus on stability.
- The future of energy remains dynamic, with geopolitics and the energy transition driving changes in fuel mix, pricing conventions, and materials demand around the world.

Australia Linkages and Impacts

Australia is a leading exporter of energy owing to its abundance of natural resources. The energy transition potentially creates a longer term drag on Australia's fiscal and trade balance positions.

Linkage to global energy markets also creates tensions for the domestic economy, which is effectively exposed to international prices.

The rise of GenAI has created a material inflection in energy demand, and Australia is a top five global market for data centres.

Complicating the flow of energy are supply chain challenges, which could get worse with heightened trade barriers, or at least more complicated given Australia's geographical location between the US and China.

The energy transition has always faced resource depletion, tech diffusion, and policy debates. Australia's energy industry is currently stretched by supply chain challenges, which could worsen in a multipolar world.

Sectors & Stocks Most Exposed

Energy

- **Santos (STO.AX, OW)**: Positioned as a key gas supplier with exposure to LNG exports and domestic gas markets. The company supports emissions reduction and energy transition while emphasizing the continued need for natural gas.
- **Woodside Energy (WDS.AX, EW)**: Significant exposure to LNG markets with development projects including Louisiana LNG. The company recently entered into an agreement with Stonepeak for the sale of a 40% interest in Louisiana LNG Infrastructure.
- **Ampol (ALD.AX, OW)**: Australia's largest publicly-listed refiner, marketer, and retailer of petroleum products with approximately one-third of the domestic market for diesel, gasoline, and jet fuel. We prefer ALD over VEA on relative balance sheet and shop execution risk, but remain cautious on the volatile outlook for crack spreads, fuel margins and shop sales, which remain a downward pressure on refiners.
- **Viva Energy Group (VEA.AX, EW)**: Integrated downstream petroleum company operating across retail, fuels & marketing, and refining segments.

Utilities

- **AGL Energy (AGL.AX, EW)**: Major electricity generator and retailer, set to benefit from power price support and renewable development plans. We prefer AGL to ORG on data centre leverage, commodity exposure, and valuation. AGL's long energy position is primed to benefit from tight supply, through (1) higher electricity prices, and (2) arbitraging its battery portfolio.
- **Origin Energy (ORG.AX, UW)**: Integrated energy company with exposure to both gas production through APLNG and electricity markets. The company is investing in storage and billing platforms.
- **APA Group (APA.AX, EW)**: Australia's largest natural gas pipeline owner and operator, shipping more than half of Australia's gas through its 14,000km of pipelines and associated energy infrastructure. APA is generally a beneficiary of increased demand and supply of domestic gas.

Materials

- **Paladin Energy (PDN.AX, OW)**: Uranium miner and exploration company focused on the Langer Heinrich Mine in Namibia. It also owns a global portfolio of uranium exploration and development assets, including the Patterson Lake South project in Canada.
- **Boss Energy (BOE.AX, EW):** Uranium producer with 100% ownership of the Honeymoon uranium project in South Australia, which restarted operations in 2024. Boss also has a 30% stake at Alta Mesa, which is a high-grade uranium In-Situ Recovery (ISR) project in South Texas.
- **BHP Group (BHP.AX, OW):** The world's largest diversified mining company by market cap, producing primarily iron ore, copper, and met coal. BHP operates the Escondida mine in Chile (57.5% ownership), the world's largest copper mine, as

well as the Spence mine in Chile and Copper South Australia, which encompasses the Olympic Dam, Prominent Hill and Carrapateena mines. We prefer BHP to RIO, mainly on valuation and copper exposure (40% Cu revenue in CY26, on our estimates).

- **Rio Tinto (RIO.AX, EW):** Diversified mining company producing iron ore, aluminum, copper, and industrial minerals, among others. Rio's copper operations are anchored by the Oyu Tolgoi mine in Mongolia, the Escondida mine in Chile, and the Kennecott mine in the United States. At Oyu Tolgoi, underground production commenced in 2023, positioning it to become the world's fourth-largest copper mine by 2030, with expected output to reach 500ktpa between 2028 and 2036.
- **IGO (IGO.AX, EW):** IGO primarily produces lithium and nickel, and holds an indirect 24.99% stake in the Greenbushes Lithium Operation, and holds 49% ownership of the Kwinana Lithium Hydroxide Refinery. The company's lithium and nickel operations benefit from battery metals demand for use in EVs and energy storage systems, among other uses.
- **Pilbara Minerals (PLS.AX, OW):** Pure-play lithium company that owns and operates the Pilgangoora project in Western Australia. Pilbara Minerals expects to produce ~700-740kt of spodumene concentrate for FY25, with the P1000 expansion project in the commissioning phase. PLS is evaluating the P2000 expansion project, which could more than double the Pilgangoora operation’s capacity to over 2Mtpa.
- **Whitehaven Coal (WHC.AX, OW):** Coal producer that exports metallurgical and thermal coal to the global steel, power generation, and metallurgical industries. The company operates assets in both New South Wales and Queensland.

Other

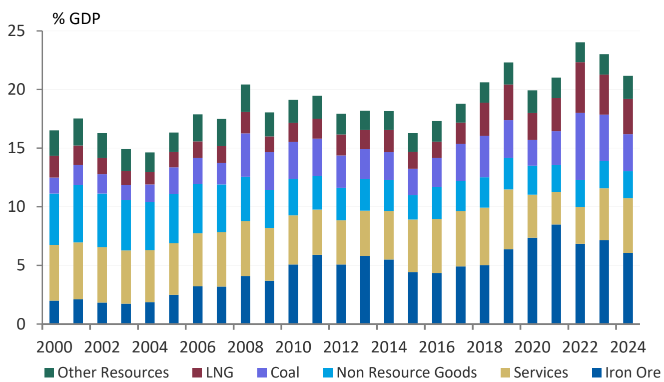
- **Macquarie (MQG.AX, EW):** Diversified financials company with exposure to energy transition. Asset management performance is influenced by gains on sale/ performance fees arising from renewable asset realisations whilst commodities and markets revenues are driven by risk management and financing services across power, gas and oil markets.

Key Debate #1: Assessing Australia's Energy Exports and Trade Balance Implications

Australia the 'energy super power'?

Australia has been a net exporter of energy for decades, with 2024 net exports of ~12.6EJ (2.1x domestic consumption) worth ~A$167b (23% of total exports, 6% of GDP, Exhibit 1).[1] In our view, resource depletion, investment below replacement, and end-market decarbonisation have led to a steady erosion in thermal coal and oil & gas exports, only partially offset by growth in coking coal, uranium, and lithium (Exhibit 2), with macro implications for Australia's trade balance, and fiscal positions as royalties decline.

Exhibit 1: Australia's largest exports as a % of GDP



Sources: ABS, Morgan Stanley Research

Exhibit 2: Australia: Energy export outlook

Commodity		FY24	FY25	FY26	FY27	FY28	FY29	FY30	CAGR
Thermal coal	Mt	205	213	207	202	201	202	199	*-0.5%*
Met coal	Mt	157	160	168	178	179	178	174	*1.7%*
LNG	Mt	81	80	80	82	80	80	78	*-0.7%*
Oil, condensate, LPG	MMboe	129	119	113	116	109	104	105	*-3.3%*
Uranium	t	5,742	6,039	6,933	7,233	7,355	7,755	8,305	*6.3%*
Lithium	kt	3,677	3,999	4,297	4,520	4,930	4,930	4,930	*5.0%*
Value (FY25 real)	**A$b**	**185**	**163**	**145**	**137**	**129**	**121**	**111**	***-8.1%***

Sources: Department of Industry, Science, and Resources estimates, Commonwealth of Australia Resources and Energy Quarterly, March 2025.

[-] Thermal Coal. Australia's consumption of coal for power generation is in gradual decline on decarbonisation efforts, but we see that coal exports have a longer path ahead by comparison. Decarbonisation aside, Australia has increased its coal royalties in recent years, with major changes implemented in the primary coal producing states of QLD and NSW. Off the back of these royalty changes, BHP announced it would not be investing in further growth at its BMA (the BHP Mitsubishi Alliance) operations in Queensland, but would sustain and optimize existing operations. As such, higher royalties will likely also change the future landscape for Australia's energy exports.

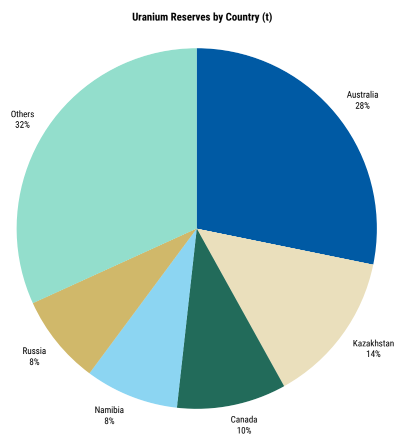
[=] LNG. In the near term, we see sufficient expansion and tie back investment, e.g., Scarborough and Barossa, to keep Australia's LNG exports steady to 2030. Beyond 2030, we are wary of domestic gas policy intervention (e.g., once Gladstone foundation contracts expire), as well as a large amount of competing supply from the US, which could depress prices (see Debate #2). We also see end-market decarbonisation leading to increased LNG re-selling in Asia[2] .

[=] Uranium. Australia has significant undeveloped uranium reserves, ~28% of global reserves according to the World Nuclear Association (Exhibit 3), but only ~8% of global

1. Australian Bureau of Statistics; Department of Climate Change, Energy, the Environment, & Water.
2. https://ieefa.org/resources/how-japan-cashes-resales-australian-lng-expense-australian-gas-users

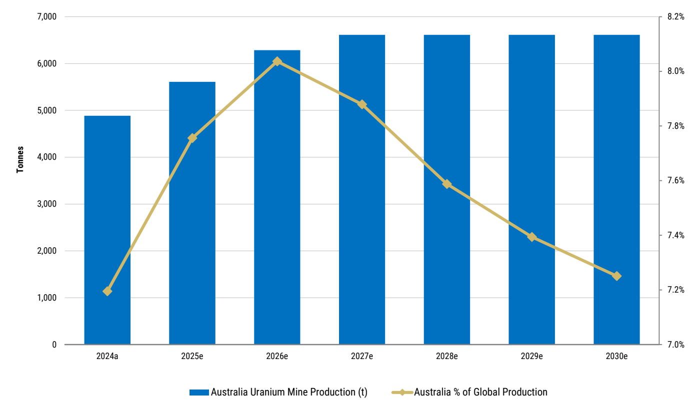
uranium production (Exhibit 4), constrained by federal and state limitations on new mines. Australian uranium export earnings were A$1.2b in FY24, and despite a global increase in nuclear power capacity, we see limited Australian production upside in the near term.

Exhibit 3: Australia has the highest uranium reserves globally at 28%



Sources: World Nuclear Association, Morgan Stanley Research

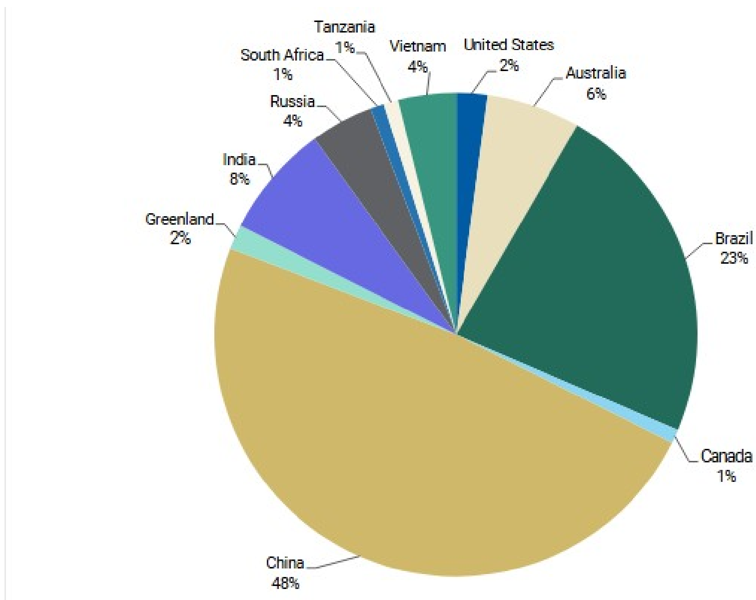
Exhibit 4: However, Australia uranium production is only ~8% of global mine production



Sources: WNA, IEA, UxC, Company data, Morgan Stanley Research estimates

[+] Critical minerals. Australia's abundance of critical minerals is a significant contributor to export revenue (FY24 ~A$26b), and we see incremental demand for EVs and humanoids benefitting lithium, graphite, nickel, cobalt, copper, and rare earths, e.g., NdPr.

Exhibit 5: China dominates global reserves of NdPr, but significant resources could be developed in Australia (6%)



Source: USGS, Morgan Stanley Research

Key Debate #2: Globalisation of Natural Gas – The Price of LNG vs. The Supply of Domestic Gas

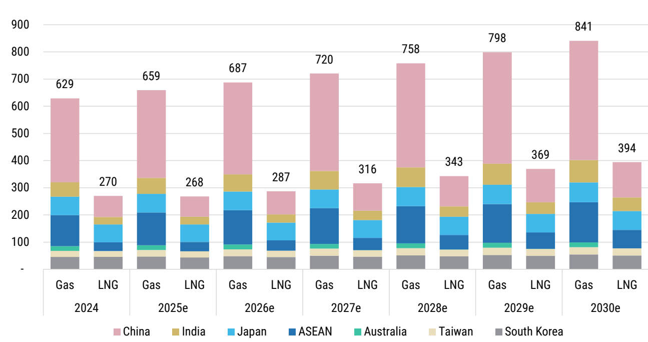
Australia's role in gas markets

Morgan Stanley's global energy research team forecasts Asia's natural gas demand to grow at 5% p.a. up to 2030, to ~841Mtpa, with tailwinds from industrial growth (including to power AI), electrification, coal-to-gas switching, and energy security. We forecast LNG supplying ~42-45% of Asia's gas consumption and ~70% of global LNG supply by 2030, with the remainder from domestic and pipeline sources (Exhibit 6).

At ~81Mt in 2023, Australia is the world's second largest exporter of LNG[3] behind the US (87Mt) and ahead of Qatar (77Mt). However, we estimate there is ~185Mtpa of new capacity under construction globally, about half of which is in the US underpinned by shale gas, so the key global debate for energy equities is around the timing of supply vs. demand to determine traded prices.

- For JKM prices (seaborne LNG), our global gas strategist Devin McDermott forecasts ~US$13.00/MMbtu for the rest of 2025, softening to ~US$9.50/MMbtu for 2026 with new supply (Exhibit 7), and a long-term price of US$10.00/MMbtu anchored to full-cycle costs.
- For Henry Hub prices, Devin forecasts a tight market in 2025/26, with LNG feedgas demand seeing prices rise to ~US$4.50-5.00/MMbtu, and a long-term price of US $3.75/MMbtu anchored to a new resource incentive price.
- We anticipate that Australian exporters will remain well-placed to maintain existing capacity to 2030 via a modest pipeline of extensions and tiebacks. However, we see a low likelihood of major new product sanctioning, owing to the combination of global uncertainty and domestic regulation.
- For the Australian East Coast domestic market we set out our framework for price scenarios (Exhibit 10). Absent any policy intervention, we anticipate domgas prices remaining on a broadly LNG netback basis to 2030.

Exhibit 6: Asia Natural Gas and LNG Demand (Mtpa)



Sources: Wood Mackenzie, Morgan Stanley Research estimates

Exhibit 7: Global LNG Supply Surplus in 2026+

Global Supply Demand (mtpa)	2024	2025	2026	2027	2028	2029	2030
Global Demand	**404**	**423**	**442**	**474**	**509**	**540**	**575**
Sequential Growth	1%	5%	4%	7%	7%	6%	6%
Global Effective Capacity	**440**	**461**	**486**	**523**	**575**	**606**	**626**
Sequential Growth	1%	5%	5%	8%	10%	5%	3%
Global Supply - Adjusted for Downtime	404	424	447	481	529	557	576
Utilization Rate	*92%*	*92%*	*92%*	*92%*	*92%*	*92%*	*92%*
Surplus/(shortage)	**(0)**	**0**	**5**	**7**	**20**	**17**	**1**
Global Supply (ex-potential FIDs)	440	461	486	523	573	593	607
MSe Supply From Unsanctioned Projects	**-**	**-**	**-**	**-**	**2**	**11**	**17**
Surplus/(shortage) at 92% utilization (Excluding potential FIDs)	*(0)*	*0*	*5*	*7*	*18*	*6*	*(17)*

Source: Morgan Stanley Research estimates

3. Wood Mackenzie

MS Global Oil and Gas Views

Powering AI: The Inferences (26 May 2025)

The European Gas Manual: Substantial Storage Refill Job Still Ahead This Summer (14 May 2025)

Future of Energy: Natural Gas: Fueling The Decade, Powered by AI (5 May 2025)

Global Gas & LNG: Fueling the Future (5 May 2025)

The Oil Manual: Weaker Balances Ahead after OPEC Hike (4 May 2025)

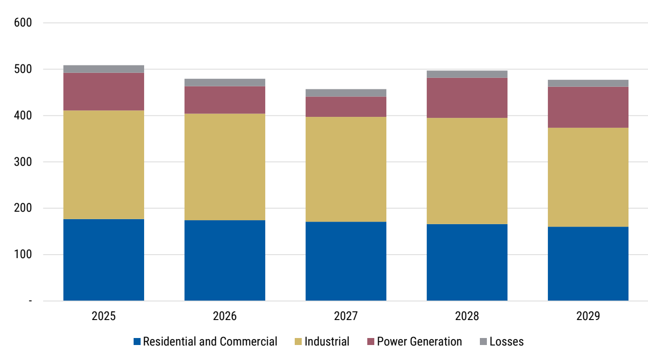
US Natural Gas: Pullback is Overdone (24 Apr 2025)

Australia's Domestic Gas Supply Gap?

East coast domestic demand: Under the "progressive change" scenario (Exhibit 8), the Australian Energy Market Operator (AEMO) forecasts relatively stable east coast gas demand to 2030, with tailwinds from economic growth and firming power, offset by electrification and energy efficiency. Premature exit of coal power generation could see a sharp rise in gas demand. East coast gas demand has historically declined at ~3% p.a. in the decade to 2024.

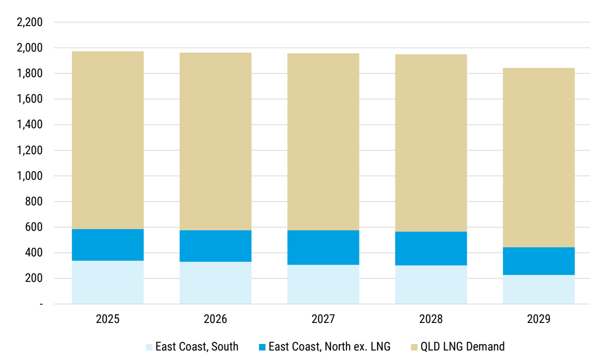
Uncontracted depletion: On the supply side (Exhibit 9), east coast gas production is in steady decline, particularly in the southern states (VIC, NSW, SA) where the Australian Energy Market Operator (AEMO) forecasts production declines of just over 30% over the next five years. AEMO forecasts southern state peak demand shortfall risk from 2028 (risk of insufficient gas in storage for a cold weather day), and a more meaningful energy supply gap of 10-40PJ pa between 2029 and 2032.

Exhibit 8: Australia East Coast Gas Demand ex. LNG (PJ)



Source: AEMO 2025 GSOO forecasts, Morgan Stanley Research

Exhibit 9: Australia East Coast Gas Production (PJ)



Source: AEMO 2025 GSOO forecasts, Morgan Stanley Research

Proposed solutions to meet the *potential* 2029-32 supply gap include:

- Sanctioning new production in southern markets, e.g., Narrabri in NSW;
- Diverting northern production from export, coupled with north-south pipeline expansions; and/or
- Construction of LNG import terminals.

In our view, there is no clear favorite amongst the scenarios, owing to policy, regulatory, and economic uncertainty. For example:

- The Narrabri Gas Project received NSW Independent Planning Commission (IPC) approval for up to 850 wells in 2020, and Native Title Tribunal upheld the NSW lease to Santos on 20 May 2025. Further regulatory approvals required before sanctioning include federal approval for the proposed Narrabri Lateral and Hunter Gas Pipelines;
- On 27 March 2025, the Federal Opposition proposed a policy to reserve 50-100PJ of northern market production that would have been sold to export markets and divert the gas to domestic markets. All but one industry channel check that we spoke to were not supportive of this proposal, citing sovereign risk concerns and pipeline constraints. APA has identified ~A$2b of capex required to expand its east coast grid to increase north-south flow capacity; and
- We are tracking four potential import terminal proposals, with the main pushback from potential buyers being the cost of purchasing LNG plus regasification costs. Australia's cabotage rules have also proved difficult for previous LNG import terminal proposals.

In Exhibit 10 , we present three scenarios for domestic gas supply-demand balances, and resultant prices. We use the mid (LNG netback) case as our base case.

Exhibit 10: Australia East Coast Gas Price Scenarios

Low (Production + pipeline costs)		
Field production cost	A$/GJ	5.00
Pipeline charges	A$/GJ	2.50
Gas price	**A$/GJ**	**7.50**

Mid (LNG netback)		
JKM price	US$/MMbtu	10.00
Freight cost	US$/MMbtu	(0.50)
FX	A$/US$	0.69
MMbtu/GJ		1.055
Gladstone FOB	A$/GJ	13.05
Liquefaction loss (5%)	A$/GJ	(0.62)
LNG plant marginal cost	A$/GJ	(0.04)
Gas price	**A$/GJ**	**12.39**

High (LNG import)		
JKM price	US$/MMbtu	10.00
Freight cost	US$/MMbtu	0.50
Regas cost	US$/MMbtu	1.50
FX	A$/US$	0.69
MMbtu/GJ		1.055
Gas price	**A$/GJ**	**16.48**

Sources: AEMO 2025 GSOO, ACCC LNG netback price series, Morgan Stanley Research. We estimate a demand destruction price of ~A$40/GJ, AEMO's administered price cap.

Key Debate #3: The Balance of Power – More Flat Demand vs. More Weather-Based Supply

Australia's Power System

Australia generated and consumed ~275TWh of electricity during FY24[4] , 211TWh of which was in the National Electricity Market, the east coast grid. Electricity is about ~24% of Australia final energy consumption, with the remainder being mostly fuel consumption for transport and heat.

At ~US$0.25/kWh for residential supply, Australia's power costs align with the median cost of power in developed markets (US: ~US$0.18/kWh, UK: ~US$0.35/kWh[5]), but persistent real increases in electricity costs have contributed to Australia's inflation rate as well as the cost of doing business/international competitiveness.

- In the decade ahead, we forecast national electricity market (NEM) demand growth of ~1% p.a. (vs. -0.3% p.a. in the prior decade), with a multipolar world underwriting key industries (e.g., aluminium smelting), as well as growth in data centres, and transport electrification.
- On the supply side, we highlight three plausible scenario bounds to 2030 (Exhibit 11): (1) **coal extension**, i.e., a continuation of the current fleet, (2) **acceleration of renewables and storage**, e.g., 82% by 2030 per Australia's current Nationally Determined Contribution[6] , and (3) **a blend of the two**, which is our current base case. The eventual outcome will be a hard-to-predict result of policies, engineering constraints, and cost.

Exhibit 11: Australia power system pathways

2030 scenario (288TWh)	Pool Prices	Renewables	Emissions
(1) Coal extension	A$120/MWh	40%	0.6tCO_2e/MWh
(2) Fast renewables & storage	A$100/MWh	80%	0.2tCO_2e/MWh
(3) Blend of (1) and (2)	A$100/MWh	60%	0.4tCO_2e/MWh

Source: Morgan Stanley Research estimates.

4. "Australian Energy Update 2024", Department of Climate Change, Energy, the Environment, and Water, August 2024.
5. Statista Research, 2025. Includes network charges, environmental charges, and taxes.
6. See the Australian Energy Market Operator's (AEMO) 2024 Integrated System Plan, "Progressive Change" and "Step Change" scenarios

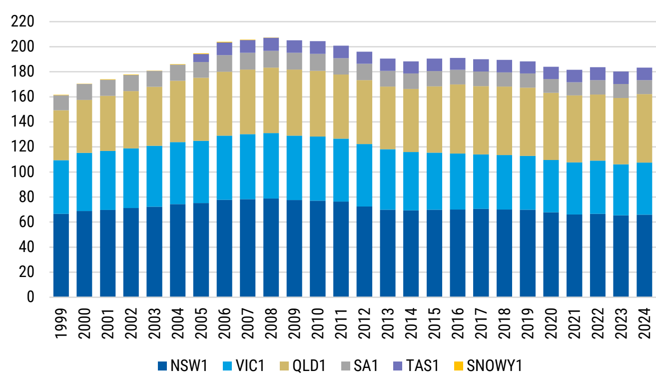
More Flat Demand

NEM electricity demand increased by 1.7% in 2024 YoY (+3.0% QLD, +2.2% VIC, +0.7% NSW, Exhibit 12), bucking a long-term trend of declines driven by energy efficiency and rooftop solar.

Data centres? We use our colleagues' data centre growth forecast, cross-calibrated to AEMO's metering data, to estimate that data centre load is ~1% of NEM generation in 2025, growing to 3% in 2030. Data centre load is more flat across a day vs. typical household or industrial users.

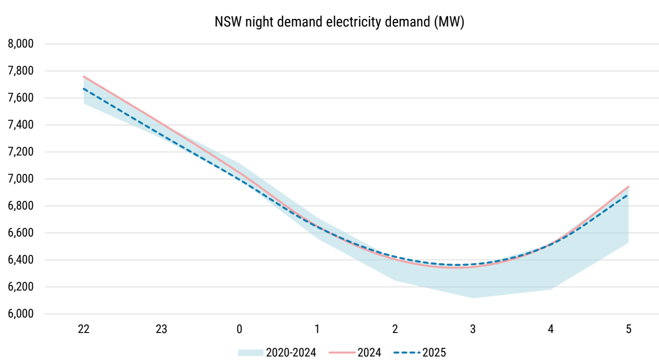
We look at NSW nighttime load to gauge data centre power demand (Exhibit 13), because most new data centres are in the NSW/ACT region and night time should be less influenced by weather effects, so this is where we anticipate seeing emerging evidence of growth in flat load. So far this year, NSW nighttime load is at the top end of the 5-year range, but flat YoY.

Exhibit 12: Australia: Electricity demand by state



Sources: Australian Energy Market Operator (AEMO), Morgan Stanley Research

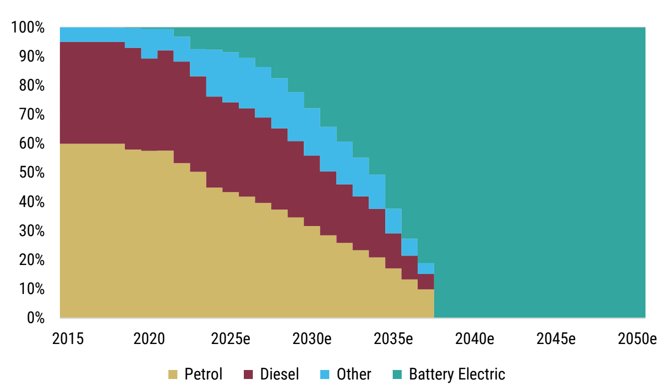
Exhibit 13: NSW nighttime load (MW) Jan-Apr 2020-2025



Sources: AEMO, Morgan Stanley Research

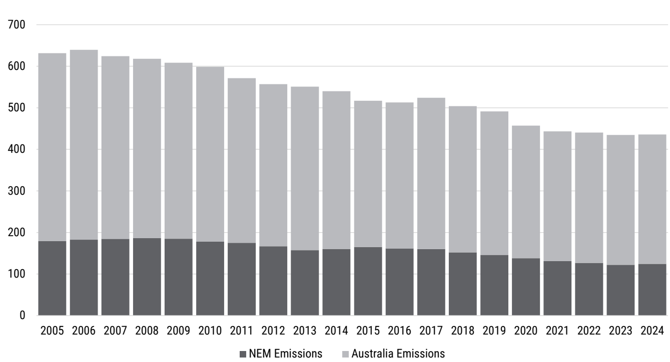
Electric vehicles? We forecast an additional ~2TWh (1%) of power demand from electric vehicles by 2030 (8% EV of total fleet, 28% of new car sales, Exhibit 14). Combined with the New Vehicle Efficiency Standard, we estimate Australia's passenger vehicle fuel consumption to fall by ~1.4% pa to 2030, with fewer internal combustion engine vehicles and better fuel efficiency.

Exhibit 14: Australia new passenger car sales, by fuel type



Sources: Federal Chamber of Automotive Industries, CarExpert, Bureau of Infrastructure and Transport Research Economics, e = Morgan Stanley Research estimates

Exhibit 15: Australia's National Greenhouse Accounts



Sources: Department of Climate Change, Energy, the Environment and Water, Morgan Stanley Research

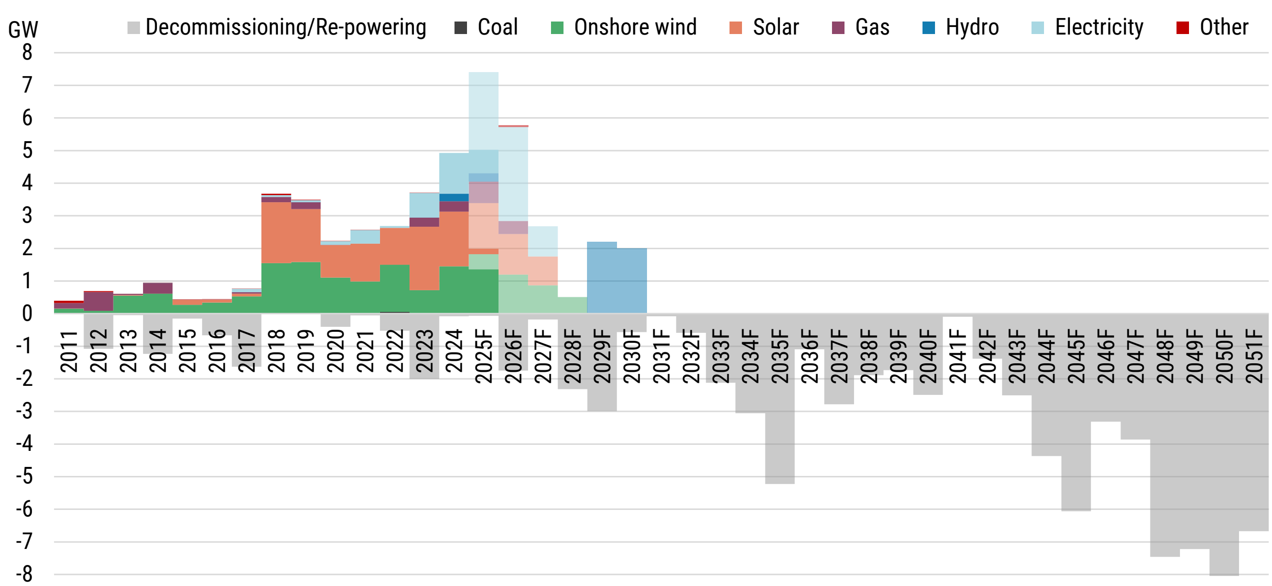
More Weather-Based Supply?

With a nuclear moratorium in Australia still a longer-term debate, we think the NEM will continue transitioning from a coal dominated system (~56% in 2024) in "stops and starts", likely with slippage from announced closure dates, to ensure reliability and security.

We attempt to track every commissioned plant and new development in the country, from public data sources (Exhibit 16). Over the next decade, we see supply constraints emerging with scheduled coal-fired power plant retirements. However, near term, we see a credible pipeline of new entrants offsetting retirements, and supplying new demand. Our proprietary new plant entrant estimate is 18GW (~2GW commissioned YTD, 5GW in 2024) vs. ~7GW of announced retirements to 2030.

As a rule of thumb, we would need to see 3GW of new entrants for every 1GW of retirements, owing to the differences in technologies. The majority of the new entrant power generation is weather dependent, i.e., onshore wind, and utility-scale solar, firmed up by utility-scale batteries. The retirements are typically coal plants and gas plants reaching the end of their useful lives, and these plants are more dispatchable, so historically they have required less firming.

Exhibit 16: NEM new entrants (by fuel source) vs. retirements/repowering



Sources: Company and media reports (e.g., RenewEconomy, Inframation), AEMO, Morgan Stanley Research estimates (F)

Behind the meter, the NEM has 22GW of rooftop solar installed and the Australian Government has announced incentives for household batteries, targeting +1m new installations by 2030 (Exhibit 17 shows the historical battery attachment rates to household solar installations). We see this quantity of behind-the-meter installation as material to wholesale markets, e.g., AGL and ORG target NEM battery investment of ~A $6b by 2030, targeting ~11% post-tax IRRs at least in the early years. We see the addition of household batteries as a material negative for the target returns of those gentailers .

Having said that, a major constraint on new entrant construction is access to transmission, with access to land, labour, and equipment leading to material time and cost over-runs for new transmission. For example, in 2020 the Australian Energy Regulator approved Project EnergyConnect, a 900km high voltage interconnector between SA and NSW, based on a cost of A$1.53b plus contingent projects, taking the cost to A$2.1b-2.4b. As of 8 January 2025, TransGrid (unlisted) estimates the net project cost at A$3.6b owing to Covid and other global supply chain impacts.

We anticipate that the multipolar world will drive re-shoring and energy security concerns, further tightening the supply of electrical equipment and labour. However, it is also possible that Australia's unique positioning and trade relationship with China could see deflationary pressures on some key inputs, notably solar panels and Chinese-made turbines.

Exhibit 17: Household battery installations as a percentage of rooftop solar installations

Year	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
2014	1%	1%	0%	0%	0%	0%	0%	1%	0%
2015	0%	0%	0%	0%	0%	0%	1%	0%	0%
2016	10%	2%	0%	1%	1%	1%	1%	0%	1%
2017	11%	4%	1%	2%	3%	4%	3%	1%	3%
2018	10%	3%	0%	2%	3%	6%	3%	1%	3%
2019	9%	2%	1%	4%	8%	3%	2%	1%	3%
2020	7%	2%	5%	1%	10%	3%	2%	2%	3%
2021	8%	2%	20%	2%	10%	3%	4%	3%	3%
2022	13%	4%	39%	4%	16%	6%	9%	7%	7%
2023	9%	6%	42%	6%	18%	7%	9%	8%	8%
2024	14%	8%	45%	6%	24%	7%	10%	11%	10%
2025YTD	22%	17%	68%	8%	33%	11%	13%	10%	15%
Cumulative	**10%**	**4%**	**12%**	**3%**	**11%**	**4%**	**5%**	**4%**	**5%**

Sources: Clean Energy Regulator, Morgan Stanley Research.

Exhibit 18: Federation of Emissions Reduction Targets

National/Party	2005a	2020a	2025e	2030e	2035e	2050e	Mechanism
Australia's COP27 NDC (Labor)	624.2			-43%		-100%	Climate Change Act 2022
Australia's COP21 NDC (Ex-Liberal)	624.2			-26-28%		-100%	Safeguard Mechanism, Emissions Reduction Fund
State/Territory							
Queensland	190.6	-19.0%		-30%	-75%	-100%	Queensland Climate Action Plan
New South Wales	166.4	-20.4%		-50%	-70%	-100%	Net Zero Plan Stage 1: 2005-2030
Australian Capital Territory	1.4	-20.9%	-61%	-74%	-81%	-100%	ACT Climate Change Strategy (vs. 1990). Net zero by 2045
Victoria	121.4	-29.8%	-31%	-48%	-78%	-100%	Victorian Climate Change Act 2017. Net zero by 2045
South Australia	35.6	-31.1%		-60%	-70%	-100%	Climate Change Action Plan 2021-2025 - Currently reviewing the Climate Change Act 2007
Tasmania	19.3	-127.8%		-100%	-100%	-100%	Draft Climate Change Action Plan 2023-25
Northern Territory	14.1	36.2%				-100%	Climate Change Response
Western Australia	76.0	4.5%		-78%	-84%	-100%	Western Australian Climate Policy (-80% below 2020 levels)
Total/Average	**624.2**	**-21.5%**		**-48%**	**-74%**	**-100%**	

Sources: Government websites, National Greenhouse Gas Inventory, Department of Industry, Science, Energy and Resources, Morgan Stanley Research estimates

Financing the renewable energy transition

Australia targets a 43% reduction in greenhouse emissions by 2030 vs. a 2005 baseline, which is legislated in the *Climate Change Act* 2022. In Exhibit 18 , we set out Australia's emission reduction targets by state and territory, which also work in parallel with renewables targets in most jurisdictions. We see policy debate around the science of and ambition towards net zero as a negative for utility investment.

Established in August 2012 under the *Clean Energy Finance Corporation Act* 2012, the **Clean Energy Finance Corporation (CEFC)** provides concessional finance to "climate-benefiting technologies in Australia". As at January 2025, the CEFC has deployed ~A$18b of A$32.5b total investment capacity[7] , in more than 380 transactions. Recent CEFC financed projects include the 440MW Neoen Culcairn Solar Farm (NSW) and 341MW/4hr Collie Battery Stage 2 (WA).

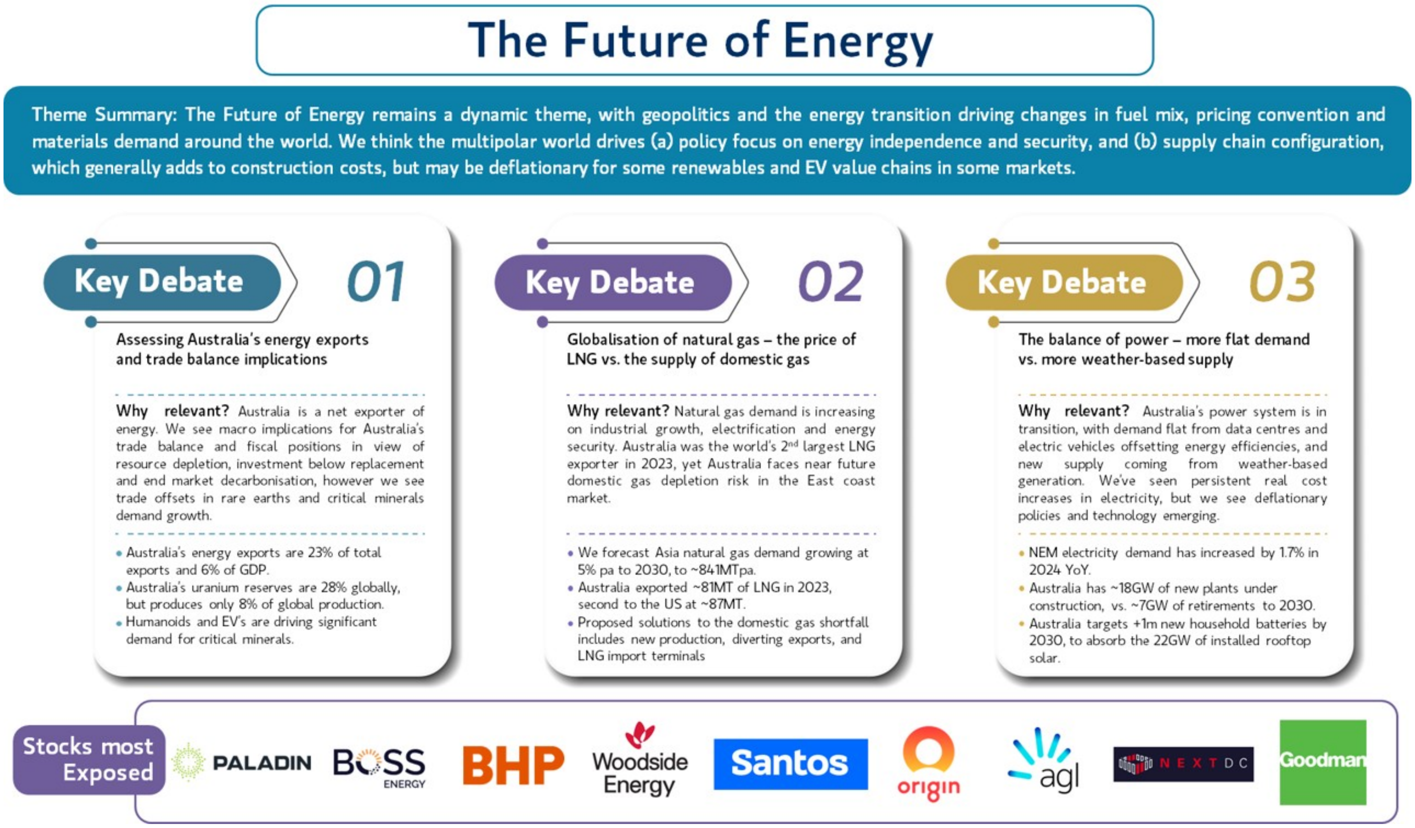
Established in July 2012 as an Australian Government agency, the **Australian Renewable Energy Agency (ARENA)** provides financial assistance and knowledge to incentivise innovation in renewable energy supply and electrification. Since inception, ARENA has supported ~663 projects with ~A$3b in grant funding out of A$12b to deploy[8] . ARENA funding rounds in FY24 included the Hydrogen Headstart Round 1 (A$2b) and Sustainable Aviation Fuel Funding (A$30m).

7. https://www.pm.gov.au/media/albanese-government-builds-australias-future-new-investment-clean-energy-finance-corporation

8. https://arena.gov.au/arena-at-a-glance/

Key Debates and Key Exposure Summary

Exhibit 19: The Future of Energy



Source: Morgan Stanley Research

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(as of May 31, 2025)

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Equal-weight/Hold	1650	44%	372	45%	23%	782	46%
Not-Rated/Hold	4	0%	0	0%	0%	2	0%
Underweight/Sell	602	16%	74	9%	12%	235	14%
Total	3,749		825			1717	

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COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/23/2025)
Rob Koh		
Ampol Ltd (ALD.AX)	O (03/17/2025)	A$25.87
Beach Energy Ltd (BPT.AX)	U (08/13/2024)	A$1.37
Karoon Energy Ltd (KAR.AX)	E (04/24/2024)	A$2.09
Santos (STO.AX)	O (08/21/2024)	A$7.78
Viva Energy Group Ltd (VEA.AX)	E (10/03/2022)	A$2.16
Woodside Energy Group Ltd (WDS.AX)	E (08/27/2024)	A$25.85

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* Historical prices are not split adjusted.

INDUSTRY COVERAGE: Australia Utilities & Infrastructure

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/23/2025)
Rob Koh		
AGL Energy Ltd (AGL.AX)	E (03/05/2025)	A$9.97
APA Group (APA.AX)	E (10/25/2023)	A$8.67
Atlas Arteria (ALX.AX)	E (07/20/2022)	A$5.37
Auckland International Airport Ltd (AIA.NZ)	E (02/23/2023)	NZ$7.80
Aurizon Holdings (AZJ.AX)	U (03/17/2025)	A$3.03
Cleanaway Waste Management Limited (CWY.AX)	O (01/14/2022)	A$2.74
Origin Energy Ltd. (ORG.AX)	U (08/15/2024)	A$10.99
Qube Holdings (QUB.AX)	E (06/09/2016)	A$4.23
Transurban Group (TCL.AX)	E (10/18/2021)	A$14.41

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* Historical prices are not split adjusted.

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COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/20/2025)
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BHP Group Ltd (BHPB.L)	O (09/19/2024)	1,722p
BHP Group Ltd (BHGJ.J)	O (09/19/2024)	ZAc 41,849
BHP Group Ltd (BHP.AX)	O (09/19/2024)	A$35.64
Deterra Royalties Ltd (DRR.AX)	E (06/21/2024)	A$3.60
Evolution Mining (EVN.AX)	U (04/09/2025)	A$7.62
Fortescue Metals Group Ltd. (FMG.AX)	O (04/09/2025)	A$14.54
IGO Ltd (IGO.AX)	E (04/09/2025)	A$3.87
Iluka Resources Ltd (ILU.AX)	O (05/22/2025)	A$3.42
Mineral Resources Limited (MIN.AX)	O (05/01/2024)	A$20.48
Northern Star Resources (NST.AX)	O (04/09/2025)	A$19.88
Pilbara Minerals Ltd (PLS.AX)	O (12/16/2024)	A$1.21
Rio Tinto Limited (RIO.AX)	E (04/09/2025)	A$101.83
Sandfire Resources Ltd (SFR.AX)	U (12/16/2024)	A$11.04
South32 Ltd (S32.AX)	O (12/16/2024)	A$2.85
South32 Ltd (S32J.J)	O (12/16/2024)	ZAc 3,341
Whitehaven Coal Ltd (WHC.AX)	O (03/27/2018)	A$5.57
Shannon J Sinha		
29Metals Ltd (29M.AX)	E (10/24/2024)	A$0.24
Boss Energy Ltd (BOE.AX)	E (04/06/2024)	A$4.34
Lynas Rare Earths (LYC.AX)	O (05/22/2025)	A$9.13
Nickel Industries (NIC.AX)	E (04/09/2025)	A$0.70
Paladin Energy Ltd (PDN.AX)	O (04/06/2024)	A$7.42
Regis Resources (RRL.AX)	E (10/24/2024)	A$4.64
Syrah Resources (SYR.AX)	E (11/01/2024)	A$0.25

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.

INDUSTRY COVERAGE: Australia Financials

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/23/2025)
Andrei Stadnik, FIAA		
AMP Ltd (AMP.AX)	O (08/08/2024)	A$1.21

ASX Limited (ASX.AX)	U (01/27/2025)	A$68.55
AUB Group Ltd (AUB.AX)	O (07/10/2023)	A$35.29
Challenger Limited (CGF.AX)	E (01/31/2019)	A$7.83
Computershare Limited (CPU.AX)	E (09/19/2024)	A$39.35
GQG Partners Inc (GQG.AX)	O (10/18/2022)	A$1.95
Insignia Financial Ltd (IFL.AX)	E (01/07/2025)	A$3.51
Insurance Australia (IAG.AX)	E (01/19/2023)	A$9.06
Macquarie Group Limited (MQG.AX)	E (04/11/2025)	A$209.43
Magellan Financial (MFG.AX)	U (06/27/2019)	A$8.09
Perpetual Ltd. (PPT.AX)	E (07/29/2024)	A$17.08
QBE Insurance Group (QBE.AX)	O (02/26/2015)	A$23.47
Steadfast Group (SDF.AX)	O (12/02/2024)	A$5.97
Suncorp Group Ltd (SUN.AX)	O (01/19/2023)	A$21.44
Richard E Wiles		
ANZ Group Holdings Limited (ANZ.AX)	E (01/10/2025)	A$28.21
Bank of Queensland (BOQ.AX)	E (04/16/2025)	A$7.80
Bendigo and Adelaide Bank Limited (BEN.AX)	E (08/27/2024)	A$12.52
Commonwealth Bk Aust (CBA.AX)	U (08/31/2016)	A$184.35
Judo Capital Holdings Ltd (JDO.AX)	O (08/20/2024)	A$1.50
Nat Aust Bank (NAB.AX)	E (03/20/2025)	A$38.88
Westpac Banking (WBC.AX)	U (01/10/2025)	A$33.42
Sally Hong, CFA		
Latitude Group Holdings Ltd (LFS.AX)	E (02/27/2025)	A$1.13

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